



STEM BY THE NUMBERS

Equity and Opportunity in Washington's Regions



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EXECUTIVE SUMMARY

PATHWAYS TO FAMILY SUSTAINING JOBS, AN EQUITY AND ECONOMIC IMPERATIVE

Washington state imports many highly-skilled, credentialed workers for its booming industries, especially for jobs related to science, technology, engineering, and math (STEM) fields. Meanwhile, local students, especially students from low-income households, students living in rural areas, young women, and students of color,¹ face systemic barriers in successfully competing for the jobs that pay family-sustaining wages in the regions in which they live. **This report provides relevant and responsive measurement of key indicators for regional decision-makers about educational needs and economic opportunities in each region across Washington State in order to increase the number of locally-originating students² who are prepared for family-sustaining,³ in-demand⁴ jobs that will also satisfy local employer needs.**

By using multiple data sources, this research and the report's findings build on previous work done by the Washington Student Achievement Council (WSAC, 2013) and the Washington Roundtable (Washington Roundtable, Boston Consulting Group, Partnership for Learning, n.d.), among many others, to understand Washington's job demand and educational attainment supply gaps. It provides specific supply-demand findings at a region-by-region level through innovative data analysis approaches, starting with identification of current educational data trends in each region across Washington state that need to be addressed to prepare students to enroll in a postsecondary education credential. It then identifies how many more students in each region need to complete a credential to fill the *regional, in-demand jobs* that also *pay a family-sustaining wages*. Finally, it identifies the in-demand, family-sustaining wage jobs that do not have adequate training opportunities in a given region by examining public postsecondary program options within the region.

¹ Underserved students of color are defined as Latinx, African American/Black, American Indian/Alaskan Native, Native Hawaiian/Other Pacific Islander students.

² Washington locally-originating students are defined as those belonging to an adjusted five-year cohort within the state of Washington (see footnote 7 for the definition of an adjusted five-year cohort). In this report we also refer to students who are locally-originating *within a particular region*; students are transferred in the data to a different region if they moved to a new region within Washington. A region's "locally-originating" cohort would include students who transferred into the region's schools during their high school years; likewise, students are removed from a cohort if they transferred out of the region.

³ A family-sustaining job has been defined as one paying a wage above the amount required to support a household with two adults (one working full time, one part time) and one child. The MIT Living Wage Calculator was used to determine regional cost of living: <http://livingwage.mit.edu>, retrieved December 2018.

⁴ The Washington State Employment Security Department (ESD) defines jobs in-demand as those where "job seekers have a greater probability of finding work within an occupation." See <https://esd.wa.gov/labormarketinfo/LAAO> for more information about how demand is calculated by ESD.

Each year, many more students in each region will need to obtain education beyond high school to obtain family-sustaining, in-demand jobs. These jobs exist for students who have obtained postsecondary education including apprenticeship training, postsecondary certificates, and college degrees. However, students, and especially low-income students and underserved students of color, are not as prepared for or on track to take advantage of these opportunities. In fact, we estimate that each year Washington needs to support 2,650 more students to earn postsecondary credentials to meet statewide educational attainment goals. While the overall adult population in Washington is relatively well-educated (United States Census Bureau, 2015) and many family-sustaining-wage jobs continue to be open and available to appropriately trained adults, too many local students find that the education needed to obtain those careers are just an *opportunity mirage*.

STATEWIDE PERSPECTIVE

Current projections show a statewide postsecondary-credentialed⁵ local talent gap of approximately 60,000⁶ by 2026. In other words, only 34,171 students of the 80,678 in the 2021 five-year adjusted high school cohort (i.e., entered ninth grade in 2017)⁷ are currently projected to earn a postsecondary credential within eight years (2030) of their expected high school graduation, while, by that same year, there will be approximately 94,544 open/available family-sustaining jobs that require such a credential.⁸ Presumably, most of these jobs will be filled by individuals who were educated outside of Washington

⁵ Credentials include any postsecondary education degree or certificate beyond a high school diploma, including apprenticeship completions and professional licenses. For a detailed list of what is considered such a credential, see: <https://erdc.wa.gov/sites/default/files/publications/201507.pdf>.

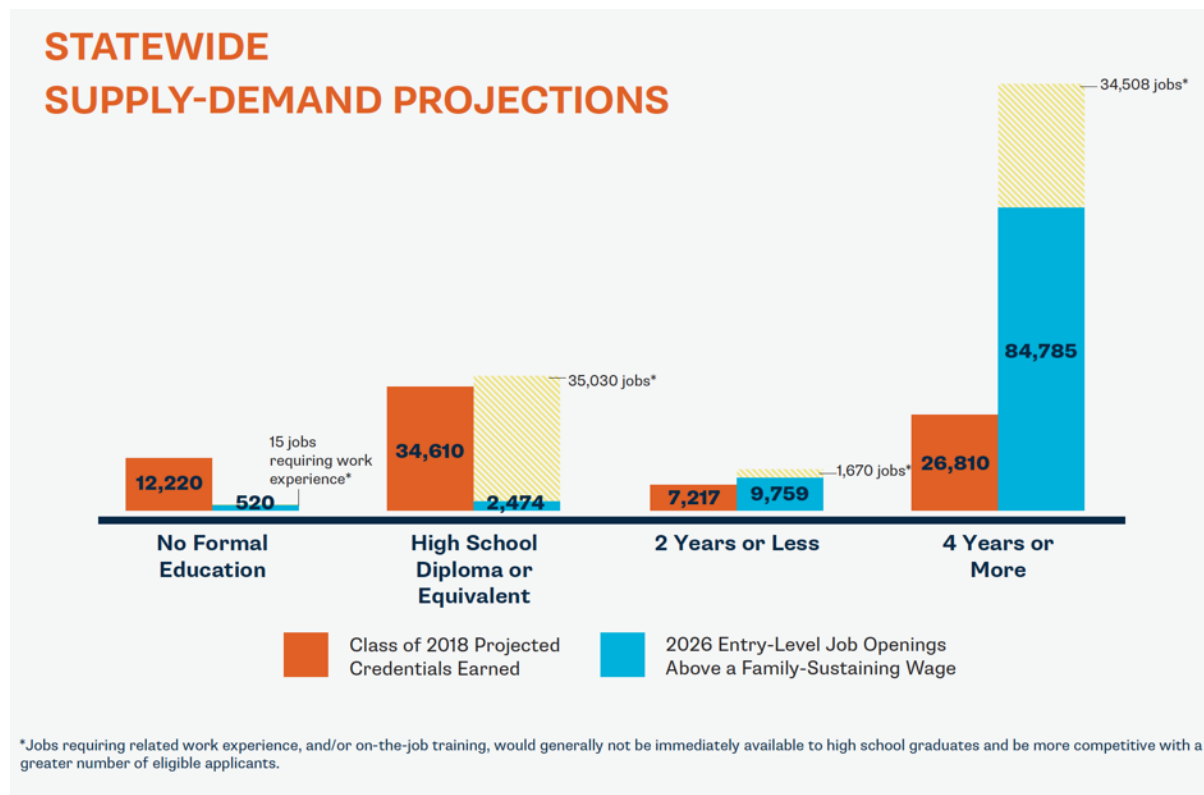
⁶ A previous report published by Washington STEM, *STEM by the Numbers: Equity and Opportunity*, reports a local credential gap of 25,000 individuals based upon the “replacement” method of job projections provided by the Washington State Employment Security Department (ESD), a projections series which has since been discontinued. For the purposes of this report, the 2018 separations method job projections are used. The replacement method projected openings generated when a person changes occupation or exits the workforce and is replaced by a person of a different age cohort, while the separations method does not account for age. It was determined the additional variables in the replacements method resulted in a less reliable projection, and it was therefore discontinued by the ESD, so we use the new projection numbers in this report.

⁷ An adjusted five-year cohort is calculated as the total number of students identified in ninth grade as belonging to this high school graduating class, who are reported after the fact as graduating (within one year of their originally expected graduation year. For example, the adjusted five-year cohort for 2015 are students who upon entering ninth grade were expected to graduate in 2015. It includes students who dropped out during or after ninth grade, transferred in or out during or after ninth grade, or graduated one year later than expected (in 2016).

⁸ Authors’ estimates calculated from 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx), 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, BLS Education and Training: <https://www.bls.gov/emp/documentation/education-training-system.htm>, retrieved December 2018. Researchers emailed staff at the Employment Security Department and requested the 2018 supplemental update to the WA ESD Occupational Employment and Wage Estimates and received the file by email in August 2018. For a detailed explanation of how we arrived at these numbers see the Methods section of this report.

state, given the talent gap estimated in the above calculations and given that some employers might choose to look outside of the state or country to find the workers they need.

Figure 1: Washington State Projected 2026⁹ Supply-Demand for Family-Sustaining Jobs vs. Credentials Obtained by Class of 2018 Locally Originating Students



Meanwhile, among the high school cohort of 2018, it is projected that 46,507 will not obtain a postsecondary credential and will, at the same time, be competing for a projected 2,994 entry-level jobs that provide a family-sustaining wage without needing such a credential.¹⁰ Much of this group will thus have to settle for lower-paying and often less secure jobs. As a state, we need to do a better job of preparing students to be competitive for the types of jobs that exist and that pay enough to sustain a family. That means, as a state, we need to prioritize continuing to increase high school graduation rates and, crucially, increasing the rates at which graduates achieve postsecondary credentials with labor market value.

⁹ The class of 2018 will have completed credentials by 2026 and be ready to enter the workforce.

¹⁰ Authors' estimates calculated from: 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx), 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018. See Methods section.

Obtaining a family-sustaining, in-demand job starts with attaining the required level of education. Across the country, over 95 percent of jobs created during the recovery from the Great Recession of 2008-2009 have gone to workers with at least some college education (Carnevale, 2016). While jobs are back, they are not the same jobs as those lost during the recession. The Great Recession decimated low-skill, blue-collar, and clerical jobs, whereas the recovery added primarily high-skill managerial and professional jobs—those requiring a postsecondary credential (Carnevale, 2016; Career Connect Washington Task Force, 2018).

The reality is that the majority of Washington residents left behind in this education “race” are low-income and historically underrepresented people of color (United States Census Bureau, 2016). In every one of the K-16 indicators examined for this report, underserved students of color and low-income students fall behind, often seriously. Equity gaps are already pronounced for Kindergarten math readiness assessment and extend to postsecondary credential completion rates. Our state has an opportunity to better support underserved students of color, students from low-income and rural backgrounds, and young women by removing systemic gaps to their educational access to high-demand credentials and family-sustaining careers. By prioritizing those student populations in policymaking, we ensure that all of our state’s residents have equitable access to opportunity, and we are securing our state’s economic future.

In fact, even while they are importing large numbers of educated and STEM-literate workers, Washington employers are still unable to fill many open positions. In every region of Washington, large numbers of jobs requiring postsecondary credentials (especially at the baccalaureate level) are going unfilled, as this report will explain. Unless substantial strides are made to fill these gaps, companies will move elsewhere, jobs will be filled by continued, costly importation of workers (who tend to have higher turnover than natives, which adds to employer costs), and the equity gap will grow, to the disadvantage of people originating from the state. Better preparing Washington students to compete in the new economy is thus an equity AND an economic imperative.

A number of statewide initiatives and reports have laid the groundwork to identify and quantify the scope of this problem, and state leaders have come together to create overarching goals for postsecondary education.

- In 2019, Washington State passed legislation (ESSHB 2158)¹¹ that recognized a statewide goal of 70 percent credential attainment and set forth funding for numerous programs and financial aid to reach this goal, including the Washington College Grant and career connected learning.

¹¹ See Washington State Bill Information for Engrossed Second Substitute House Bill 2158, section 1, which outlines the 70 percent goal in contrast to the roughly 40 percent of current Washington-originating students who earn credentials: <http://lawfilesexternal.wa.gov/biennium/2019-20/Pdf/Bills/Session%20Laws/House/2158-S2.SL.pdf>

- The Washington Student Achievement Council (WSAC) goal is that that by 2023 all adults in Washington, ages 25-44, will have a high school diploma or equivalent AND at least 70 percent of Washington adults, ages 25-44, will have a postsecondary credential (WSAC, 2016).
- The Washington Roundtable¹² has a goal that 70 percent of students from the high school class of 2030 will obtain a postsecondary credential by age 26, eight years after high school graduation (WA Kids for WA Jobs, 2016).
- The Washington STEM goal is that by the high school class of 2030 all students will be future-ready and that Washington STEM and statewide partners will triple the number of students of color, students from low-income and rural families, and young women who are on track to earn high-demand credentials and enter family-sustaining careers in the state.

Taken together, these goals address the economic and equity imperatives that will allow Washington to thrive moving into the next decades.

A REGIONAL PERSPECTIVE

Big statewide goals often reflect numbers that are hard to make accountable or achievable at the ground level. Targets at the local level reflecting a smaller-scale, regional approach make numbers more real to local decision-makers and point to loci (institutions and programs such as school districts, colleges, and economic development districts) where powerful but realistic changes can be made (Katz & Nowak, 2018; Jobs for the Future, n.d.). Some regions may appear to have a lot of educational opportunities, but actually have relatively few compared to both student demand and labor market demand once the numbers are compiled. We have termed these areas “opportunity mirages.” Other areas are truly “education deserts” where students face a lack of access to postsecondary education (Hillman & Weichman, 2016). Focusing regionally allows local leaders to address these issues.

In addition, a regional approach makes sense since we know that most students stay local for higher education. The large majority, 70-80 percent nationally, stay within 100 miles of their family’s home address for higher education (Eagan et al., 2016). Even most students who enroll directly in a four-year college after high school (55 percent) stay within 100 miles of their home address for higher education. Nationally, about 90 percent of adult returners or students who enroll in community or technical colleges are from the immediate local area. Students of color and low-income students are even more likely to stay local for postsecondary education (Eagan, et al. 2016). In previous research, authors of this report analyzed data for King, Pierce, and Snohomish counties for students who graduated from high school in 2010 through 2014. That study found that 60 percent of students who enroll in a two-year or four-year college directly out of high school stay in King, Pierce, or Snohomish counties for college (Myers Twitchell, et al., 2017).

¹² The Washington Roundtable is a nonprofit organization comprised of senior executives of major private sector employers in Washington state. Its members work together to effect positive change on public policy issues that they believe are most important to supporting state economic vitality and fostering opportunity for all Washingtonians. <https://www.waroundtable.com/>

Finally, a regional approach is warranted as each of the regions in Washington has fundamentally different educational and economic contexts with differing problems and solutions in each. We believe local leaders are best able to create the smart, innovative, and potentially disruptive changes needed to substantially move the needle on educational opportunity that matches job market needs.

RESEARCH QUESTIONS

Given this regional perspective, this report seeks to answer three main research questions:

What is the current credential gap in each of 11 Washington regions that would need to be eliminated to contribute to the 70 percent statewide goal?

What are the student indicators outcomes that lead students in each region to fall behind in their pursuit of postsecondary credentials and family-sustaining jobs?

Are there sufficient training programs and capacity in each region that lead to local, high-demand, family-sustaining jobs? Where do training program gaps exist?

METHODS, DATA SOURCES, AND DATA ELEMENTS

To begin to answer our research questions we consulted a number of publicly available data sources and made an additional request for longitudinal student unit level records to the state Education Research and Data Center (ERDC).

After our initial curation and analysis of the information, we worked with cross-sector leaders from each region of the state to uncover data inconsistencies, to source new data, and to ensure that our approach to the analysis did not conceal or obscure the data. We sought input on analysis approaches from higher education, K-12, and workforce development professionals in each region who are familiar with at least some of the data we worked with and who could confirm assumptions we made and review formulae we used. We presented early versions of the findings at regional convenings in all 11 regions over an eight-month period and improved our approaches and methodologies after each conversation.

In order to project the statewide and regional estimated credentials earned, we began with historical data on how many high school graduates from the class of 2009 earned a credential within eight years of graduation (about 46 percent; ERDC, 2019¹³). However, we know that not all students make it to high school graduation, so considering all students who began in the ninth-grade adjusted cohort and who were assigned to the graduation year 2009,¹⁴ just 36.5 percent of the cohort earned a postsecondary credential within eight years of graduation. To project postsecondary credential attainment, we increased the credential attainment rate annually in relation to enrollment rates in two- or four-year

¹³ Education Research & Data Center (ERDC) High School Graduate Outcomes, retrieved from: <https://erdc.wa.gov/data-dashboards/high-school-graduate-outcomes>

¹⁴ Washington State Office of Superintendent of Public Instruction (OSPI) 2007 data files, Graduation rate by district, retrieved from: http://reportcard.ospi.k12.wa.us/Reports/2007/1_3_Graduation_Rates_by_District.xls

institutions (by four-tenths of a percentage point for two-year enrollees and 1.3 percent for four-year enrollees), based on historical trend data (ERDC, 2019¹⁵). To project credential attainment rates beyond 2016, the most recent available enrollment rate data, we increased the credential attainment rate of the cohort (by fifty-five-hundredths of a percentage point) each year based on our estimated historical trend. We also adjusted the cohort numbers to reflect projected growth in high school enrollment.¹⁶ We used this method to project forward to the 2030 high school cohort (those who will be expected to have earned a credential within eight years of expected high school graduation, i.e., by 2038). We then calculated the gap between the projected number, if outcomes were not changed, and each region-specific goal needed to reach the Washington state goal of 70 percent.

In January 2019, the Education Research & Data Center released their updated High School Feedback Report, retitled “High School Graduate Outcomes,”¹⁷ which resulted in updated calculations for projected credentials earned. The example below illustrates how a trend was extrapolated to determine an expected 41.1 percent credential attainment for the 2018 cohort.

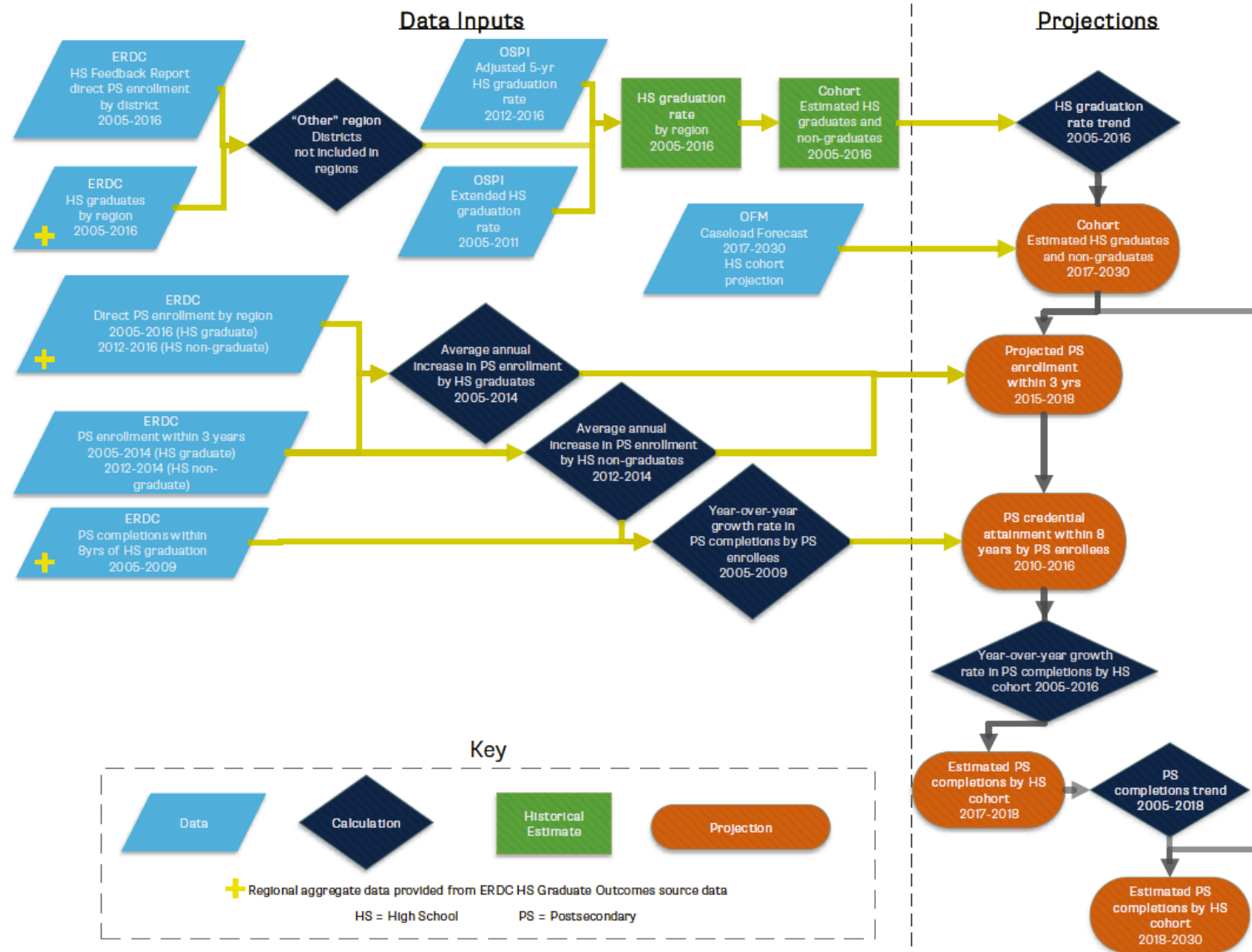
- The 2005 five-year adjusted cohort saw a 79.3 percent graduation rate.
- Forty-two (42) percent of 2005 high school graduates (33.8 percent of the cohort) received a credential within eight years.
- Of 2009 high school graduates, 71 percent enrolled within three years of high school graduation.
- Forty-six (46) percent of 2009 high school graduates (36.5 percent of the cohort) received a credential within eight years.
- Credential completions by enrolled high school graduates was 35.6 percent at two-year institutions and 90.9 percent at four-year institutions for the class of 2009, an average annual increase of 0.4 percent and 1.3 percentage points each year between 2005 and 2009.
- Assuming the completions-by-enrollees trend continued through 2016, we estimate, for the class of 2016, 74.2 percent of high school graduates will enroll within three years of graduation and earn a credential within eight years.
- We can estimate, on average, students who do not graduate on time enroll at a rate of 29 percent and 1.5 percent in two- and four-year institutions respectively. Overall, 5.9 percent of those two-year enrollees and 55.6 percent of four-year enrollees earn a credential, based on historical data for the classes of 2012 and 2013.
- Based on the above assumptions for the class of 2016, we estimate a 0.55 percentage point increase in the rate of credentials earned by each high school cohort from 2005 to 2016.
- If this trend continues, we expect 41.1 percent of the 2018 cohort to earn a credential by 2026.

¹⁵ Education Research & Data Center (ERDC) High School Graduate Outcomes: <https://erdc.wa.gov/data-dashboards/high-school-graduate-outcomes>

¹⁶ High school enrollment growth projections provided by the Washington State Caseload Forecast Council, retrieved from: https://www.cfc.wa.gov/Education_Common_Schools_LONG.htm

¹⁷ Education Research & Data Center (ERDC) High School Graduate Outcomes, retrieved from: <https://erdc.wa.gov/data-dashboards/high-school-graduate-outcomes>

Figure 2: Methodology and Sources for Regionalized Postsecondary Credential Completion Projections Calculations



Regional credential totals are based on the statewide assumptions, outlined above, and adjusted by:

- 1) Current regional high school cohort graduation rates, provided by the Washington State Office of Superintendent of Public Instruction (OSPI);¹⁸
- 2) Current regional direct enrollment in postsecondary institutions, provided by ERDC's high school feedback reports;
- 3) Current regional enrollment in postsecondary institutions within three years, provided by ERDC;
- 4) Current regional credential completions within eight years of high school graduation, provided by ERDC; and,
- 5) Projected high school cohorts are calculated using the Washington State common school's enrollment forecast¹⁹ distributed regionally using the OSPI 2015 high school cohorts by school district²⁰ and projected county population growth rates according to the Washington State Office of Financial Management's official population estimates.²¹

While our findings support a statewide goal of 70 percent postsecondary credential attainment as a target rate among K-12 originators, our projections for the credentials needed reflect that some regions (central Puget Sound, in particular) have even higher credential requirements than the state average in order for individuals to obtain family-sustaining jobs, while in other regions (e.g. some rural areas of the state), the labor market does not demand such high rates of credential completion to obtain family-sustaining jobs (taking account of local cost of living variations). In addition, while the state adjusted five-year high school graduation rate hovers just over 80 percent as of 2018, some regions have considerably lower rates, making the overall 2030 postsecondary credential goal significantly more difficult for them to reach as they have a much larger current gap. Therefore, with input from local leaders, we have adjusted projected credential attainment needs for some regions based on current educational attainment rates and a realistic year-to-year increase rate from current high school graduation rates²² and labor market demand,²³ matched with the current education and training needed to obtain an in-demand occupation.²⁴ For example, the North Central Region credential attainment goal has been set at 64.9 percent.

¹⁸ Washington State Office of Superintendent of Public Instruction (OSPI) Graduation Rates retrieved from:

<http://www.k12.wa.us/DataAdmin/PerformanceIndicators/GraduationRates.aspx>

¹⁹ Provided by the Washington State Caseload Forecast Council, "Common Schools Education Long Range Projections," retrieved from: https://www.cfc.wa.gov/Education_Common_Schools_Enrollment.htm

²⁰ OSPI "2014-2015 Graduation Rates by School 5Yr Cohort," retrieved from:

<http://reportcard.ospi.k12.wa.us/DataDownload.aspx>

²¹ Office of Financial Management, retrieved from: <https://www.ofm.wa.gov/washington-data-research/population-demographics/population-estimates/april-1-official-population-estimates>

²² OSPI "Dropout and Graduation Reports", retrieved from: <http://www.k12.wa.us/DataAdmin/Dropout-Grad.aspx>

²³ Retrieved from: 2018 WA ESD Separations:

[https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx)

²⁴ Retrieved from: Bureau of Labor Statistics (BLS) BLS Education and Training:

<https://www.bls.gov/emp/documentation/education-training-system.htm>

Figure 3: Regional Credential Attainment Goals for 2030²⁵

| | 2018 Cohort Estimated Credential Attainment | 2030 Cohort Estimated Student Headcount | 2030 Credential Attainment Goal | Average Annual Increase Needed to meet 2030 Goal | Annual Increase to Meet 2030 Goal |
|------------------|---|---|---------------------------------|--|-----------------------------------|
| Eastern | 6,487 | 7,363 | 4,668 | 208 | 2.5% |
| King County | 20,189 | 22,913 | 19,224 | 666 | 2.4% |
| North Central | 3,049 | 3,461 | 2,246 | 97 | 2.4% |
| North Olympic | 4,698 | 5,331 | 3,732 | 162 | 2.7% |
| Northwest | 4,149 | 4,708 | 3,282 | 151 | 2.9% |
| Pierce County | 8,062 | 9,150 | 5,993 | 241 | 2.3% |
| Snohomish County | 8,123 | 9,218 | 6,620 | 288 | 2.7% |
| South Central | 4,313 | 4,895 | 2,780 | 126 | 2.3% |
| Pacific Mountain | 5,274 | 5,985 | 3,771 | 166 | 2.4% |
| Southeast | 5,456 | 6,192 | 3,928 | 202 | 3.0% |
| Southwest | 7,917 | 8,985 | 5,894 | 295 | 3.0% |
| Statewide* | 82,856 | 94,035 | 65,824 | 2,650 | 2.4% |

*Includes suppressed schools with <10 students, alternative schools with >50% out of district, institutions, re-engagement schools, and tribal schools

²⁵ Goals were updated in January 2019, calculated using the Washington State Caseload Forecast Council's "Common Schools Education Long Range Projections" (footnote 19) and OSPI 2015 five-year adjusted cohort by district (footnote 20) to project ninth-grade cohort sizes for each school district through 2030. OSPI's 2015 adjusted five-year cohort graduation rates (footnote 20) and ERDC's postsecondary direct enrollment rates (footnote 17) are used to generate a current estimated credential attainment rate by school district. Regional goals are then adjusted based on current estimates and projected credentials required, and family wage job openings within each region. Combined, these regional goals meet the statewide goal of 70 percent credential attainment by the class of 2030.

We relied on Washington Employment Security Department projections for information on occupation employment changes, in-demand jobs, and average regional wages for jobs. We relied on U.S. Bureau of Labor Statistics (BLS) occupational projections and worker characteristics data²⁶ to provide such data as typical entry-level education needed for particular jobs, work experience needed in a related occupation, and typical on-the-job training needed to attain competency in the occupation, including apprenticeship training.²⁷

THE CREDENTIAL OPPORTUNITY BY REGION AND INDUSTRY (CORI) CROSSWALK

The Credential Opportunity by Region and Industry (CORI) Crosswalk was created by Washington STEM to analyze postsecondary credential attainment gaps for family-sustaining occupations that exist in each Washington state region. Specifically, the CORI Crosswalk can identify existing gaps between high-demand, family-sustaining occupations and low or nonexistent credential attainment programs available at the regional level. The overall utility of the CORI Crosswalk allows employers, industries, elected officials, and education sector leaders to make informed decisions regarding employment and postsecondary credential opportunities. The CORI analysis enabled us to answer our third research question:

Are there sufficient training programs and capacity in each region that lead to local, high-demand, family-sustaining jobs? Where do training program gaps exist?

Use of The CORI Crosswalk

The creation of new educational programs of study at colleges and universities is a time intensive and expensive endeavor requiring careful planning and serious consideration.²⁸ Given that workforce data is used for the planning of new programs, the CORI Crosswalk can help support state, regional, and institutional levels by providing current data on job demand and postsecondary credential attainment

²⁶ Bureau of Labor and Statistics (BLS), retrieved from: <https://www.bls.gov/emp/tables/occupational-projections-and-characteristics.htm>

²⁷ In addition to the BLS-defined entry-level education needed for the job, we have included apprenticeship as a category. Several occupations do not require apprenticeships as conditions for entry, but advancement in the occupation and higher wages may be dependent on formal training through apprenticeship programs. The BLS identifies apprenticeship as typical on-the-job training for several occupations. In cases where apprenticeship is identified as typical for an occupation or Washington state has active apprenticeship programs for that occupation through the Department of Labor and Industries (L&I), “apprenticeship” replaces a credential designation.

²⁸ This process tends to be reactive by relying on industries, employers, elected officials, and other stakeholders to identify imbalances for high-demand occupations. More specifically, when planning around the creation of a new program, public institutions must meet rigorous standards. For instance, four-year universities are required to submit a proposal to the Office of Academic Affairs and Planning including the Planning Notice of Intent (PNOI) and a Full Program Proposal. New Community and Technical Colleges are required to be approved by the State Board for Community and Technical Colleges (SBCTC) prior to the program’s implementation. Variables included in the creation of new postsecondary credentials include the (a) documented vacancies in existing positions; (b) a documented need for new positions; and (c) evidence of emerging markets.

availability. This enables key decision makers to understand the local job market, imbalances in that job market, and ultimately what types of supports would be most effective in each region.

Limitations and Future Improvements of CORI

The CORI analysis does have some limitations; for example, statewide and online degrees (e.g., baccalaureate degrees in education) are not factored into “supply” of degrees. Additionally, while developing and testing the CORI Crosswalk, regional leaders identified areas where they felt high regional demand was not reflected. Washington STEM is currently working with local Workforce Development Area economists to understand and identify areas where region-specific improvements could be made.

More information regarding high-demand occupations and supply shortages for postsecondary credential programs can be found at Washington STEM, Credential Opportunity by Region and Industry Crosswalk: https://washingtonstem.org/focus_area/career-pathways/#CORI.

Development of the CORI Crosswalk

Development of CORI relied on several key state and federal governmental data sets. The National Center for Education Statistics has provided a crosswalk linking occupations to instructional programs.²⁹ This crosswalk relies heavily on two government classification systems to match Standard Occupational Classification (SOC) to Classification of Instructional Programs (CIP) codes.

The SOC codes were created to group workers into occupation categories. As of 2018, there were 23 major groups, 98 minor groups, and 867 detailed occupations (BLS, “Standard Occupational Classification,” n.d.). SOC codes³⁰ are generally updated every ten years to stay current with the rise of emerging occupations and the dissemination of outdated occupations. The CIP system is a taxonomic scheme created by the National Center for Education Statistics with the purpose of tracking and recording fields of study and program.³¹

These CIP codes are grouped using subject fields and do not indicate the level of degree completion (e.g., associate’s, bachelor’s, or master’s degree level). The current list was published in 2010 and is projected to be updated in 2020, according to the National Center for Education Statistics. It is essential to highlight that multiple occupations (SOC codes) may be attainable with a single postsecondary credential (CIP code). Additionally, numerous postsecondary credentials (CIP codes) may lead to a similar occupation (SOC codes).

²⁹ National Center for Education Statistics, Standard Occupation Code (SOC) to Classification of Instructional Program (CIP) crosswalk, retrieved from: <https://nces.ed.gov/ipeds/cipcode/resources.aspx?y=55>; see links to “CIP 2010 to SOC 2010 Crosswalk” and “SOC 2010 to CIP 2010 Crosswalk.”

³⁰ SOC codes are six-digit codes; the first two digits represent the major group, the third digit represents the minor group, the fourth and fifth digit represent the broad occupation and the sixth digit represents the detailed occupation. The CORI Crosswalk uses the most detailed-level of SOC which is at the full six-digit level.

³¹ National Center for Education Statistics: <https://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>

The first step in creating the CORI Crosswalk was identifying North American Industry Classification System (NAICS) codes which could be grouped to create what is defined as a composite sector (Workforce Training and Education Coordinating Board, 2018).³² From there, the Washington State Employment Security Department's "occupations-industry matrix"³³ was used to connect SOC codes to those NAICS codes, thereby creating the composite sectors based on the frequency in which occupation was found in each industry. High-demand occupations³⁴ were then paired with fields of study available in that region.

³² NAICS Codes from US Census Bureau, retrieved from: <https://www.census.gov/eos/www/naics/>

³³ Retrieved from: [file:///Downloads%20for%20Int/18-1119-OutdoorIndustryJobsReport%20\(1\).pdf](file:///Downloads%20for%20Int/18-1119-OutdoorIndustryJobsReport%20(1).pdf)

³⁴ Washington State Employment Security Department's occupations in demand list, retrieved from: <https://esd.wa.gov/labormarketinfo/learn-about-an-occupation#/search>

EASTERN REGION AND SPOKANE: EQUITY AND OPPORTUNITY BY THE NUMBERS

EXECUTIVE SUMMARY

The Eastern Region of Washington state shows an outcomes gap between its large population of Latinx students and its white students in nearly every measure of K-12 readiness and education-to-workforce transitions. At the same time, 58.2 percent of all locally originating cohorts (defined at ninth grade entry) enroll in a postsecondary program, while only 33.3 percent earn any form of postsecondary credential by age 26, which is far short of what is needed to enter family-sustaining wage jobs in the local labor market. Like other indicators, credential outcomes also demonstrate subgroup disparities in both enrollment and attainment. While female students and white students overall in the region attain postsecondary credentials at higher rates than the statewide average, all other groups attain at lower rates than the state average. If the Eastern Region aims to close supply-demand gaps for in-demand, family-sustaining wage jobs, an annual average of 208³⁵ *more students each year than the prior year* need to obtain a credential between now and the high school graduating class of 2030.³⁶ In addition, while the number of apprenticeship programs in the region is strong, enrollment in these programs is small. Local postsecondary institutions have added numerous programs to meet demand in recent years, but opportunities exist to do more. In the region, there are no postsecondary education preparation programs in such in-demand fields as some finance professions, trades professions in construction and production related industries, and utilities professions such as wastewater treatment and power plant operators.

THE EASTERN REGION

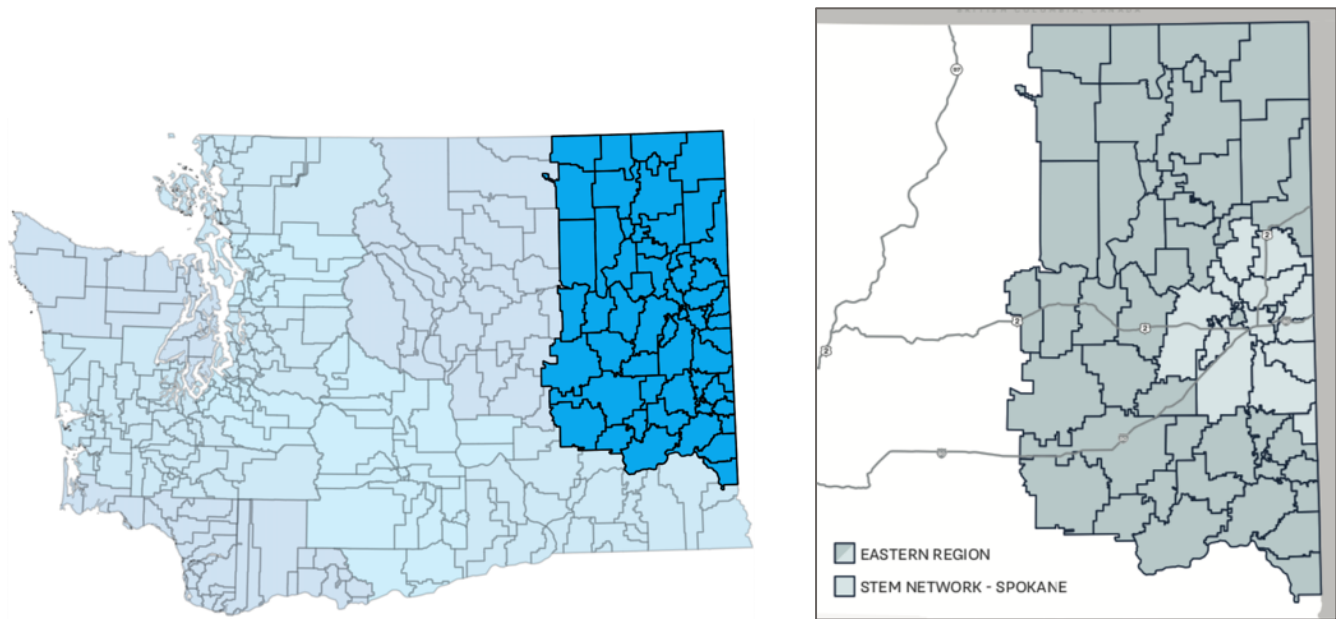
The Eastern Region's boundaries are based on those of Educational Service District (ESD) 101, the Eastern Washington Workforce Development Area (WDA), and the Spokane WDA. The Eastern Region does not include Almira school district while ESD 101 does. In addition, the region includes parts of Adams County while the Eastern Washington and Spokane WDAs do not. The Eastern Region is home to growing healthcare, education, manufacturing, construction, finance, information technology, and engineering industries and employers spanning from Colville to Pullman. The region is made up of 58 school districts, 14 of which are in Spokane County and served by the Spokane STEM Network. The 2016 ninth-grade adjusted cohort high school graduation rate for this region is 89.6 percent, compared to the statewide rate of 82.4 percent (OSPI, ERDC).³⁷

³⁵ Goal numbers have been updated in January 2019 from previous reports based on new projections from Education Research & Data Center.

³⁶ For a full explanation of this estimate see Figure 2 and Figure 3.

³⁷ OSPI "2014-2015 Graduation Rates by School 5Yr Cohort": <http://reportcard.ospi.k12.wa.us/DataDownload.aspx>; ERDC "2015 High School Feedback Report": <http://www.erdcddata.wa.gov/hsfb.asp>.

Figure 4: Eastern Region and Spokane STEM Network Geographical Boundaries



The Network and its business, education, and community partners are working to close credential attainment gaps, especially for students of color and students from rural and low-income families. They aim to increase the number of local students who become health care professionals, business and IT professionals, construction apprentices, engineers, and teachers, which combined have 4,304 annual projected openings over the next five years. This is far more openings than the current production trend of appropriately-credentialed graduates is on target to match.

The Eastern Region has a school-aged population of 84,414 in 2016 and approximately 5,634 students graduate from high school each year. This is about 89.6 percent of the ninth-grade cohort that was originally expected to graduate from high school/assigned to the cohort in 2016. The K-12 population growth rate is approximately -0.04 percent annually (in other words, the population rate is declining). The region has, proportionally, a large white population and a large Latinx population (WA Office of Financial Management,³⁸ WA Caseload Forecast Council³⁹).

Jobs in high demand in the Eastern Region include those in healthcare, trades, life sciences, information technology, business and finance, and engineering. These jobs pay family-sustaining wages, for example⁴⁰:

³⁸ 2017 Projections of the Population by Age and Sex for Growth Management - Ages 5-19. Retrieved from: <https://www.ofm.wa.gov/washington-data-research/population-demographics/population-forecasts-and-projections>

³⁹ Common Schools Education Long Range Projections - Headcounts. Retrieved from: https://www.cfc.wa.gov/Education_Common_Schools_Enrollment.htm

⁴⁰ Regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations: <https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market->

Figure 5: Examples of In-Demand, Family-Sustaining Wage Jobs in the Eastern Region

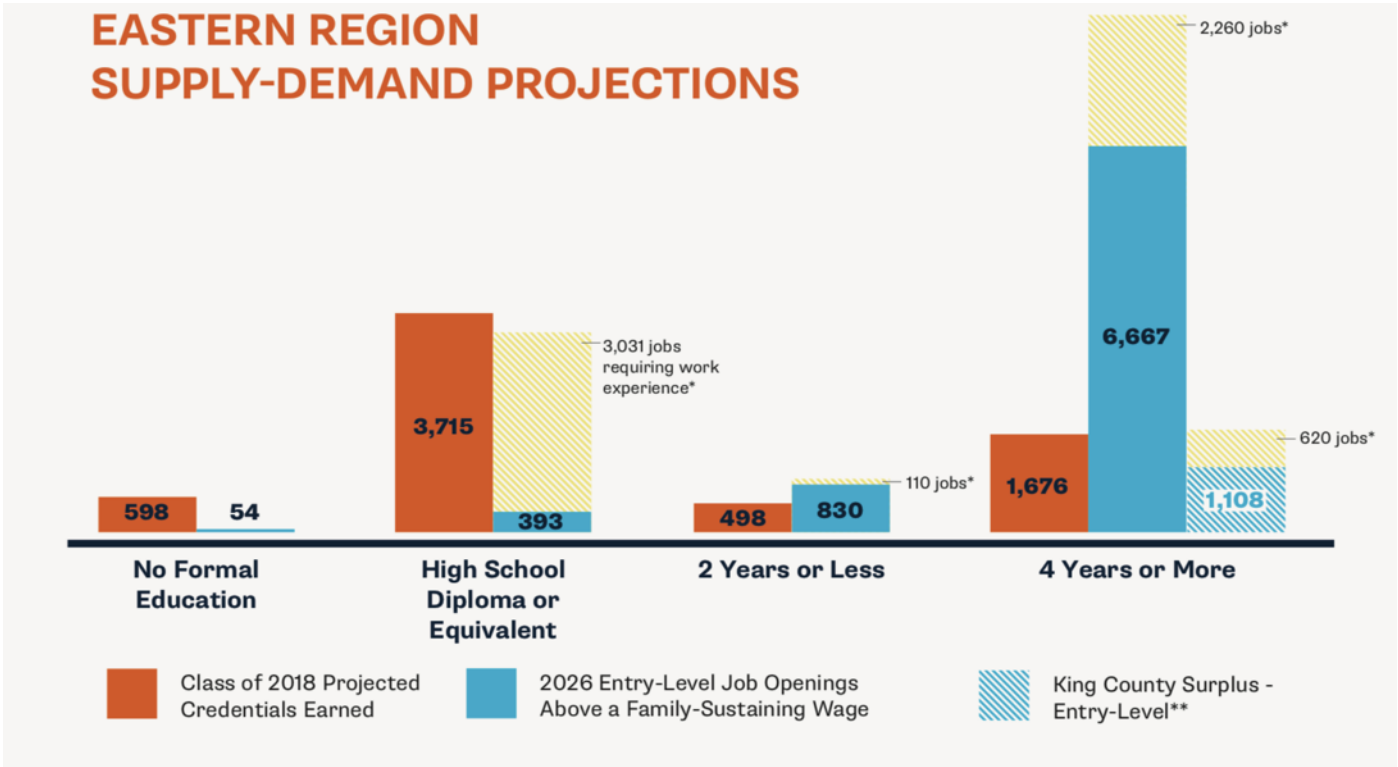


EASTERN REGION FINDINGS

Moving more students from obtaining a high school diploma or equivalent as their highest education level to a four-year degree will ensure that they, and the region, can thrive economically. The Eastern Region, like others in the state, has a large gap between the number of projected jobs available that will require a two-year degree, especially in healthcare areas, and a degree calling for four-years' study or more to obtain a family-sustaining wage and the number of students currently projected to earn such a degree. On the other hand, the region has far too many young people with only a high school diploma or less compared to the number of family-sustaining wage jobs available to people with such preparation (see Figure 6 below).

[info/Libraries/Industry-reports/Employment-projections/2018_projections/all_occup_proj_sep.xlsx](#) , 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018

Figure 6: Comparison of Eastern Region’s Class of 2018 Projected Credential Completion to 2026 Projected Job Openings by Type of Credential Needed to Obtain Jobs

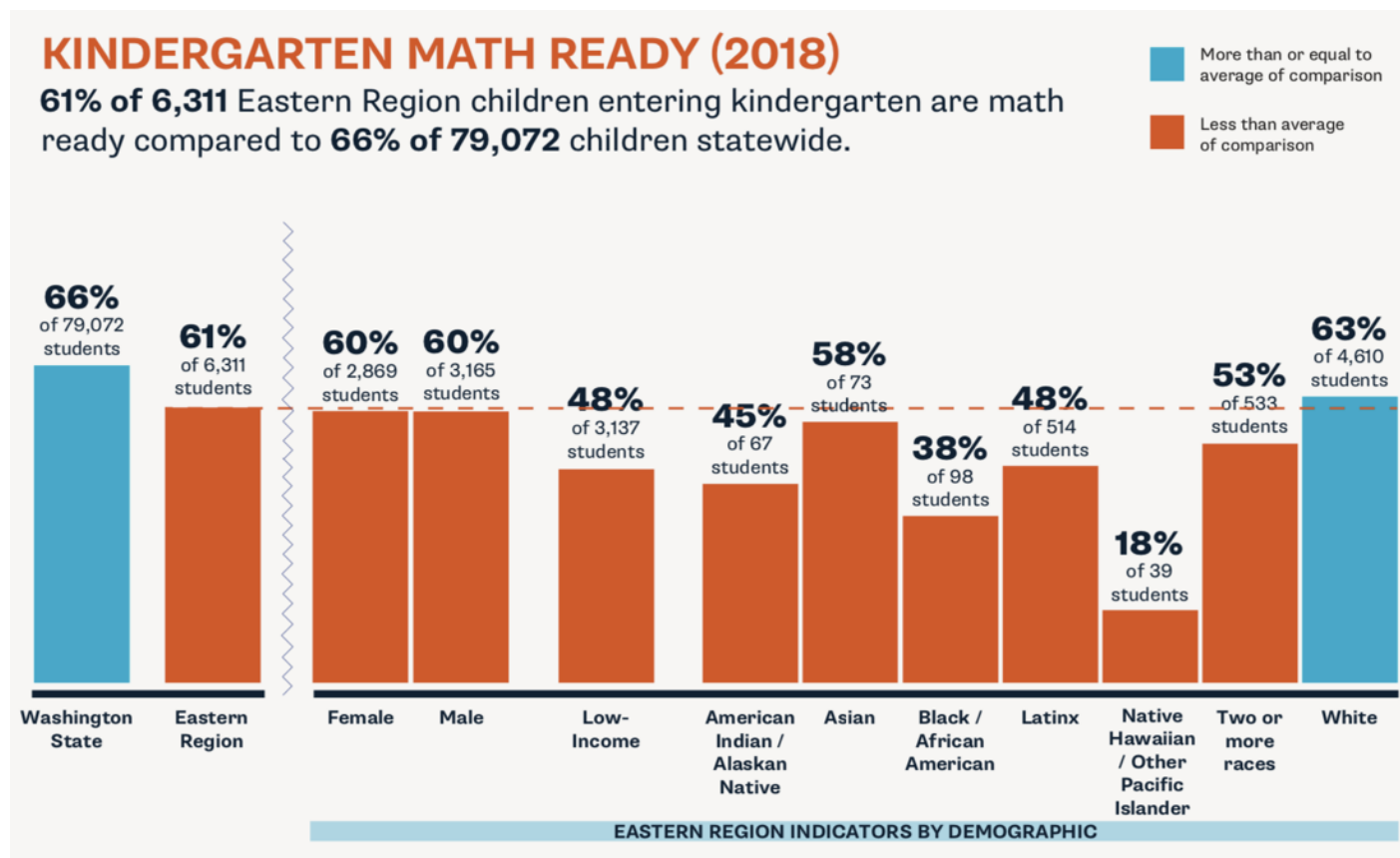


Increasingly, educators, policy makers, and local leaders are examining the entire Kindergarten-to postsecondary education-to careers pathway to determine where interventions are needed. Obtaining a family-sustaining job does not begin with a job search, or even in postsecondary education. The foundation for such careers begins in elementary school or even before. Washington STEM has worked to create early indicators of prospects for high school graduation and postsecondary study necessary to compete for STEM and other family-sustaining jobs. Examining these indicators and trends in them allows us to begin to answer the question: *Where are identifiable gaps that lead students in the Eastern Region to fall behind in their pursuit of needed credentials?*

Kindergarten Math Readiness

The first step in the formal education to career pathway is Kindergarten. Fewer students in the Eastern Region enter Kindergarten math ready⁴¹ than is true statewide. As the graphic below shows, only 61 percent of Eastern Region students enter Kindergarten with the math skills they need at that level. While white students are, at 63 percent, closer to the statewide average of 66 percent math ready, outcomes for all other racial and ethnic groups lag well behind.

Figure 7: Eastern Region 2018 Kindergarten Math Readiness by Demographic



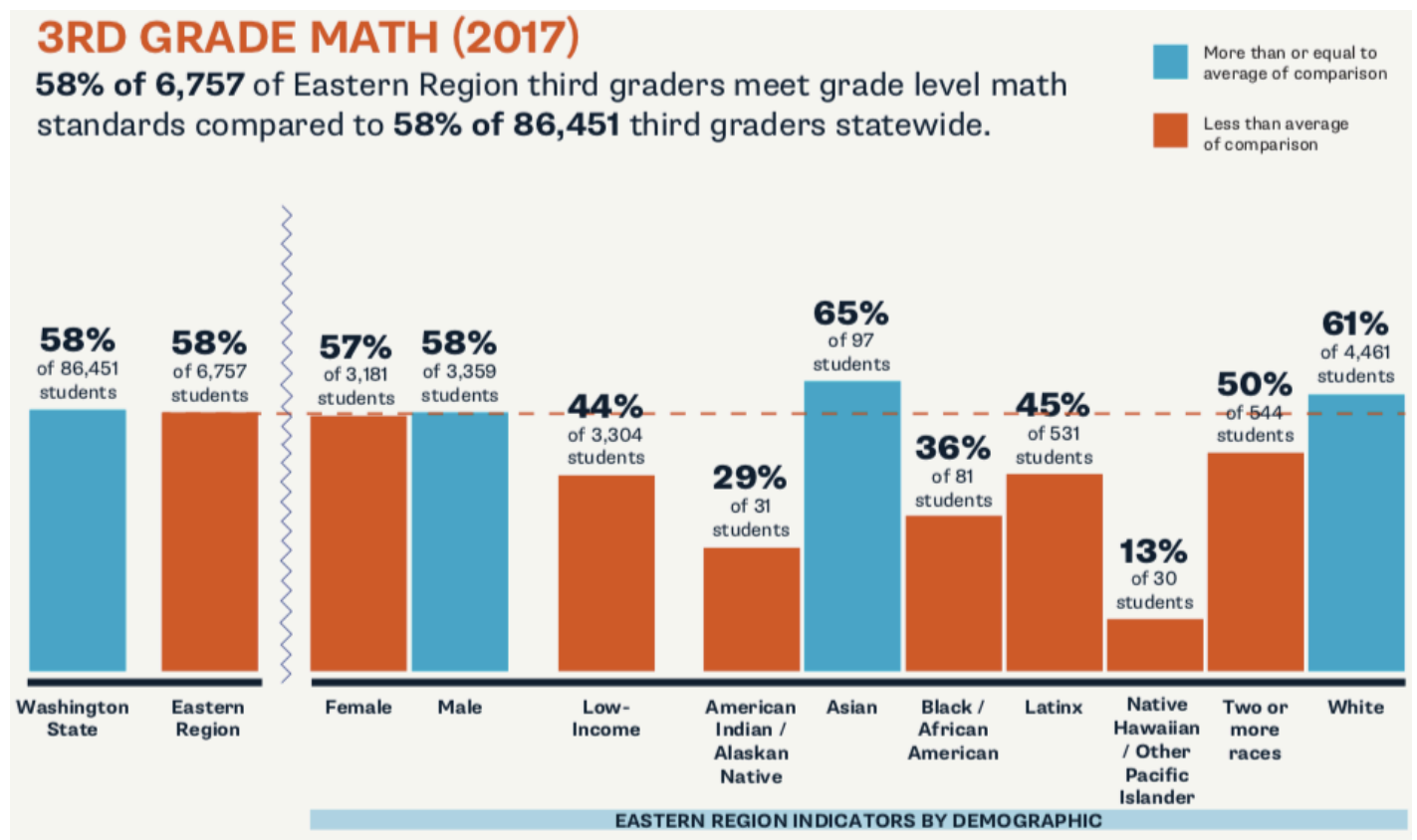
⁴¹ OSPI defines math readiness for children beginning Kindergarten as: saying a sequence of numbers up to 20; counting objects up to 10; comparing objects' size, length, or weight; and identifying the position of objects by using words like beside, inside, next to, above, or below (Office of the Superintendent of Public Instruction, Washington State Report Card - WaKIDS:

<http://reportcard.ospi.k12.wa.us/WaKidsDetailPage.aspx?domain=WaKIDS&groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18&gradeLevelId=3&waslCategory=1&chartType=1>

Third Grade Math Achievement

The regional picture for third grade math achievement⁴² improves somewhat overall but shows concerning trends for underserved students of color. The gap between regional and statewide achievement (percentage achieving the state's proficiency benchmark) has been eliminated for all students in aggregate. However, underserved students of color are not having their needs met and the trend is moving in the opposite direction. In fact, the percentage of underserved students of color meeting benchmarks has dropped since Kindergarten.

Figure 8: Eastern Region 2017 Third Grade Math Assessment Outcomes by Demographic

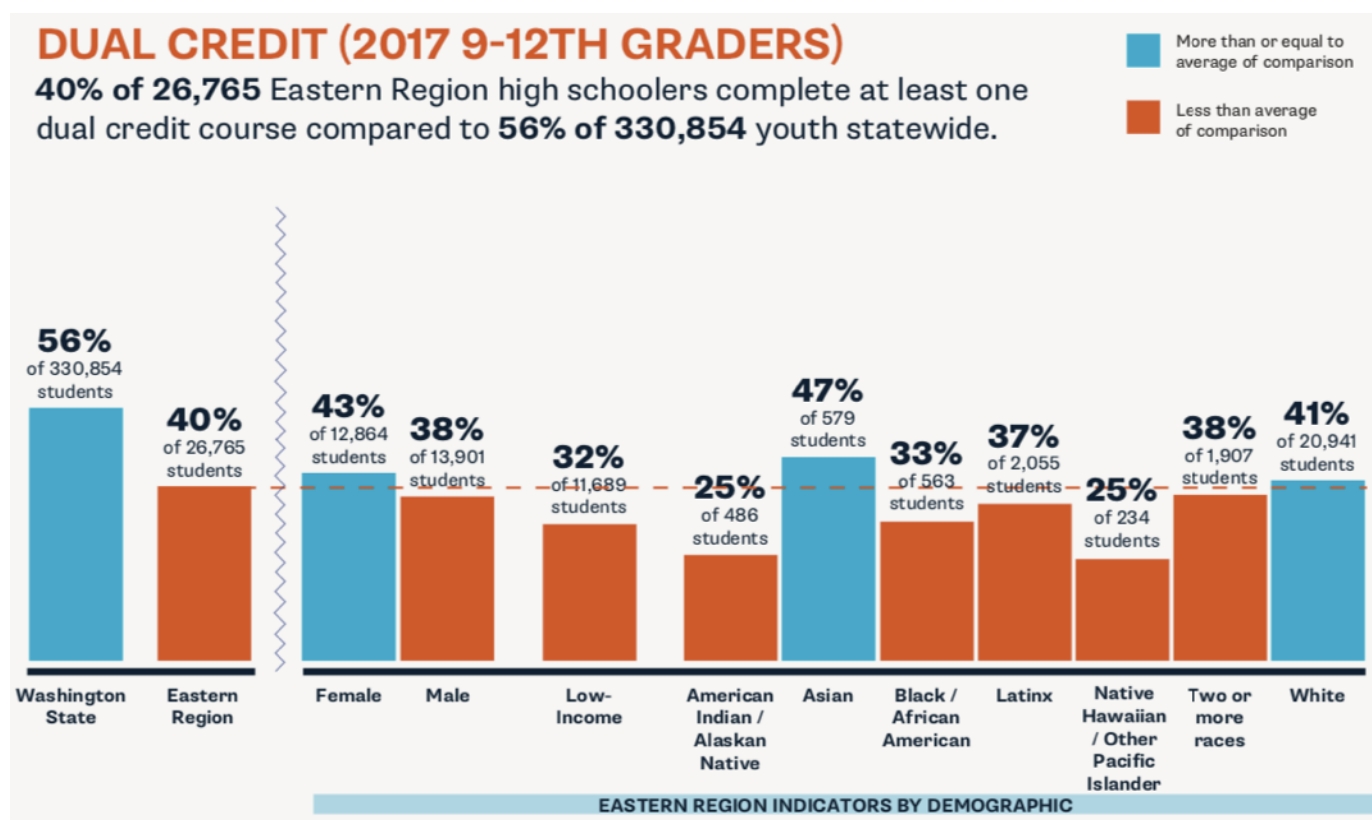


⁴² Office of the Superintendent of Public Instruction, Washington State Report Card: Summary
<http://reportcard.ospi.k12.wa.us/summary.aspx?groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18>

Dual Credit Course Completion

Next, we look at completion of dual credit courses by high school students. Completing dual credit⁴³ courses allows high school students to earn college credit while still enrolled in high school, giving them a leg up on enrolling and competing college credentials. The Eastern Region as a whole shows a dual credit enrollment rate below the state average. In the region, only 40 percent of high school students complete at least one dual credit course at any point in high school, compared to 56 percent of youth statewide. However, once again, underserved students of color, especially American Indian/Alaskan Native and Black/African American students, lag behind, as do low-income students. Also, below average rates are seen for Latinx students and males in the region while overall white and Asian students, as well as female students, complete these courses at rates above the state and regional averages.

Figure 9: Eastern Region High School Students' (9th through 12th grade) Completion of at Least One Dual Credit Course as of 2017

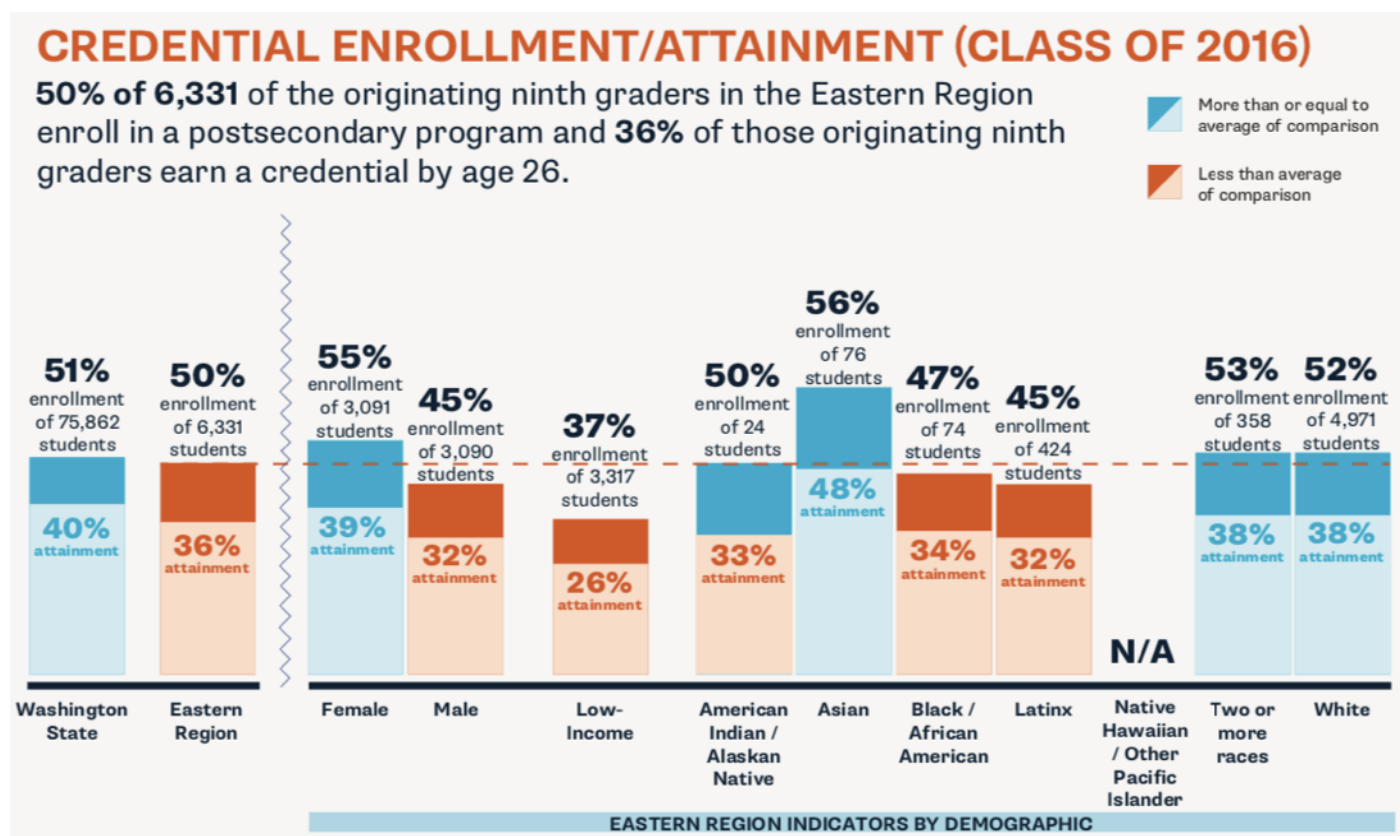


⁴³ Office of the Superintendent of Public Instruction, Washington State Report Card - HS Dual Credit: http://reportcard.ospi.k12.wa.us/DualCredit_2.aspx?domain=DualCredit&groupLevel=District&schoolId=1&reportLevel=State&yrs=2016-17&year=2016-17

Postsecondary Enrollment & Completion

Finally, half (50 percent) of the Eastern Region 2016 ninth-grade cohort enroll in a postsecondary program, but only 36 percent earn any credential by age 26, far short of the 63.4 percent goal. Like other indicators, this one too demonstrates serious subgroup disparities in terms of enrollment and attainment. While female students and white students overall attain postsecondary credentials at higher rates than the statewide average, all other groups lag behind.

Figure 10: Eastern Region Credential Enrollment and Projected Completion for the High School Class of 2016



Students in the Eastern Region enroll in local community colleges most often. A total of 40 percent of the students who enroll after high school attend either Spokane Falls Community College or Spokane Community College. Another popular college for enrollment is Eastern Washington University, where 17 percent of students enroll. Given these high rates of enrollment in community colleges it is essential that transfer students are able to successfully transfer to a four-year degree option. The most recent data available shows overall community colleges in the state have high associate degree completion rates but low transfer rates as compared to other states.⁴⁴

Figure 11: Enrollment by Institution for the Graduates of the Class of 2016 for the Eastern Region

| Eastern Region | | | |
|-------------------------------------|---------------------------|---|---------------------------|
| Top Postsecondary Institution | HS Cohort Enrollment Rate | Top Postsecondary Institution In-Region | HS Cohort Enrollment Rate |
| Spokane Falls Community College | 23% | Spokane Falls Community College | 23% |
| Four Year - Private or Out-of-State | 17% | Eastern Washington University | 17% |
| Eastern Washington University | 17% | Spokane Community College | 16% |
| Spokane Community College | 16% | Washington State University | 10% |
| Washington State University | 10% | | |

In addition to postsecondary institutions' credential offerings, a large number of apprenticeship programs exist in the region, but they are often sparsely enrolled. In 2018, just 123 of the region's residents (not necessarily locally originating high school graduates since available data do not differentiate) completed apprenticeship training.

2018 Eastern Region Apprenticeships

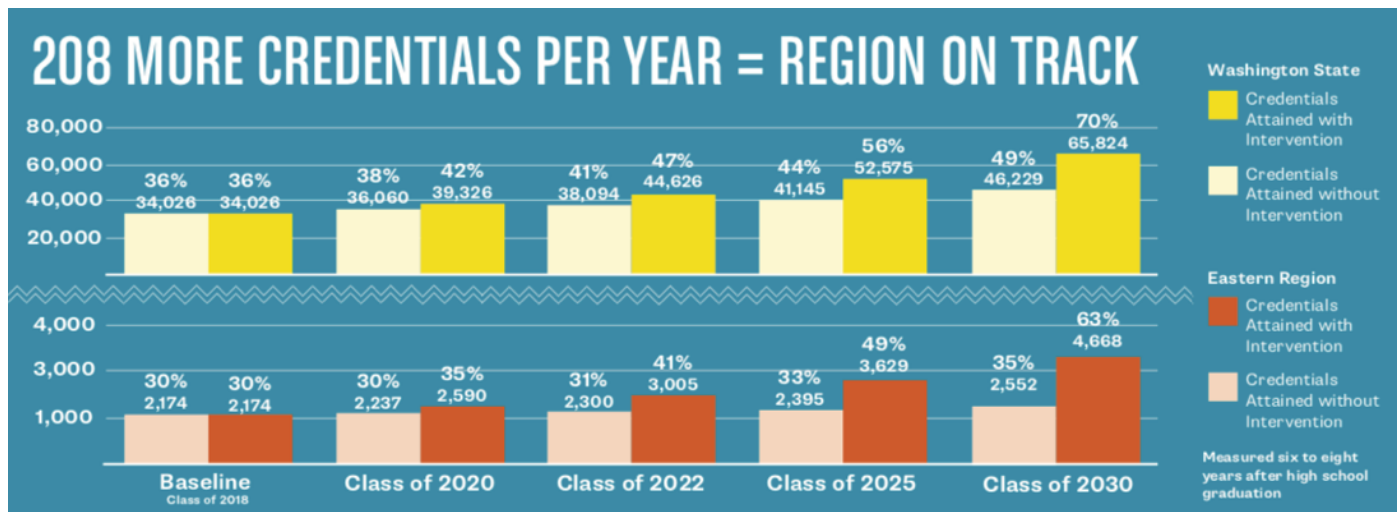
| | |
|---|-------|
| Apprenticeship programs operating in the region | 79 |
| 2018 active apprentices living in the region | 1,081 |

⁴⁴ Jenkins, D., & Fink, J. (2016). Tracking Transfer: New Measures of Institutional and State Effectiveness in Helping Community College Students Attain Bachelor's Degrees. *Community College Research Center, Teachers College, Columbia University*.

More can and should be done to direct more of the region's high school graduates into these postsecondary training opportunities.

Our analysis concludes that the region will need to **support 208 more Eastern Region-originating students in earning a postsecondary or apprenticeship credential each year** (i.e., 208 more each year than the prior year) from now until 2030 for the region to be on track for attaining the region-specific 63.4 percent goal by 2030. To achieve this goal, the region⁴⁵ will need to specifically focus on systems changes that can close the significant outcomes gaps that currently exist for underrepresented students of color as well as students from low-income families.

Figure 12: Eastern Region's Trajectory for Increased Number of Locally-Originating High School Students Earning Postsecondary Credentials to Obtain Locally Family-Sustaining Wage Jobs



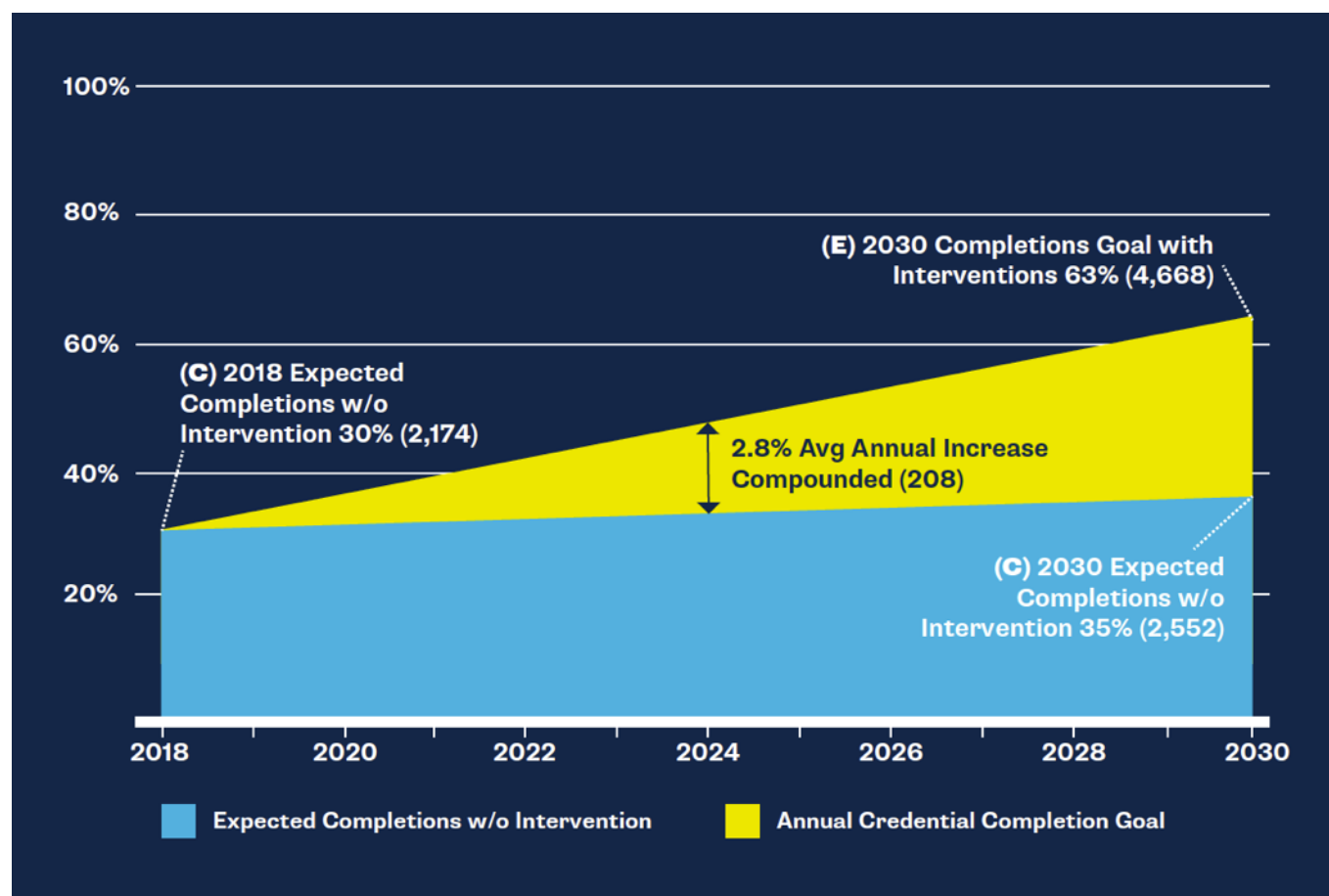
While 208 is an annual average it is meant to set a benchmark number of what each region should aim to accomplish each year to meet the 2030 target. Below we break down yearly actual annual increases based on increasing cohort sizes and expected completion percentages.

⁴⁵ Washington STEM has produced a similar estimate for each region in the state. Taken together these regional estimates will allow the state to reach its goal.

Figure 13: Projections of Current Expected Credentials Earned by Each Eastern Region High School Cohort and Year-Over-Year Increases Needed to Meet Goals

| A. High School Class | B. 9th Grade Cohort Size | C. Expected Credential Completions without intervention | D. Annual Completion % Needed to meet goal | E. Annual Completions Goals | F. Increase needed to meet goal (E - C = F) | G. YoY difference in increase needed to meet goal |
|----------------------|--------------------------|---|--|---------------------------------|--|---|
| 2018 | 6,487 | 2,174 | 34% | 2,174 | | |
| 2019 | 6,525 | 2,187 | 36% | 2,349 | 163 | 163 |
| 2020 | 6,428 | 2,154 | 38% | 2,474 | 320 | 158 |
| 2021 | 6,515 | 2,183 | 41% | 2,670 | 487 | 167 |
| 2022 | 6,595 | 2,210 | 43% | 2,867 | 657 | 170 |
| 2023 | 6,668 | 2,235 | 46% | 3,065 | 830 | 173 |
| 2024 | 6,853 | 2,296 | 48% | 3,320 | 1,024 | 194 |
| 2025 | 7,159 | 2,399 | 51% | 3,647 | 1,248 | 224 |
| 2026 | 7,283 | 2,441 | 53% | 3,892 | 1,451 | 203 |
| 2027 | 7,231 | 2,423 | 56% | 4,044 | 1,621 | 170 |
| 2028 | 7,239 | 2,426 | 58% | 4,229 | 1,803 | 182 |
| 2029 | 7,229 | 2,422 | 61% | 4,403 | 1,980 | 177 |
| 2030 | 7,363 | 2,467 | 63% | 4,668 | 2,201 | 220 |
| Region | | 2018 Cohort Estimated Credential Attainment | 2030 Cohort Estimated Student Headcount | 2030 Credential Attainment Goal | Average Annual Increase Needed to meet 2030 Goal | Annual Increase to Meet 2030 Goal |
| Eastern | | 6,487 | 7,363 | 4,668 | 208 | 2.50% |

Figure 14: Area Graph of Projections of Current Expected Credentials and Year-Over-Year Increases Needed to Meet Goals (Letters Associate with Figure 13)



THE CREDENTIAL OPPORTUNITY BY REGION AND INDUSTRY (CORI) CROSSWALK

Washington STEM created The Credential Opportunity by Region and Industry (CORI) Crosswalk to analyze postsecondary credential attainment gaps that exist in each Washington State region for family-sustaining occupations. The CORI Crosswalk allows employers, industries, elected officials, and education sectors to make informed decisions regarding employment and postsecondary credential opportunities. The CORI analysis enables us to answer the research question:

Are there sufficient training programs and production capacity in this region that lead to local, high-demand, family-sustaining jobs? Where do training program gaps exist?

The CORI Crosswalk identifies gaps between high demand, family-sustaining occupations, and supply of appropriately credentialed graduates in each region. The Crosswalk uses a color system to identify the areas where gaps exist. The red category highlights occupations that have a supply shortage and have NO available credential program for that occupation in that given region. The yellow category highlights occupations that have supply shortages despite credential programs available, i.e., the program or programs available in the region are not graduating a sufficient number of students to meet the labor market needs. Last, the green category outlines occupations that are in demand in the given region, and

regional credential programs (Classification of Instructional Programs) that are producing an adequate number of graduates to meet the regional labor market need for that given occupation. Thereby the CORI crosswalk identifies available education programs for high demand, family-sustaining occupations.

Imbalances in the Eastern Region & Spokane

The CORI Crosswalk begins with the identification of high-demand, family-sustaining occupations⁴⁶ in the Eastern Region, for which postsecondary credential attainment gaps exist. In the Eastern and Spokane region, the CORI Crosswalk revealed several occupations to be in high demand while facing a supply shortage; it also revealed a potential insufficient production of qualified graduates in the region. Notable occupations in high demand with NO credential programs in the region include respiratory therapists; securities, commodities, and financial services sales agents; and wastewater and power plant operators. This means that no postsecondary credential programs exist in the Eastern Spokane Region for these in-demand, family-sustaining wage occupations. Noteworthy occupations where programs exist but with inadequate credentialed graduates produced to meet demand include teachers, general and operations managers, and accountants and auditors.

More information regarding high-demand occupations and supply shortages for postsecondary credential programs can be found at Washington STEM, Credential Opportunity by Region and Industry Crosswalk: https://washingtonstem.org/focus_area/career-pathways/#CORI.

Limitations and future improvements of CORI

The CORI analysis does have some limitations. Online degrees are not factored into regional “supply” of credentials awarded (CIP) in the region, such as Western Governor University, a nonprofit online university that offers teaching degrees to place-bound students without local access to such degrees.

Future editions of CORI could include a tiered approach working to pay special attention to the level of supply and demand and moving beyond the current red and yellow color scheme to include more nuance. In addition, while developing and testing the CORI Crosswalk, regional leaders identified some areas where they felt high regional demand was not reflected. Washington STEM is currently working with local Workforce Development Area economists to identify and better understand occupations where region-specific improvements in data might be made to capture regional demand better as it is experienced “on the ground.”

DISCUSSION:

Too many local students find the education needed to obtain in-demand, family-sustaining careers to be an *opportunity mirage* that they are unable to successfully attain. Better preparing local students to compete in the new economy is an equity AND an economic imperative.

⁴⁶ Figures for regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx) , 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018.

A regional approach is warranted as each of the regions in Washington has fundamentally different educational and economic contexts with differing problems and solutions in each. We believe local leaders are best able to create the smart, innovative and, potentially disruptive changes needed to substantially move the needle on educational opportunity that matches job market needs.

Region specific recommendations:

- Work to get more students, especially underserved students of color ready for Kindergarten
- Attack success gaps between underserved students of color and white and Asian students in the K-12 system
- Increase dual credit offerings in high schools and pay attention to equity gaps in dual credit enrollment and outcomes
- Increase the enrollment in high-demand apprenticeship enrollment and completion
- Increase successful transfer from local community colleges to four-year institutions for baccalaureate-seeking students
- Create instructional programs of adequate capacity in CORI shortage fields
- Work to make place-bound students more aware of public online options such as Western Governors University for high-demand credential options

KING COUNTY: EQUITY AND OPPORTUNITY BY THE NUMBERS

EXECUTIVE SUMMARY

King County achieves high rates of high school graduation and postsecondary credential completion rates; however, the high cost of living and relatively lower achievement rates for low-income and underserved students of color mean that King County leaders have work to do to ensure its students are able to obtain family-sustaining, in-demand jobs. In particular, the region shows a troubling gap between its large population of underserved students of color and white and Asian students in nearly every measure of K-12 readiness and educational outcomes. Currently, 65 percent of locally originating cohorts enroll in a postsecondary program, and 55 percent earn any form of postsecondary credential by age 26, far short of what is needed. Like other indicators, this one demonstrates subgroup disparities regarding both postsecondary enrollment and attainment. While female students and white students overall attain postsecondary credentials at higher rates than the statewide average, all other groups attain at lower rates than the state average. If King County aims to close supply-demand gaps for in-demand, family-sustaining wage jobs, an annual average of 666⁴⁷ *more students each year than the prior year* need to obtain a credential between now and the high school graduating class of 2030.⁴⁸ Local postsecondary institutions have added numerous programs to meet demand in recent years, but opportunities exist to do more throughout the education system. For example, while the number of apprenticeship programs in the region is strong, enrollment in these programs is small.

KING COUNTY

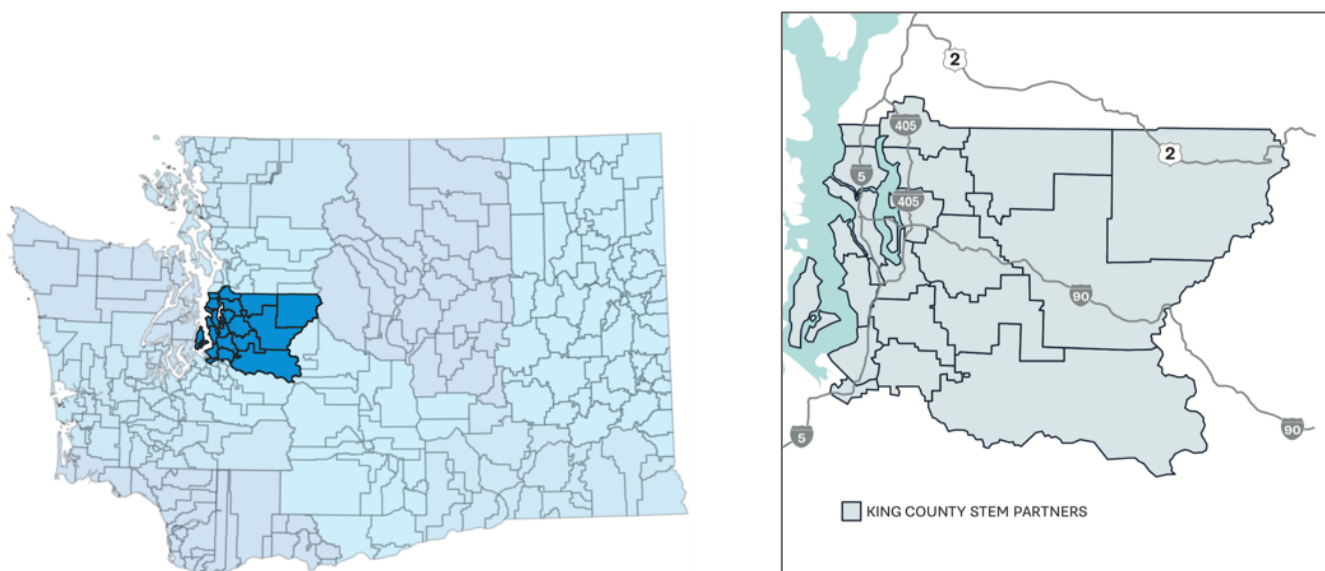
The King County Region's boundaries are based on the Seattle-King Workforce Development Area (WDA) and Educational Service District (ESD) 121. The King County region does not include Bainbridge Island, which is included in ESD 121, and does include Fife School District, which is primarily located in the Tacoma-Pierce WDA. King County is home to growing computer/information technology, healthcare, maritime, construction, and business and financial operations industries, spanning from Bothell to Federal Way. The region is made up of 20 school districts supported by King County STEM partnerships. Washington STEM and its business, education, and community partners are working to close credential attainment gaps, especially for students of color and students from low-income families. They aim to increase the number of local students who become healthcare professionals, software developers, and construction/maritime apprentices, which combined have 24,000 annual projected openings over the next five years. The 2016 ninth-grade adjusted cohort high school graduation rate for this region is 88 percent, compared to the statewide rate of 82.4 percent (OSPI, ERDC).⁴⁹

⁴⁷ Goal numbers have been updated in January 2019 from previous reports based on new projections from the Education Research & Data Center.

⁴⁸ For a full explanation of this estimate see Figure 2 and Figure 3.

⁴⁹ OSPI "2014-2015 Graduation Rates by School 5Yr Cohort" <http://reportcard.ospi.k12.wa.us/DataDownload.aspx>; ERDC "2015 High School Feedback Report" <http://www.erdcddata.wa.gov/hsfb.asp>.

Figure 15: King County Region and Partners Geographical Boundaries



King County had a school-aged population of 257,329 in 2016 and approximately 17,285 students graduate from high school each year. This is about 88 percent of the ninth-grade cohort that was originally expected to graduate from high school. The K-12 population growth rate is approximately 0.45% annually (WA Office of Financial Management,⁵⁰ WA Caseload Forecast Council⁵¹).

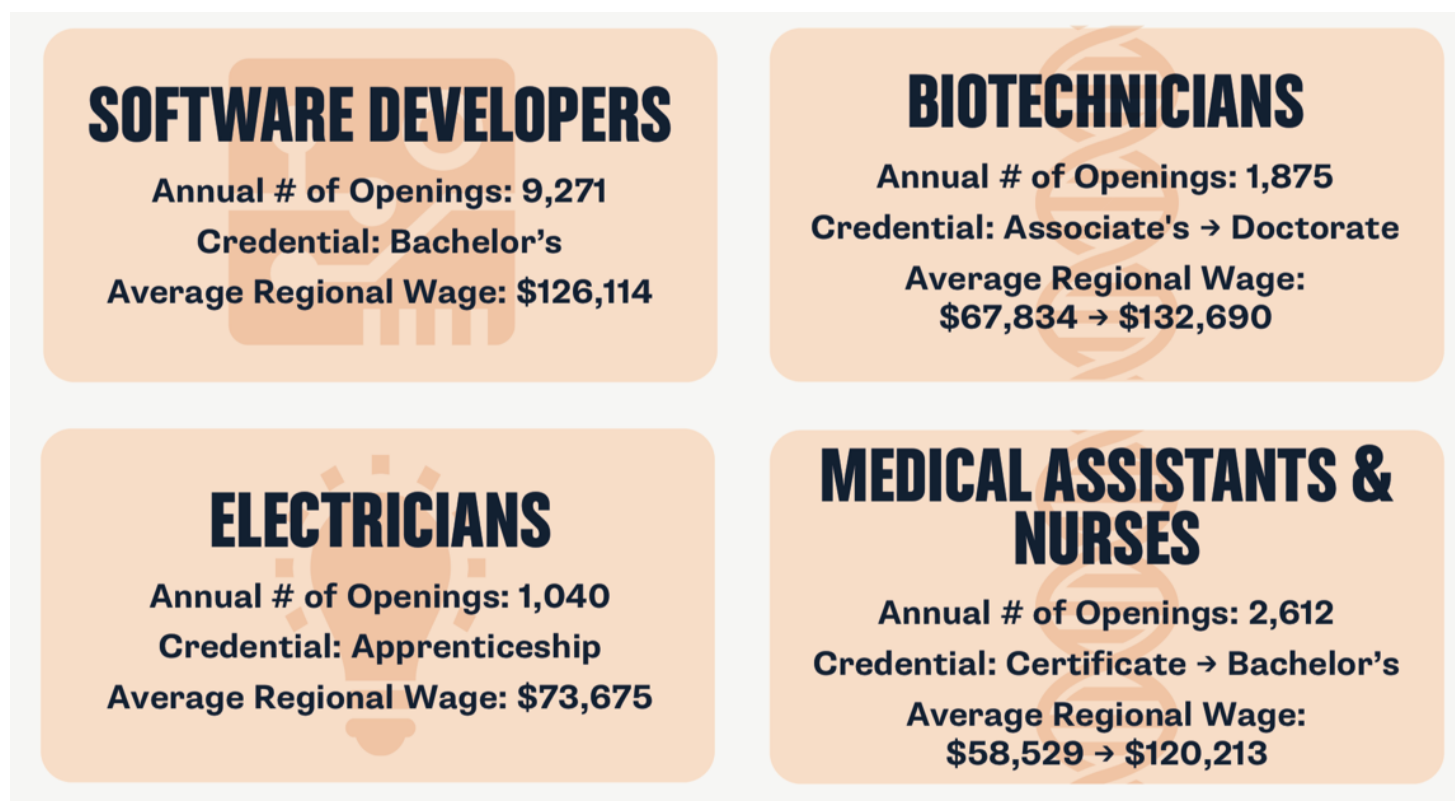
Jobs in high demand in King County include those in healthcare, technology, education, business and finance, and construction and trades. These jobs pay family-sustaining wages, for example⁵²:

⁵⁰ 2017 Projections of the Population by Age and Sex for Growth Management - Ages 5-19. Retrieved from: <https://www.ofm.wa.gov/washington-data-research/population-demographics/population-forecasts-and-projections>

⁵¹ Common Schools Education Long Range Projections - Headcounts. Retrieved from: https://www.cfc.wa.gov/Education_Common_Schools_Enrollment.htm

⁵² Figures for regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx) , 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018.

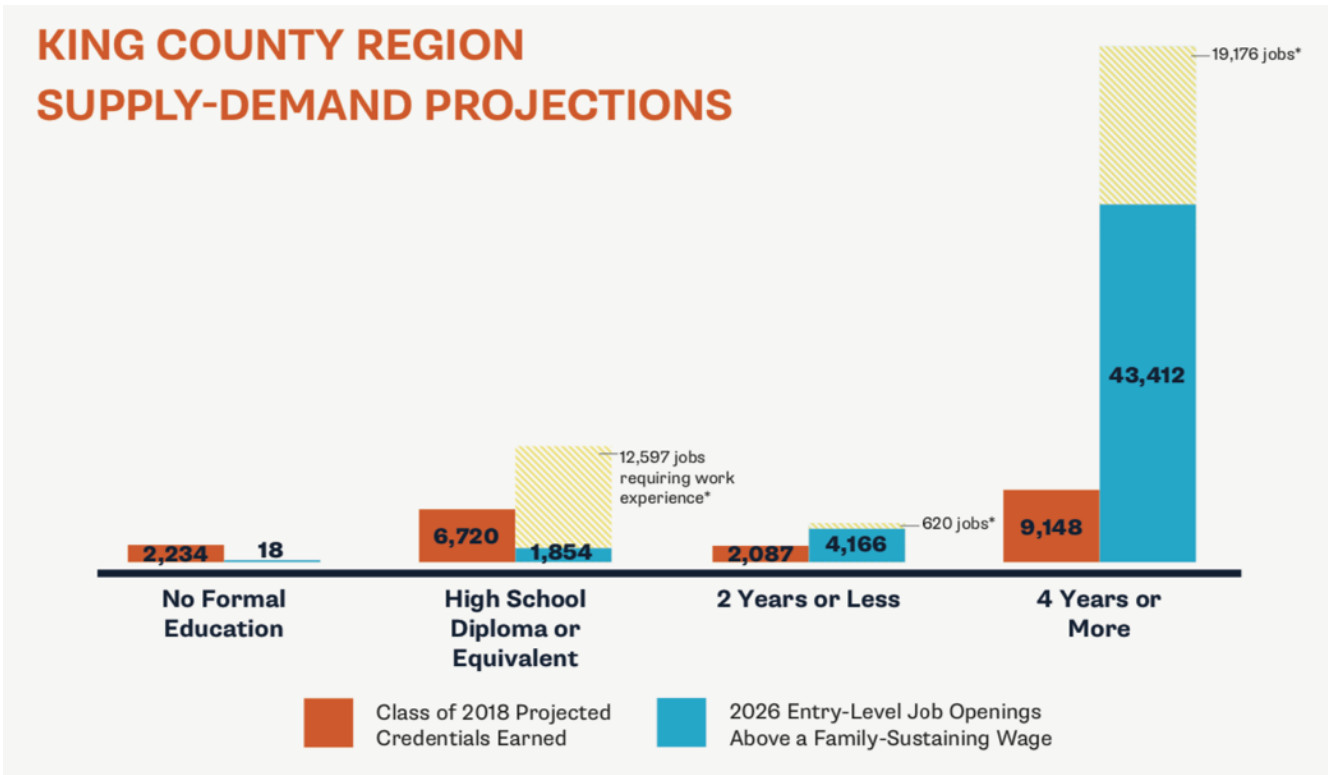
Figure 16: Examples of In-Demand, Family-Sustaining Wage Jobs in King County



KING COUNTY FINDINGS

Moving more students from obtaining a high school diploma or equivalent as their highest education level to a four-year degree will ensure that they, and the region, can thrive economically. In King County, like other regions in the state, there is a large gap between the number of projected jobs available that will require a bachelor's degree or more to obtain a family-sustaining wage and the number of students currently projected to earn such a degree. On the other hand, the region has far too many young people with only a high school diploma or less compared to the number of family-sustaining wage jobs available to people with such preparation (see Figure 16 below).

Figure 17: Comparison of King County’s Class of 2018 Projected Credential Completion to 2026 Projected Job Openings by Type of Credential Needed to Obtain Jobs



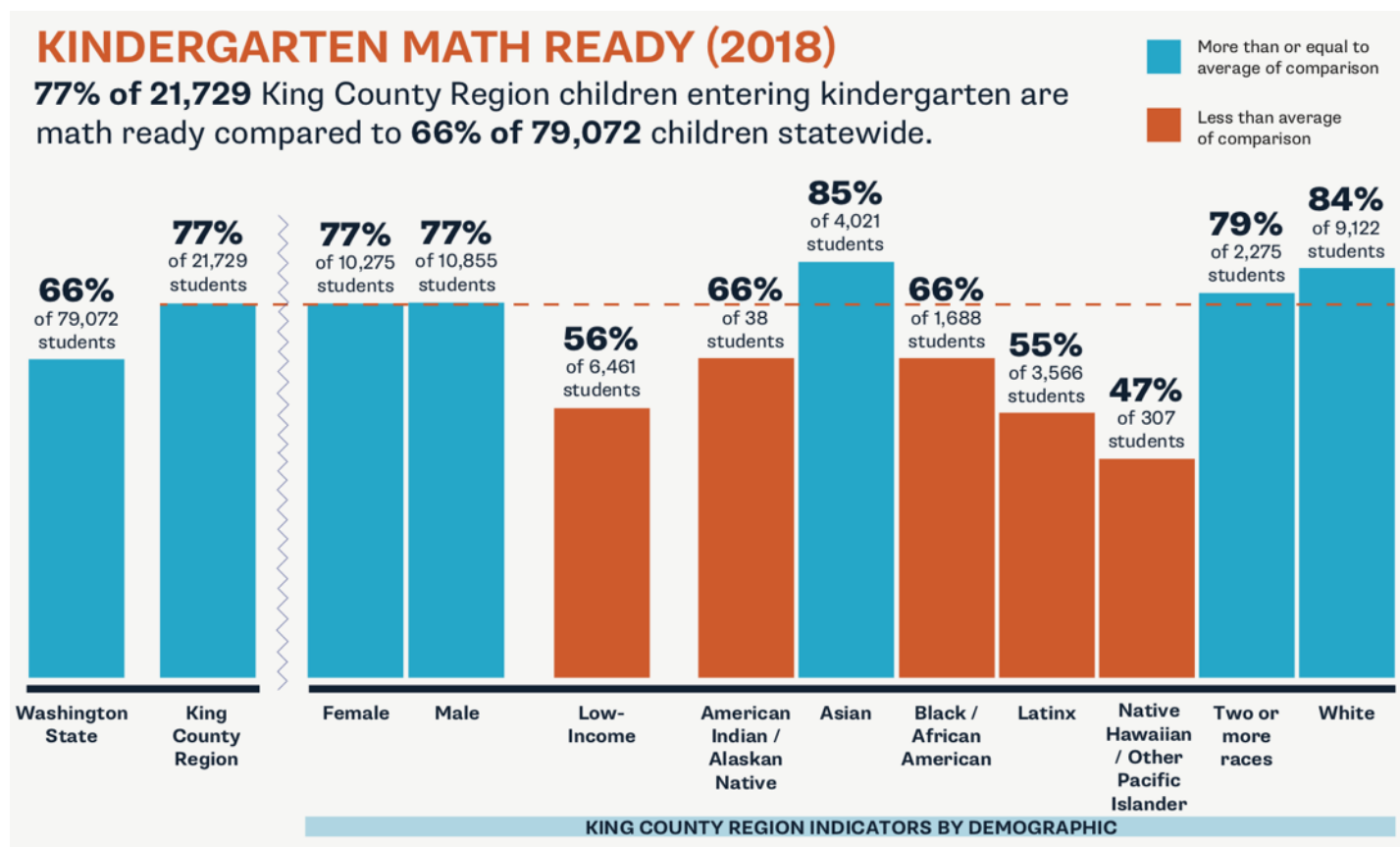
Increasingly, educators, policy makers, and local leaders are examining the entire Kindergarten-to postsecondary-education-to careers pathway to determine where interventions are needed. Obtaining a family sustaining job does not begin with a job search, or even in postsecondary education. The foundation for such careers begins in elementary school or even before. Washington STEM has worked to create early indicators of prospects for high school graduation and postsecondary study necessary to compete for STEM and other family sustaining jobs. Examining these indicators and trends in them allows us to begin to answer the question:

Where are identifiable gaps along this pathway that lead students in the King County to fall behind in their pursuit of needed credentials?

Kindergarten Math Readiness

The first step in the formal education to career pathway is Kindergarten. Significantly more students in the King County enter Kindergarten math ready⁵³ than is true statewide. As the graphic below shows, 77 percent of King County students enter Kindergarten with the math skills that they need at that level. While white and Asian students far exceed the statewide average of 66 percent math ready, all other racial and ethnic groups as well as low-income students fall behind.

Figure 18: King County 2018 Kindergarten Math Readiness by Demographic



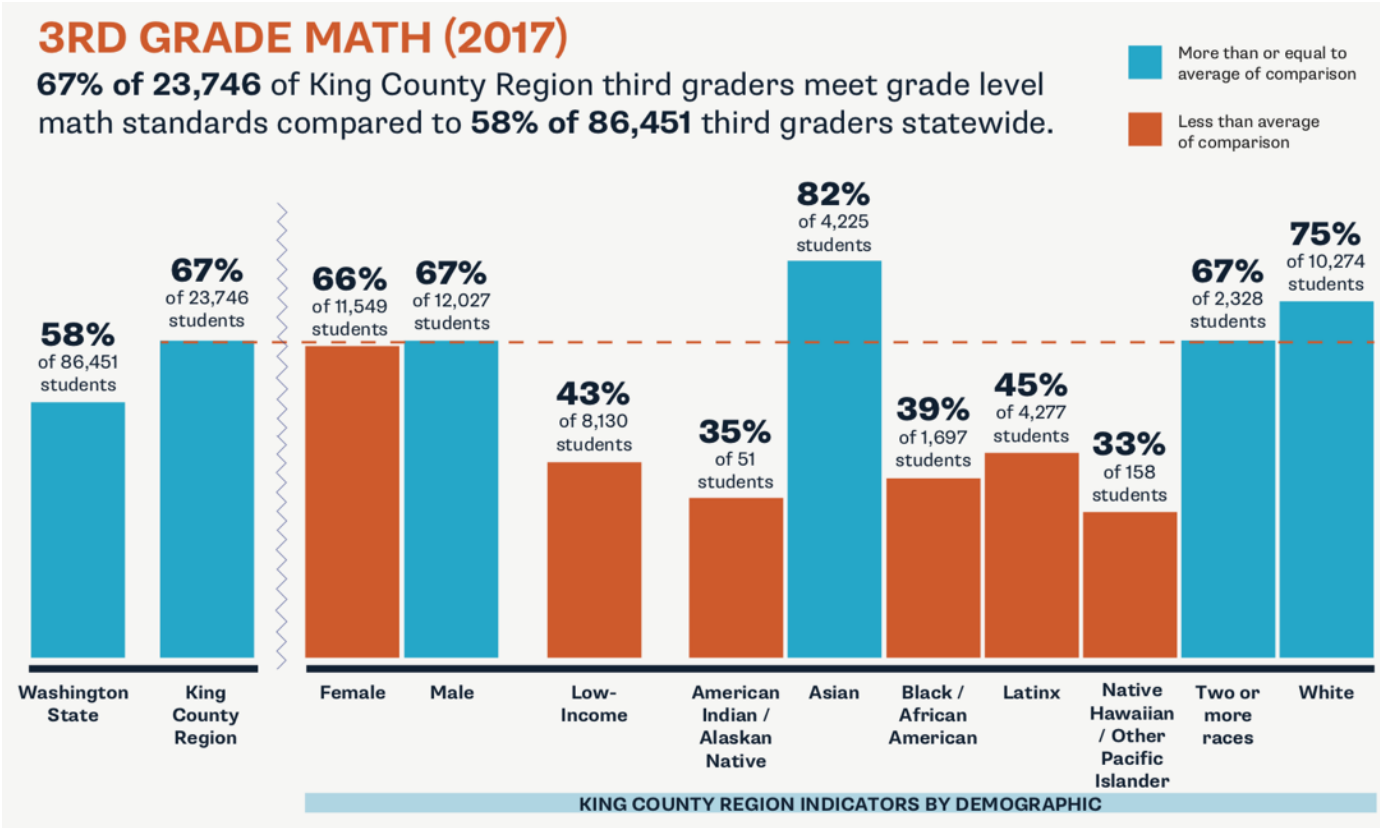
⁵³ OSPI defines math readiness for children beginning Kindergarten as: saying a sequence of numbers up to 20, counting objects up to 10, comparing objects' size, length, or weight, and identifying the position of objects by using words like beside, inside, next to, above, or below. Office of the Superintendent of Public Instruction, Washington State Report Card – WaKIDS:

<http://reportcard.ospi.k12.wa.us/WaKidsDetailPage.aspx?domain=WaKIDS&groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18&gradeLevelId=3&waslCategory=1&chartType=1>

Third Grade Math Achievement

A troubling reality is that the disparities have increased by the time students reach third grade. In fact, third grade math achievement⁵⁴ scores show a gap of over 40 percentage points between Asian and Black/African American children. Students who are low income or underserved students of color demonstrate significantly lower scores than their white, Asian, and higher income peers. Overall the region boasts scores well above the state average but closing these success gaps is imperative to preparing students for the future.

Figure 19: King County 2017 Third Grade Math Assessment Outcomes by Demographic

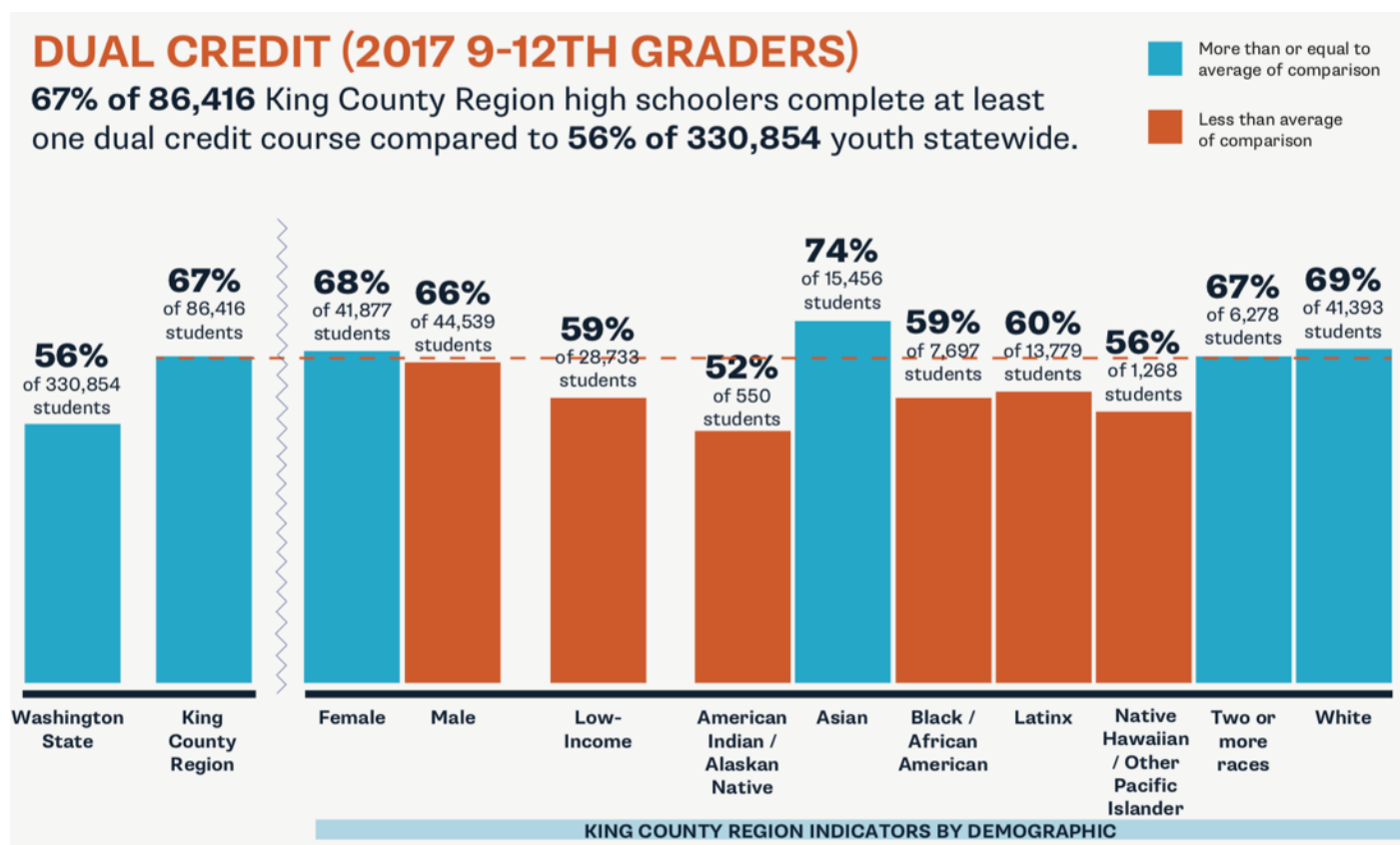


⁵⁴ Office of the Superintendent of Public Instruction, Washington State Report Card – Summary:
<http://reportcard.ospi.k12.wa.us/summary.aspx?groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18>

Dual Credit Course Completion

Completing dual credit⁵⁵ courses allows high school students to earn college credit while still enrolled in high school. King County as a whole shows a dual credit enrollment rate well above the state average. One group, American Indian/Alaska Native students fall well below the regional average and are the only group also below the state average so particular attention should be paid to this group. All other student groups, including low income students, are enrolling in dual credit at or above the state average, likely due to the strong dual credit opportunities in the region. However, more can be done to eliminate the racial and ethnic as well as income disparities that persist in dual credit enrollment and completion.

Figure 20: King County High School Students' (9th through 12th grade) Completion of at Least One Dual Credit Course as of 2017

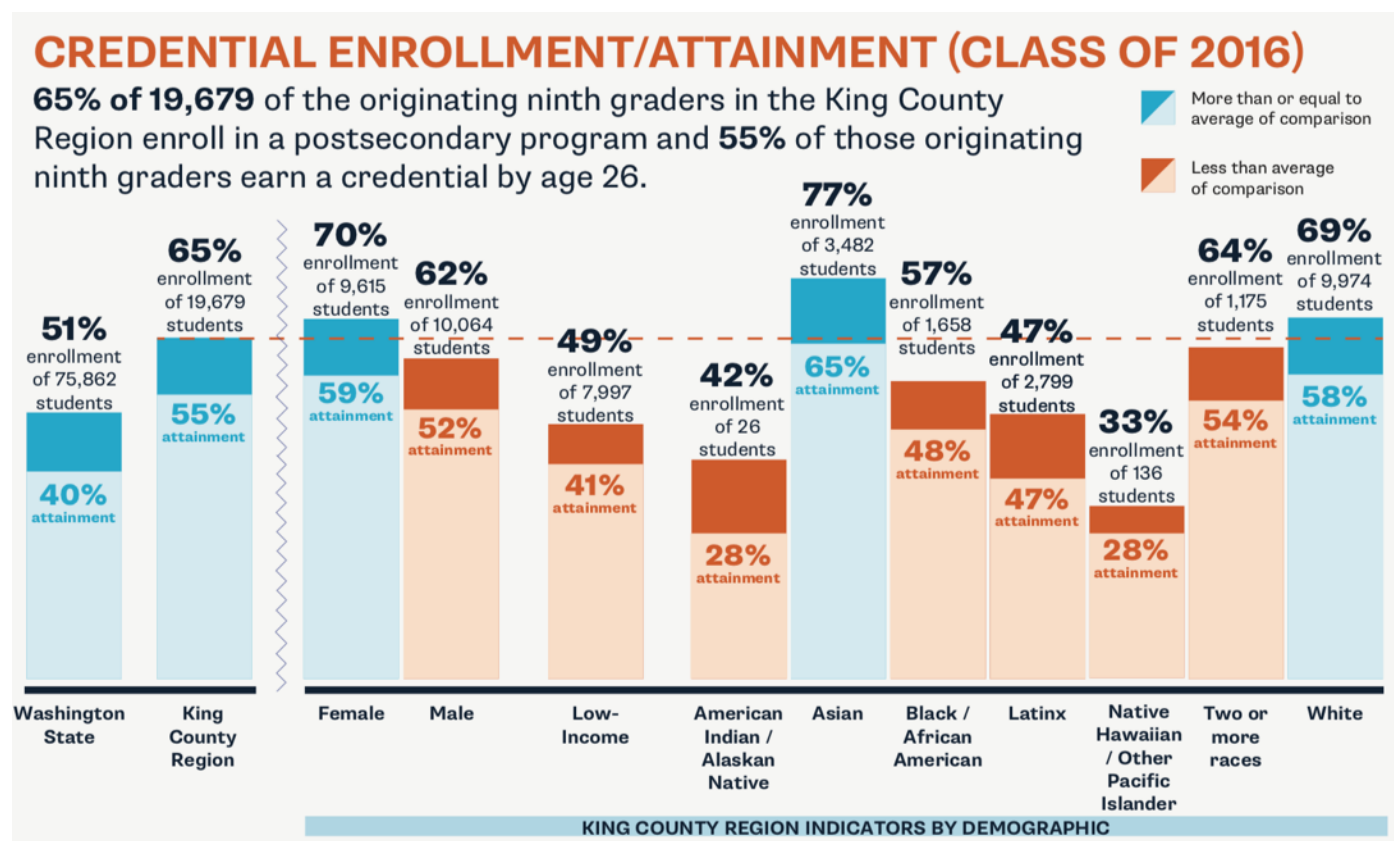


⁵⁵ Office of the Superintendent of Public Instruction, Washington State Report Card - HS Dual Credit: http://reportcard.ospi.k12.wa.us/DualCredit_2.aspx?domain=DualCredit&groupLevel=District&schoolId=1&reportLevel=State&yrs=2016-17&year=2016-17

Postsecondary Enrollment & Completion

Over half (65 percent) of the 2016 King county region ninth-grade cohort enroll in a postsecondary program but only 55 percent earn any credential by age 26, short of the Washington Roundtable goal of 70 percent postsecondary credential attainment set for the high school class of 2030.⁵⁶ Like other indicators, this one too demonstrates serious subgroup disparities in terms of postsecondary enrollment and attainment. While female students, Asian, and white students overall attain postsecondary credentials at higher rates than the statewide average, all other groups lag behind. Given the large numbers of underserved students of color who are not completing the credentials needed to obtain family-sustaining jobs, it's likely these populations will continue to be pushed to the economic and social margins in King County. Seriously addressing these structural disparities is an economic and equity imperative in the region.

Figure 21: King County Credential Enrollment and Projected Completion for the High School Class of 2016



⁵⁶ Washington Roundtable, *The Credential Is Essential*, report series: <https://www.waroundtable.com/2018/06/12/credential-is-essential/>

Students in King County that attend college directly after high school enroll in four-year out-of-state or private institutions most often at 24 percent. The second most popular option is the University of Washington at 20 percent. Local community colleges, especially Bellevue and Green River, are also popular. Given these high rates of enrollment in community colleges, it is essential that transfer students are able to successfully transfer to a four-year degree option. The most recent data available shows overall community colleges in the state have high associate degree completion rates but low transfer rates as compared to other states.⁵⁷

Figure 22: Enrollment by Institution for the Graduates of the Class of 2016 for King County Region

| King County Region | | | |
|-------------------------------------|---------------------------|---|---------------------------|
| Top Postsecondary Institution | HS Cohort Enrollment Rate | Top Postsecondary Institution In-Region | HS Cohort Enrollment Rate |
| Four Year - Private or Out-of-State | 24% | University of Washington | 20% |
| University of Washington | 20% | Bellevue College | 9% |
| Bellevue | 9% | Green River College | 6% |
| Washington State University | 6% | Highline College | 6% |
| Green River College | 6% | Seattle-South College | 2% |

In addition to postsecondary institutions' credential offerings, a large number of apprenticeship programs exist in the region, but they are often sparsely enrolled relative to the population. In 2018, just 556 of the region's residents (not necessarily locally originating high school graduates) completed apprenticeship training.

2018 King County Apprenticeships

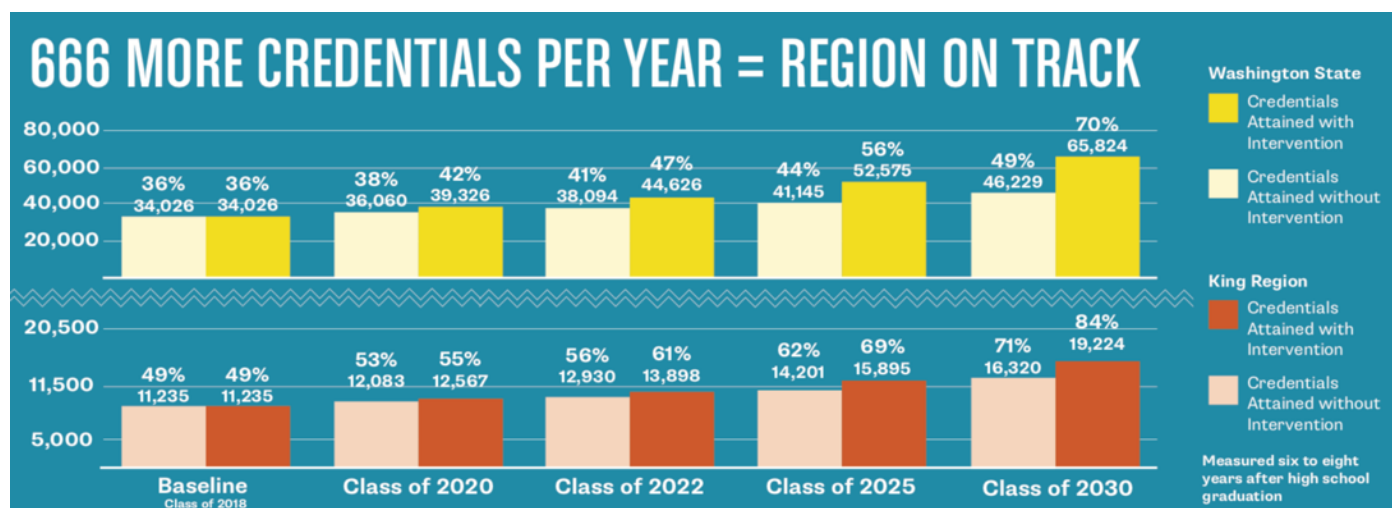
| | |
|---|-------|
| Apprenticeship programs operating in the region | 153 |
| 2018 active apprentices living in the region | 4,021 |
| 2018 apprenticeship completions by region residents | 556 |

More can and should be done to direct the region's high school graduates into these alternative postsecondary training opportunities.

⁵⁷ Jenkins, D., & Fink, J. (2016). Tracking Transfer: New Measures of Institutional and State Effectiveness in Helping Community College Students Attain Bachelor's Degrees. *Community College Research Center, Teachers College, Columbia University*.

Our analysis concludes that the region will need to **support 666 more King County-originating students in earning a postsecondary credential or apprenticeship each year** (i.e., 666 more each year than the prior year) from now until 2030 for the region to be on track for attaining the 83.9 percent goal for that region.⁵⁸ To achieve this goal, the region will need to specifically focus on systems changes that can close the significant outcomes gaps that currently exist for underrepresented students of color as well as students from low-income families.

Figure 23: King County's Trajectory for Increased Number of Locally-Originating High School Students Earning Postsecondary Credentials to Obtain Locally Family-Sustaining Wage Jobs



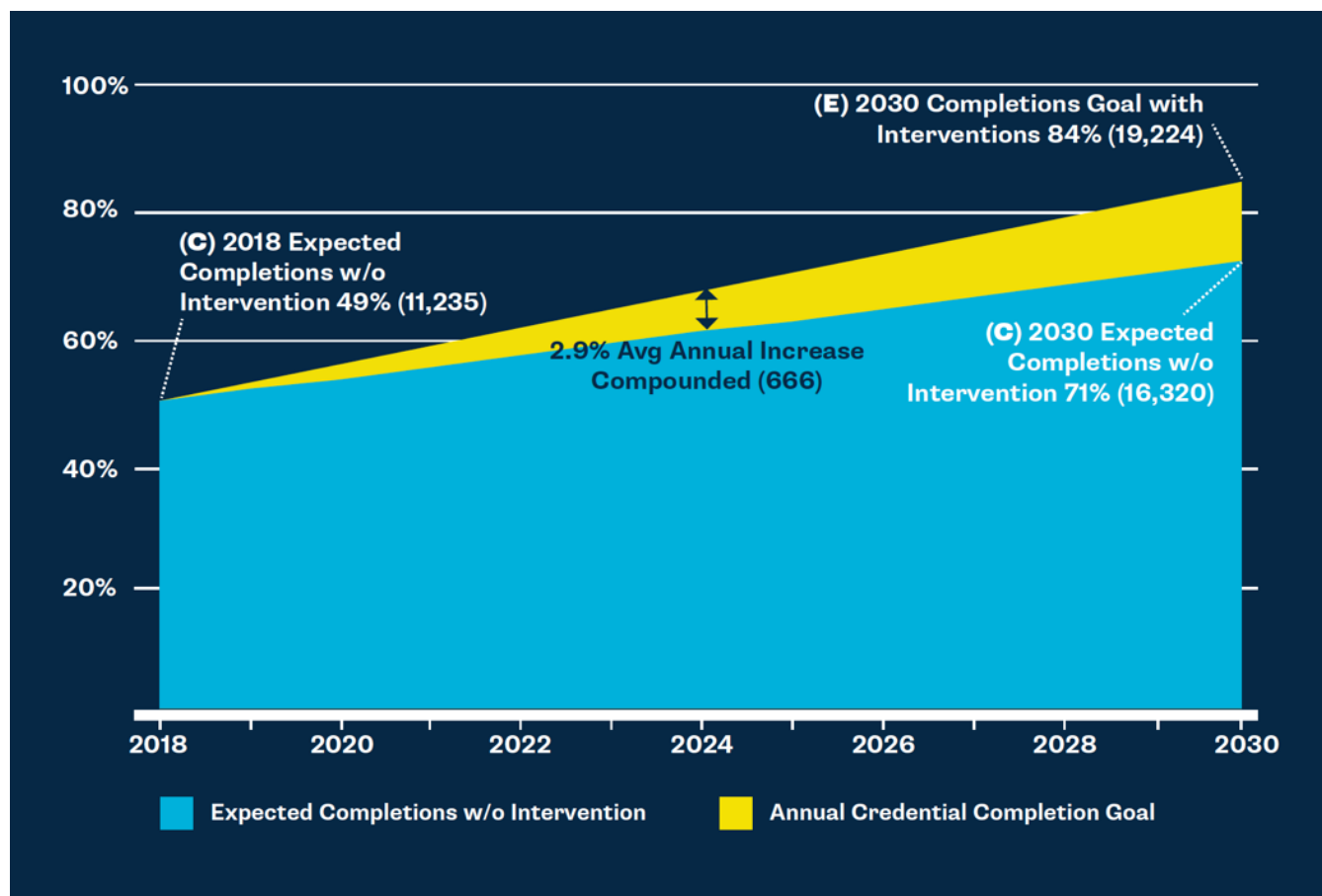
While 666 is an annual average, it is meant to set a benchmark number of what each region should aim to accomplish each year to meet the 2030 target. Below we break down yearly actual annual increases based on increasing cohort sizes and expected completion percentages.

⁵⁸ Washington STEM has produced a similar estimate for each region in the state; taken together these regional estimates will allow the state to reach its goal.

Figure 24: Projections of Current Expected Credentials Earned by Each King County High School Cohort and Year-Over-Year Increases Needed to Meet Goals

| A. High School Class | B. 9th Grade Cohort Size | C. Expected Credential Completions without intervention | D. Annual Completion % Needed to meet goal | E. Annual Completions Goals | F. Increase needed to meet goal (E - C = F) | G. YoY difference in increase needed to meet goal |
|----------------------|--------------------------|---|--|---------------------------------|--|---|
| 2018 | 20,189 | 11,235 | 56% | 11,235 | | |
| 2019 | 20,305 | 11,300 | 58% | 11,778 | 478 | 478 |
| 2020 | 20,004 | 11,132 | 60% | 12,074 | 942 | 464 |
| 2021 | 20,275 | 11,283 | 63% | 12,715 | 1,432 | 490 |
| 2022 | 20,524 | 11,422 | 65% | 13,354 | 1,933 | 501 |
| 2023 | 20,751 | 11,548 | 67% | 13,991 | 2,443 | 510 |
| 2024 | 21,325 | 11,868 | 70% | 14,880 | 3,012 | 570 |
| 2025 | 22,279 | 12,398 | 72% | 16,070 | 3,671 | 659 |
| 2026 | 22,665 | 12,613 | 74% | 16,881 | 4,268 | 597 |
| 2027 | 22,504 | 12,524 | 77% | 17,292 | 4,768 | 500 |
| 2028 | 22,529 | 12,537 | 79% | 17,841 | 5,304 | 536 |
| 2029 | 22,495 | 12,519 | 82% | 18,344 | 5,825 | 522 |
| 2030 | 22,913 | 12,751 | 84% | 19,224 | 6,473 | 648 |
| Region | | 2018 Cohort Estimated Credential Attainment | 2030 Cohort Estimated Student Headcount | 2030 Credential Attainment Goal | Average Annual Increase Needed to meet 2030 Goal | Annual Increase to Meet 2030 Goal |
| King County | | 20,189 | 22,913 | 19,224 | 666 | 2.40% |

Figure 25: Area Graph of Projections of Current Expected Credentials and Year-Over-Year Increases Needed to Meet Goals (Letters Associate with Figure 24)



THE CREDENTIAL OPPORTUNITY BY REGION AND INDUSTRY (CORI) CROSSWALK

Washington STEM created The Credential Opportunity by Region and Industry (CORI) Crosswalk to analyze postsecondary credential attainment gaps that exist in each Washington State region for family-sustaining occupations. The CORI Crosswalk allows employers, industries, elected officials, and education sectors to make informed decisions regarding employment and postsecondary credential opportunities. The CORI analysis enables us to answer the research question:

Are there sufficient training programs and production capacity in this region that lead to local, high-demand, family-sustaining jobs? Where do training program gaps exist?

The CORI Crosswalk identifies gaps between high demand, family-sustaining occupations, and supply of appropriately credentialed graduates in each region. The Crosswalk uses a color system to identify the areas where gaps exist. The red category highlights occupations that have a supply shortage and have NO available credential program for that occupation in that given region. The yellow category highlights occupations that have supply shortages despite credential programs available, i.e., the program or programs available in the region are not graduating a sufficient number of students to meet

the labor market needs. Last, the green category outlines occupations that are in demand in the given region, and regional credential programs (Classification of Instructional Programs) that are producing an adequate number of graduates to meet the regional labor market need for that given occupation. Thereby the CORI crosswalk identifies available education programs for high demand, family-sustaining occupations.

Imbalances in King County

The CORI Crosswalk begins with the identification of high-demand, family-sustaining occupations⁵⁹ in King County for which postsecondary credential attainment gaps exist. In the King County region, the CORI Crosswalk revealed the following occupations to be in high demand and facing a supply shortage; it also revealed a potential insufficient production of qualified graduates in the region. Notable occupations in high demand with NO credential programs in the region include public relations and fundraising managers; securities, commodities, and financial services sales agents; avionics technicians; and environmental engineers. This means that no postsecondary credential programs exist in King County for these in-demand, family-sustaining wage occupations. Noteworthy occupations where programs exist but with inadequate credentialed graduates being produced to meet demand include software developers (applications), management analysts, accountants, and auditors.

More information regarding high-demand occupations and supply shortages for postsecondary credential programs can be found at Washington STEM, Credential Opportunity by Region and Industry Crosswalk: https://washingtonstem.org/focus_area/career-pathways/#CORI.

Limitations and future improvements of CORI

The CORI analysis does have some limitations. Online degrees are not factored into regional “supply” of credentials awarded (CIP) in the region, such as Western Governor University, a nonprofit online university that offers teaching degrees to place-bound students without local access to such degrees.

Future editions of CORI could include a tiered approach working to pay special attention to the level of supply and demand, moving beyond the current red and yellow color scheme to include more nuance. In addition, while developing and testing the CORI Crosswalk, regional leaders identified some areas where they felt high regional demand was not reflected. Washington STEM is currently working with local Workforce Development Area economists to identify and better understand occupations where region specific improvements in data might be made to capture regional demand better as it is experienced “on the ground.”

DISCUSSION:

⁵⁹ Figures for regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx) , 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018..

Too many local students find the education needed to obtain in-demand, family-sustaining jobs to be an *opportunity mirage* that they are unable to successfully attain. Better preparing local students to compete in the new economy is an equity AND an economic imperative.

A regional approach is warranted as each of the regions in Washington has fundamentally different educational and economic contexts with differing problems and solutions in each. We believe local leaders are best able to create the smart, innovative, and potentially disruptive changes needed to substantially move the needle on educational opportunity that matches job market needs.

Region specific recommendations:

- Work to get more students, especially low-income and underserved students of color, ready for Kindergarten
- Attack K-12 success gaps
- Increase high school graduation rates and ensure students have the information they need to know their college academic program and financial options
- Increase apprenticeship enrollment
- Establish metrics to increase successful transfer from local community colleges to four-year institutions for baccalaureate-seeking students
- Create instructional programs and increased production capacity in CORI shortage fields so local students do not need to leave the region to obtain high-demand credentials
- Work to make place-bound students more aware of public online options, such as Western Governors University, for high-demand credential options

NORTH CENTRAL REGION: EQUITY AND OPPORTUNITY BY THE NUMBERS

The North Central Region of Washington State is aiming to improve both high school graduation rates and postsecondary credential completion rates to ensure its students are able to obtain family-sustaining, in-demand jobs. In particular, the region shows a gap between its large population of Latinx students and white students in nearly every measure of K-12 readiness and educational outcomes. For the region's 2016 five-year adjusted high school cohort, their estimated within-three-year postsecondary enrollment rate is 51 percent, yet 43 percent of that same originating cohort earn any form of postsecondary credential by age 26 (or within eight years after intended high school graduation date). This completion rate is far short of what the projected job openings for the region will require in terms of credentials for obtaining family-sustaining wage employment. Our analysis of the North Central Region's data shows demographic disparities regarding both postsecondary enrollment and attainment. While female students and white students overall attain postsecondary credentials at higher rates than the statewide average, all other demographic groups attain at lower rates than the state average. If the North Central Region aims to close supply-demand gaps for in-demand, family-sustaining wage jobs, an annual average of 97⁶⁰ *more students each year than the prior year* need to obtain a credential between now and the high school class of 2030.⁶¹

Opportunities exist to strengthen credential attainment throughout the educational system in the North Central Region. For example, while the number of apprenticeship programs in the region is strong, enrollment in these programs is small. Local postsecondary institutions have added numerous programs to meet demand in recent years, but opportunities exist to do more. Similarly, in this region there are no postsecondary education preparation programs that support students to obtain certain in-demand jobs, including jobs as accountants, teachers, and computer/information technology support workers. This section of the paper will provide an in-depth analysis of all of the North Central Region's equity and opportunity outcomes through the lens of regionalized education-to-workforce supply and demand analyses.

THE NORTH CENTRAL REGION

The North Central Region's boundaries are based on those included in Educational Service District (ESD) 171 and the North Central Workforce Development Area (WDA). The region also includes Almira School District, which is an area associated with the Eastern Washington WDA and ESD 101. Spanning from

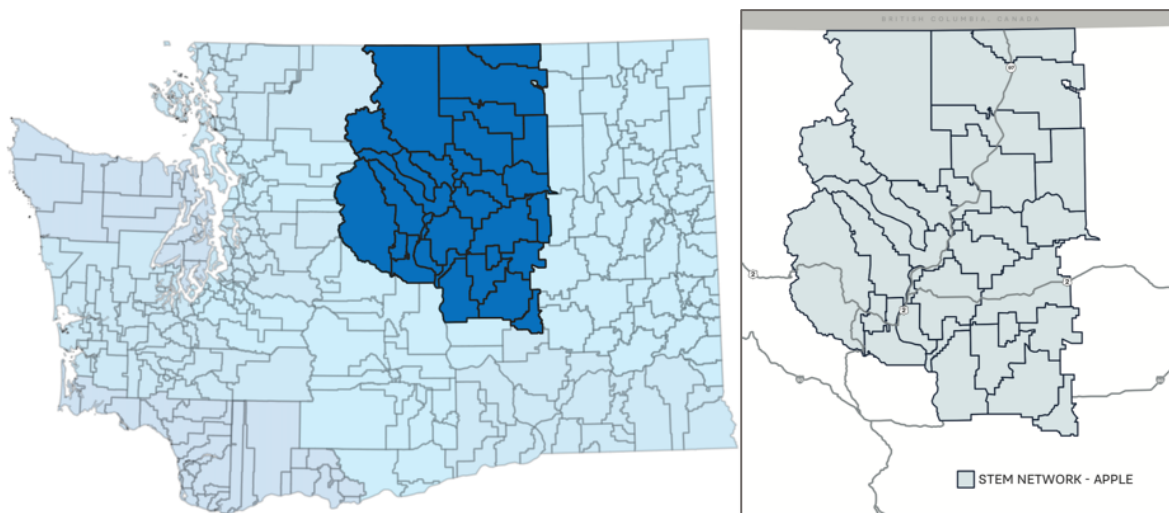
⁶⁰ Goal numbers were updated in January 2019 from previous Washington STEM reports based on new projections from the Education Research & Data Center.

⁶¹ In this instance, the "high school class of 2030" does not refer to only those students who make it to high school graduation; rather, this refers to the entire class who are at any time intending on graduating in 2030. Above and in other sections, we refer to this as the five-year adjusted cohort.

Moses Lake to Okanogan, this region is home to growing information technology, healthcare, K-12 education, agriculture, and construction industries.

The North Central region has a school-aged public attendance (K-12) of 41,667 and approximately 2,544 students graduate from high school each year. The K-12 projected population growth rate is approximately 0.34 percent annually⁶² with a large white population and a large Latinx population.⁶³ There are 31 school districts in this region and the 2016 five-year adjusted cohort high school graduation rate for this region is 85.8 percent, compared to the statewide rate of 82.4 percent.⁶⁴

Figure 26: North Central Region and Apple STEM Network Geographical Boundaries



Twenty-four school districts in the region are members of the North Central Apple STEM Network, one of 10 STEM Networks supported by Washington STEM. The Network's business, education, and community partners are working to close credential attainment gaps, especially for rural communities, students of color, and students from low-income families. They aim to increase the number of local students who are able to obtain the growing high-demand⁶⁵ and family-sustaining wage jobs⁶⁶, especially

⁶² Office of Financial Management. 2017 Projections of the Population by Age and Sex for Growth Management - Ages 5-19. Retrieved from <https://www.ofm.wa.gov/washington-data-research/population-demographics/population-forecasts-and-projections>

⁶³ WA Office of Financial Management, WA Caseload Forecast Council. Common Schools Education Long Range Projections - Headcounts. Retrieved from https://www.cfc.wa.gov/Education_Common_Schools_Enrollment.htm

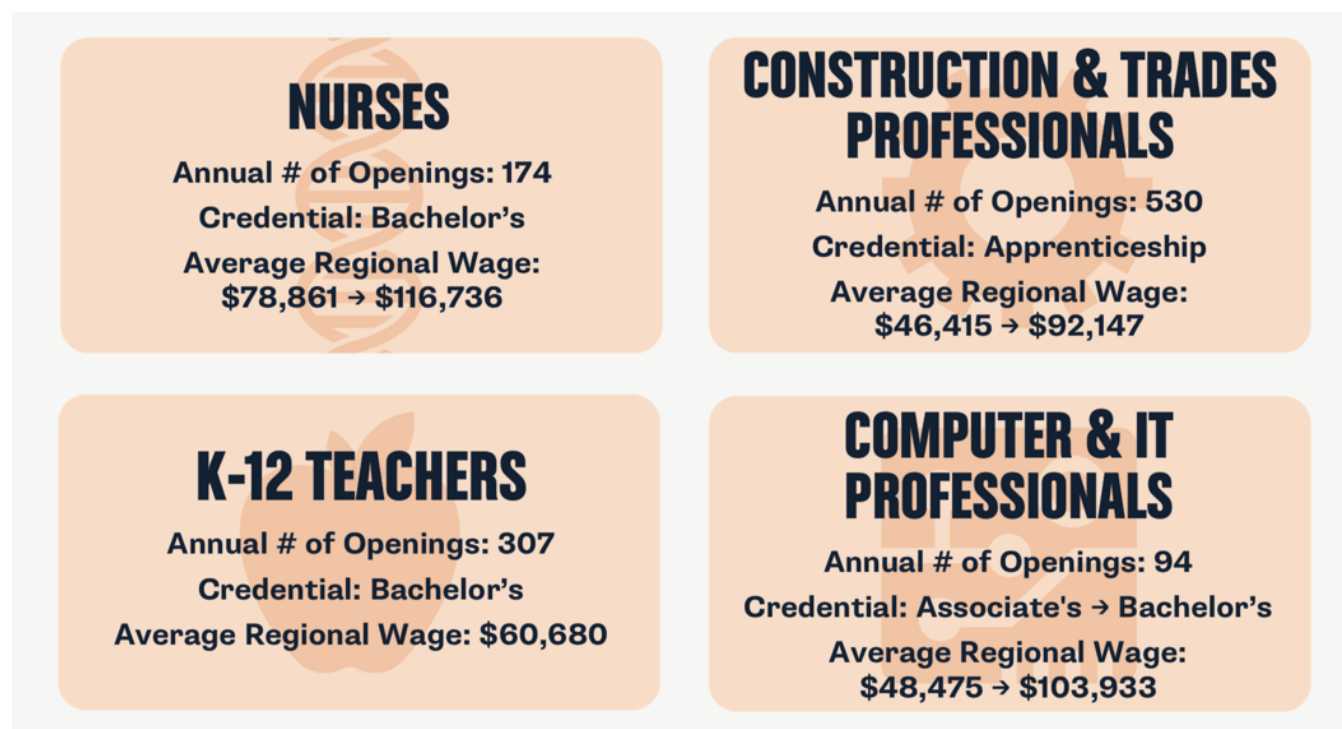
⁶⁴ OSPI "2014-2015 Graduation Rates by School 5Yr Cohort" <http://reportcard.ospi.k12.wa.us/DataDownload.aspx>; ERDC "2015 High School Feedback Report" <http://www.erdcddata.wa.gov/hsfb.asp>

⁶⁵ "Learn about an Occupation," *Occupations in Demand List*, Washington State Employment Security Department, www.esd.wa.gov/labormarketinfo/learn-about-an-occupation

⁶⁶ Family sustaining is defined as an income capable of supporting one working adult, one non-working adult, and one child. Living wage is defined as income capable of supporting a single adult. Living- and family-sustaining wage data provided by MIT Living Wage Calculator, retrieved December 2018: <http://livingwage.mit.edu/>.

in sectors such as technology, education, healthcare, and construction. It is projected that there will be 14,013 job openings annually, each year over the next five years, in jobs that pay above a family sustaining wages and that are entry-level⁶⁷ (meaning that students can obtain the jobs right after completing a credential and without having any on-the-job experience). As mentioned above, jobs in high demand in the North Central Region include those in healthcare, technology, education, construction, and trades. These jobs pay either living- or family-sustaining wages, for example:⁶⁸

Figure 27: Examples of In-Demand, Family-Sustaining Wage Jobs in the North Central Region



NORTH CENTRAL REGION FINDINGS

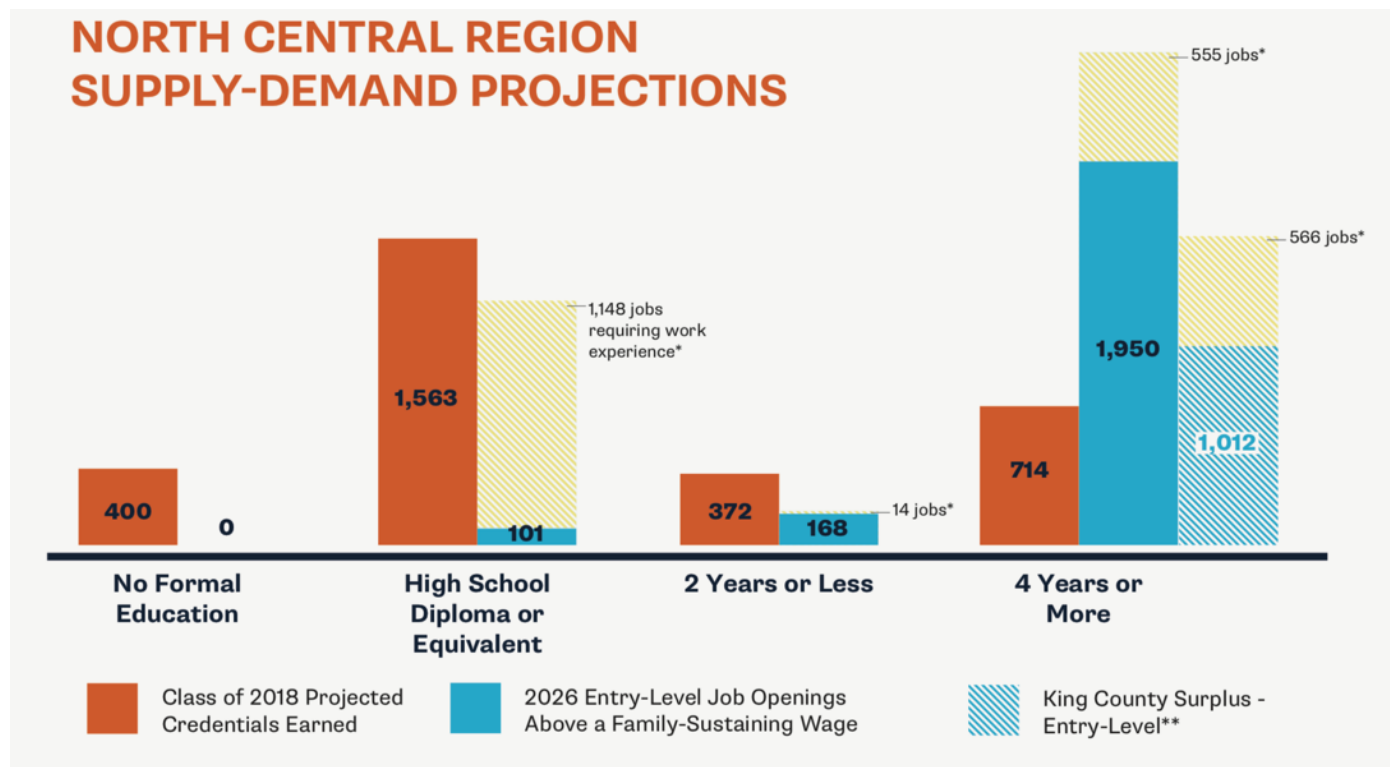
After analyzing data to understand a basic supply-demand balance for any given year's high school student enrollment and completion outcomes against projected job openings' average credential needed

⁶⁷ Entry level jobs are defined as requiring no work experience, with on-the-job training limited to 1 months or less, or if required by an occupation, includes apprenticeship or residency. Work experience and on-the-job training are defined by the US Bureau of Labor Statistics, <https://www.bls.gov/emp/documentation/nem-definitions.htm#education>.

⁶⁸ Regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: [2018 WA ESD Separations: https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx), [2018 WA ESD Occupational Employment and Wage Estimates: https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates](https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates), MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018.

to obtain each job, we found that moving more students from obtaining a high school diploma or equivalent as their highest education level to a four-year/bachelor's degree will ensure that they, and the region, can thrive economically. In other words, the North Central region, like others in the state, has a large gap between the number of projected jobs available that will require a bachelor's degree or more to obtain a family sustaining wage and the number of students currently projected to earn such a degree. Relatedly, the region has far too many young people with only a high school diploma or less compared to the number of family-wage jobs available to people with such preparation (see figure 28 below).

Figure 28: Comparison of North Central Region's Class of 2018 Projected Credential Completion to 2026 Projected Job Openings by Type of Credential Needed to Obtain Jobs

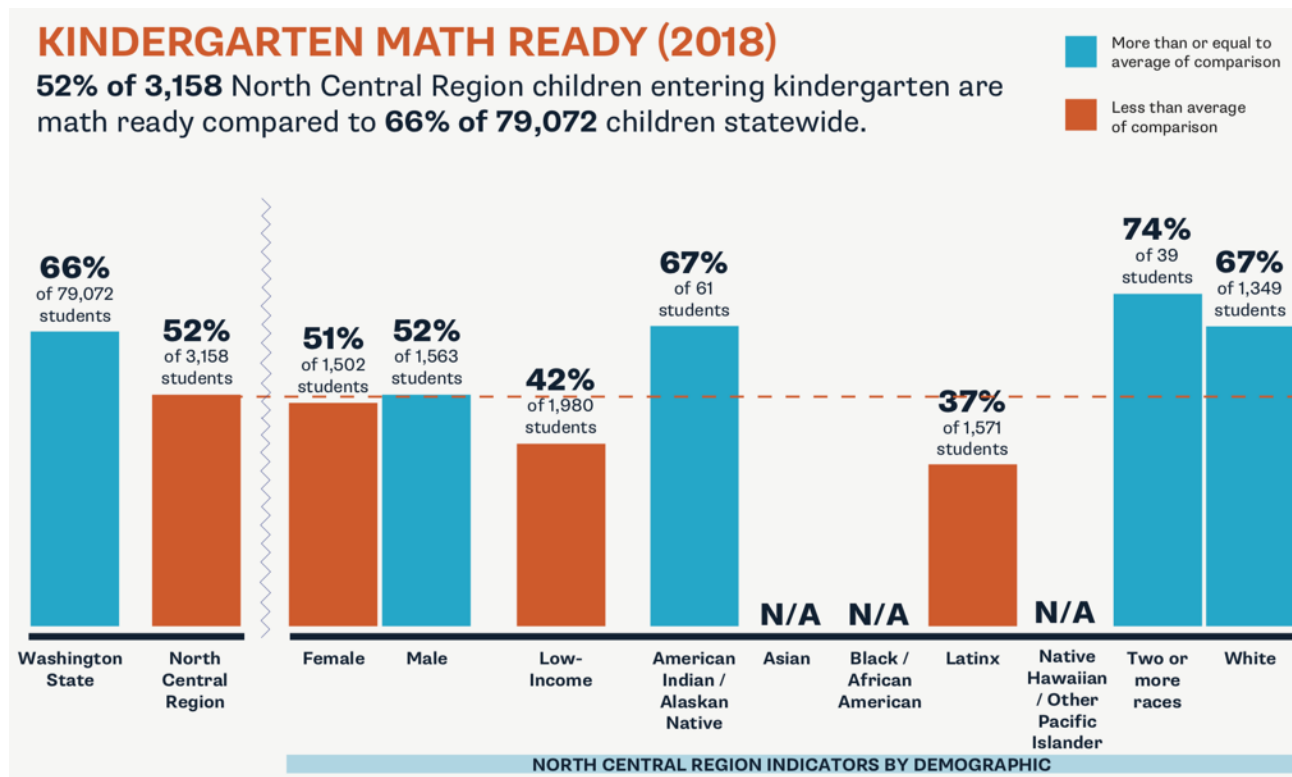


Increasingly, educators, policy makers, and local leaders are examining the entire Kindergarten-to postsecondary-education-to-careers pathway to determine where systems changes are needed. Obtaining a family-sustaining job does not begin with a job search or even in postsecondary education. The foundation for such careers begins in elementary school or even before. Washington STEM has worked to create early indicators of prospects for high school graduation and postsecondary study necessary to compete for STEM and other family-sustaining jobs. Examining these indicators and trends in them allows us to begin to answer the question: *Where are identifiable gaps along this pathway that lead students in the North Central Region to fall behind in their pursuit of needed credentials?*

Kindergarten Math Readiness

The first step in the formal education-to-career pathway is Kindergarten. Significantly fewer students in the North Central Region enter Kindergarten math ready⁶⁹ than is true statewide. As the graphic below shows, 52 percent of North Central Region students enter Kindergarten with the math skills that they need at that level. While white students are close to the statewide average of 66 percent math ready, Latinx students, who comprise 50 percent of Kindergarteners in the region, are 29 percentage points below the statewide average for Kindergarten math readiness.

Figure 29: North Central Region 2018 Kindergarten Math Readiness by Demographic



Third Grade Math Achievement

Outcomes improve slightly for third grade math achievement,⁷⁰ reflecting the hard work of multiple stakeholders in the region. The gap between regional and statewide achievement (percentage achieving

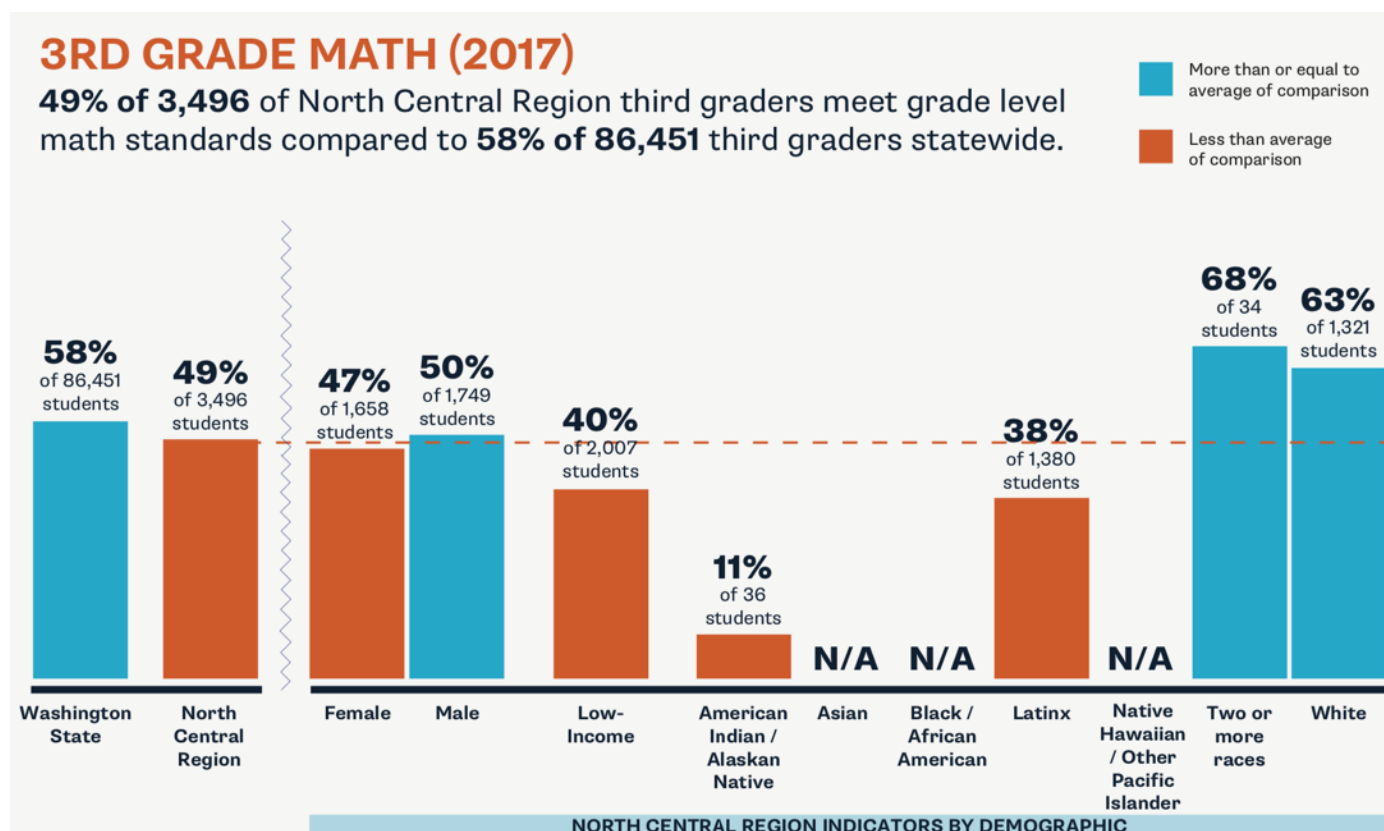
⁶⁹ OSPI defines math readiness for children beginning Kindergarten as: saying a sequence of numbers up to 20, counting objects up to 10, comparing objects' size, length, or weight, and identifying the position of objects by using words like beside, inside, next to, above, or below. Office of the Superintendent of Public Instruction, Washington State Report Card - WaKIDS. Retrieved from:

<http://reportcard.ospi.k12.wa.us/WaKidsDetailPage.aspx?domain=WaKIDS&groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18&gradeLevelId=3&waslCategory=1&chartType=1>

⁷⁰ Office of the Superintendent of Public Instruction, Washington State Report Card - Summary, retrieved from: <http://reportcard.ospi.k12.wa.us/summary.aspx?groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18>

the state's proficiency benchmark) narrows from 14 percentage points at the Kindergarten entry stage to 9 percentage points at third grade. However, Latinx students in the region are still 20 percentage points behind the state average in the proportion meeting standards while white students are five percentage points higher than the state average.

Figure 30: North Central Region 2017 Third Grade Math Assessment Outcomes by Demographic



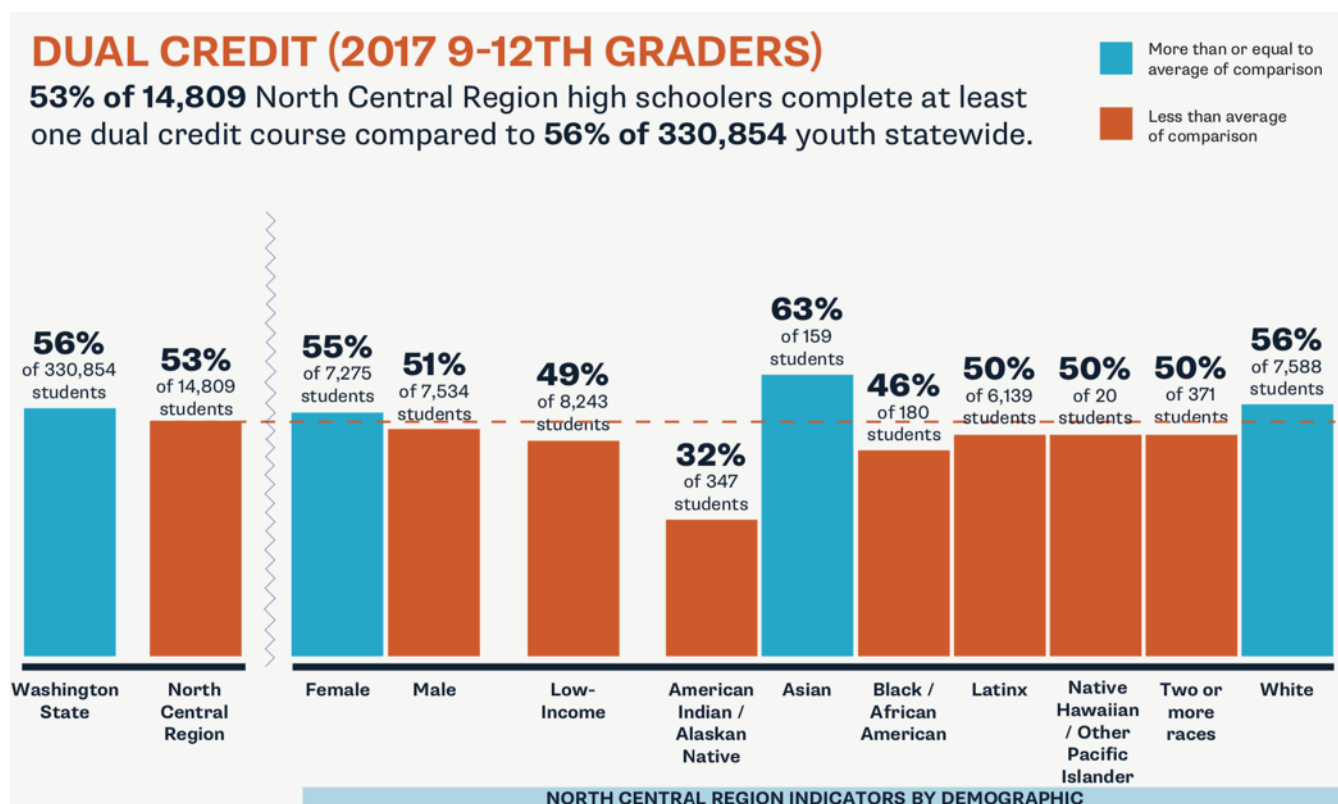
Dual Credit Course Completion

Completing dual credit⁷¹ courses allows high school students to earn college credit while still enrolled in high school (and while earning high school credit). The North Central Region as a whole shows a dual credit enrollment rate slightly below the state average. In the region, 53 percent of high school students

⁷¹ Office of the Superintendent of Public Instruction, Washington State Report Card - HS Dual Credit, retrieved from: http://reportcard.ospi.k12.wa.us/DualCredit_2.aspx?domain=DualCredit&groupLevel=District&schoolId=1&reportLevel=State&yrs=2016-17&year=2016-17

complete at least one dual credit course at any point in high school, compared to 56 percent of youth statewide. However, once again, underrepresented students of color, especially American Indian/Alaskan Native and Black/African American students, lag behind, as do low-income students. Also, slightly below average rates are seen for Latinx students and males in the region while white and Asian students, as well as female students, complete these courses at rates above the state and regional averages.

Figure 31: North Central Region High School Students' (9th through 12th grade) Completion of at Least One Dual Credit course as of 2017

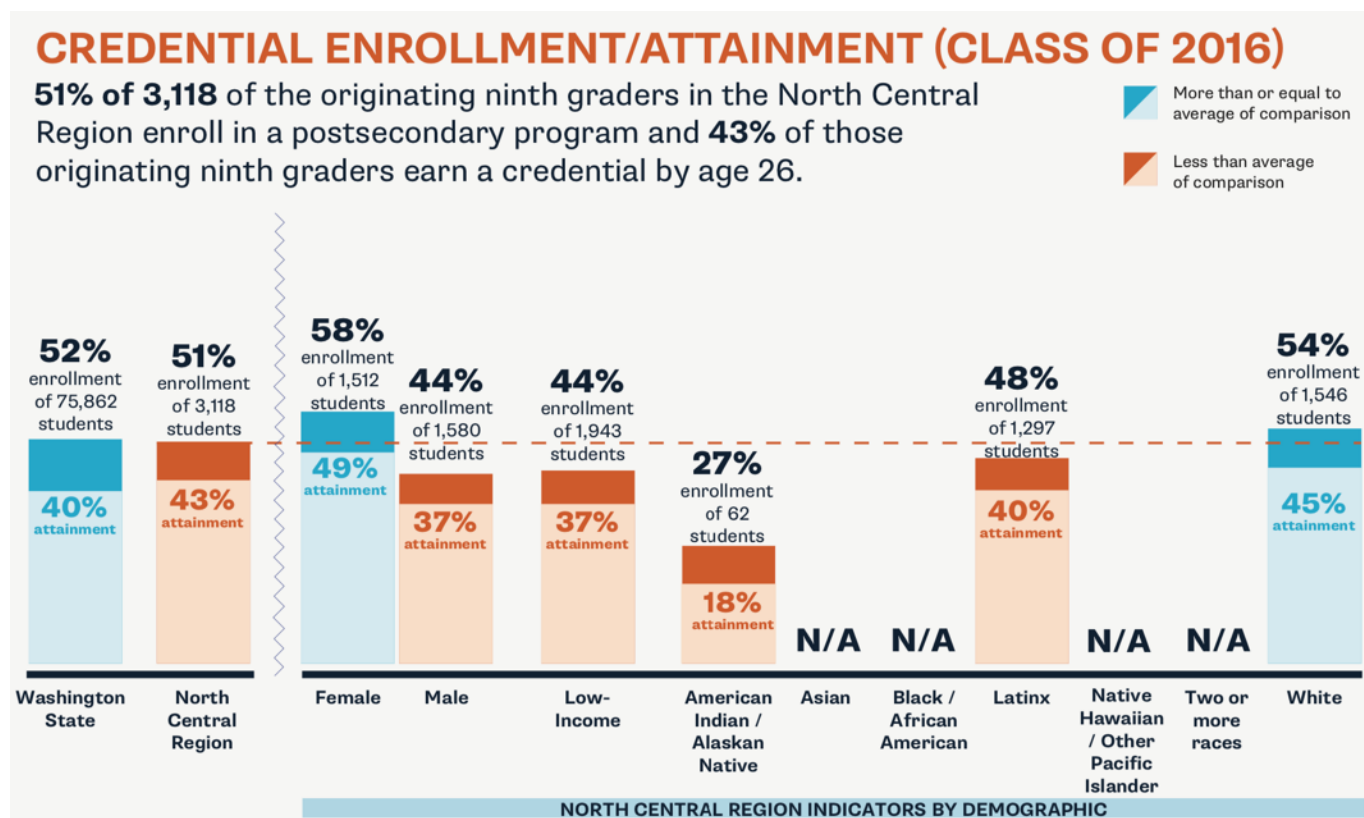


Postsecondary Enrollment & Completion

Over half (51 percent) of the North Central region 2016 ninth-grade cohort enroll in a postsecondary program but only 43 percent earn any credential by age 26, far short of the regional goal of 65 percent postsecondary credential attainment set for the high school class of 2030.⁷² Like other indicators, this one too demonstrates subgroup disparities in terms of postsecondary enrollment and attainment. While female students and white students overall attain postsecondary credentials at higher rates than the statewide average, all other groups lag behind.

⁷² Washington Roundtable, *The Credential Is Essential*, report series: <https://www.waroundtable.com/2018/06/12/credential-is-essential/>

Figure 32: North Central Region Credential Enrollment and Projected Completion for the High School Class of 2016



Students in the North Central region who attend college after high school tend to enroll in local community colleges most often. For example, direct enrollment rates (meaning enrollment within 12 months after graduating high school) for the class of 2016 across the North Central Region were as follows: 44 percent of the students who enrolled attended either Wenatchee Valley College (31 percent) or Big Bend College (13 percent). The third most popular college for enrollment was an out-of-state (public or private) or an in-state private four-year college where just 10 percent of students directly enroll. Given these high rates of enrollment in community colleges, it is essential that transfer students are able to successfully transfer to a four-year degree option. The most recent data available shows overall community colleges in the state have high associate degree completion rates but low transfer rates as compared to other states.⁷³

Figure 33: Enrollment by Institution for the Graduates of the Class of 2016 for the North Central Region

| North Central Region | | | |
|---|---------------------------|---|---------------------------|
| Top Postsecondary Institution | HS Cohort Enrollment Rate | Top Postsecondary Institution In-Region | HS Cohort Enrollment Rate |
| Wenatchee Valley College | 31% | Wenatchee Valley College | 31% |
| Big Bend College | 13% | Big Bend College | 13% |
| Four Year - Private or Out-of-State | 10% | | |
| Washington State University | 9% | | |
| Two Year - Community or Technical College (Other) | 8% | | |

⁷³ Jenkins, D., & Fink, J. (2016). Tracking Transfer: New Measures of Institutional and State Effectiveness in Helping Community College Students Attain Bachelor's Degrees. *Community College Research Center, Teachers College, Columbia University*.

In addition to postsecondary institutions’ credential offerings, a large number of apprenticeship programs exist in the region, but they are often sparsely enrolled. In 2018, just 80 of the region’s residents (not necessarily locally-originating high school graduates) completed apprenticeship training.

2018 North Central Region Apprenticeships

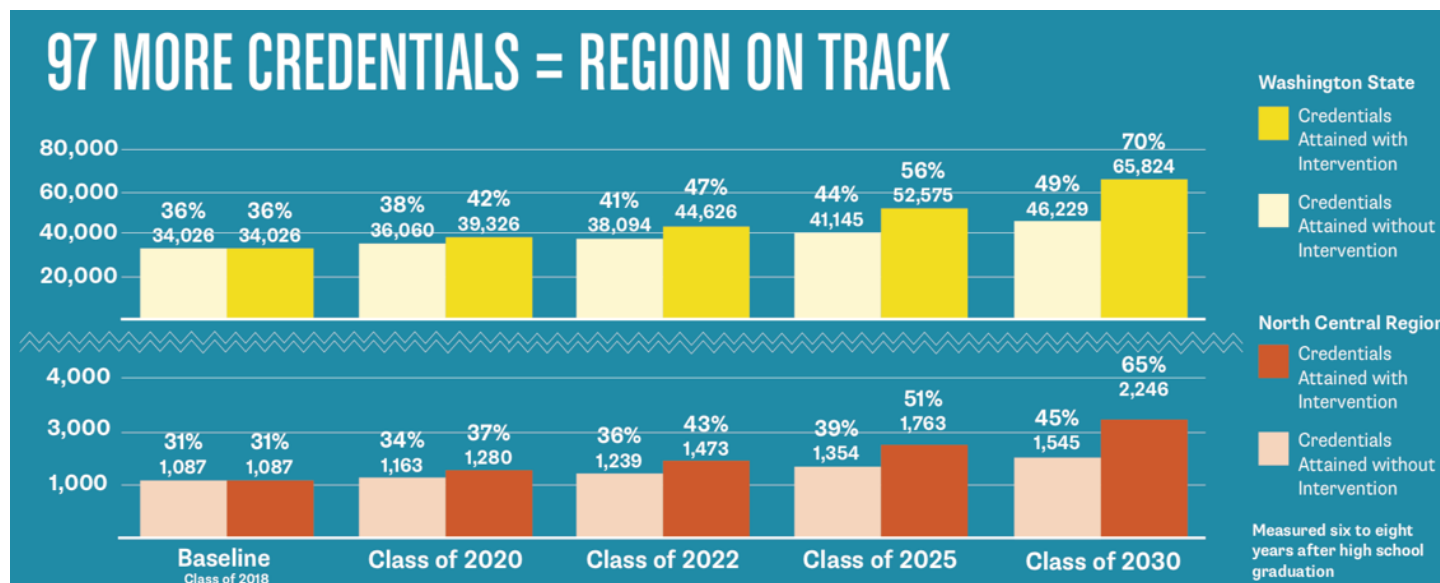
| | |
|---|-----|
| Apprenticeship programs operating in the region | 65 |
| 2018 active apprentices living in the region | 381 |
| 2018 apprenticeship completions by region residents | 80 |

More can and should be done to direct the region’s high school graduates into these alternative postsecondary training opportunities.

Our analysis concludes that the region will need to **support 97 more North Central Region-originating students in earning a postsecondary credential or apprenticeship each year** (i.e., 97 more each year than the prior year) from now until 2030 for the region to be on track for attaining the 64.9 percent goal for that region.⁷⁴ To achieve this goal, the region will need to specifically focus on systems changes that can close the significant outcomes gaps that currently exist for underrepresented students of color as well as students from low-income families.

⁷⁴ Washington STEM has produced a similar estimate for each region in the state, taken together these regional estimates will allow the state to reach its goal.

Figure 34: North Central Region’s Trajectory for Increased Number of Locally-Originating High School Students Earning Postsecondary Credentials to Obtain Locally Family-Sustaining Wage Jobs

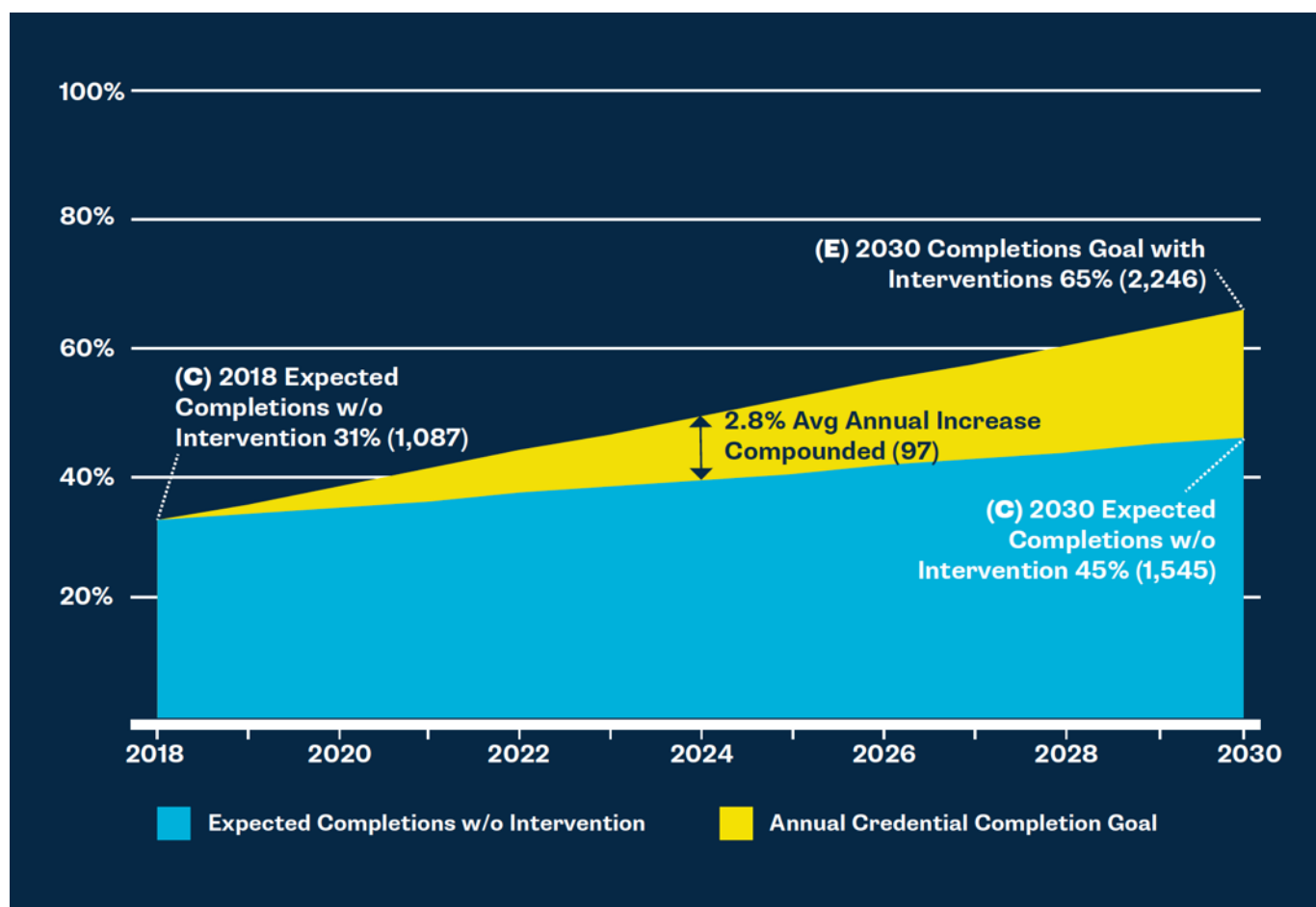


While 97 is an annual average, it is meant to set a benchmark number of what each region should aim to accomplish each year to meet the 2030 target. Below we break down yearly actual annual increases based on increasing cohort sizes and expected completion percentages.

Figure 35: Projections of Current Expected Credentials Earned by Each North Central Region High School Cohort and Year-Over-Year Increases Needed to Meet Goals

| A. High School Class | B. 9th Grade Cohort Size | C. Expected Credential Completions without intervention | D. Annual Completion % Needed to meet goal | E. Annual Completions Goals | F. Increase needed to meet goal (E - C = F) | G. YoY difference in increase needed to meet goal |
|----------------------|--------------------------|---|--|---------------------------------|--|---|
| 2018 | 3,049 | 1,087 | 36% | 1,087 | | |
| 2019 | 3,067 | 1,093 | 38% | 1,168 | 75 | 75 |
| 2020 | 3,022 | 1,077 | 41% | 1,224 | 147 | 73 |
| 2021 | 3,062 | 1,091 | 43% | 1,315 | 224 | 77 |
| 2022 | 3,100 | 1,105 | 45% | 1,407 | 302 | 78 |
| 2023 | 3,134 | 1,117 | 48% | 1,499 | 382 | 80 |
| 2024 | 3,221 | 1,148 | 50% | 1,619 | 471 | 89 |
| 2025 | 3,365 | 1,199 | 53% | 1,774 | 575 | 103 |
| 2026 | 3,423 | 1,220 | 55% | 1,888 | 668 | 93 |
| 2027 | 3,399 | 1,211 | 58% | 1,957 | 746 | 78 |
| 2028 | 3,403 | 1,213 | 60% | 2,042 | 830 | 84 |
| 2029 | 3,398 | 1,211 | 62% | 2,122 | 912 | 82 |
| 2030 | 3,461 | 1,233 | 65% | 2,246 | 1,013 | 101 |
| Region | | 2018 Cohort Estimated Credential Attainment | 2030 Cohort Estimated Student Headcount | 2030 Credential Attainment Goal | Average Annual Increase Needed to meet 2030 Goal | Annual Increase to Meet 2030 Goal |
| North Central | | 3,049 | 3,461 | 2,246 | 97 | 2.40% |

Figure 36: Area Graph of Projections of Current Expected Credentials and Year-Over-Year Increases Needed to Meet Goals (Letters Associate with Figure 35)



THE CREDENTIAL OPPORTUNITY BY REGION AND INDUSTRY (CORI) CROSSWALK

Washington STEM created The Credential Opportunity by Region and Industry (CORI) Crosswalk to analyze postsecondary credential attainment gaps that exist in each Washington State region for family-sustaining occupations. The CORI Crosswalk allows employers, industries, elected officials, and education sectors to make informed decisions regarding employment and postsecondary credential opportunities. The CORI analysis enables us to answer the research question:

Are there sufficient training programs and production capacity in this region that lead to local, high-demand, family-sustaining jobs? Where do training program gaps exist?

The CORI Crosswalk identifies gaps between high-demand, family-sustaining occupations and supply of appropriately credentialed graduates in each region. The Crosswalk uses a color system to identify the areas where gaps exist. The red category highlights occupations that have a supply shortage and have NO available credential program for that occupation in that given region. The yellow category highlights occupations that have supply shortages despite credential programs available, i.e., the program or programs available in the region are not graduating a sufficient number of students to meet the labor

market needs. Last, the green category outlines occupations that are in demand in the given region, and regional credential programs (Classification of Instructional Programs) that are producing an adequate number of graduates to meet the regional labor market need for that given occupation. Thereby the CORI crosswalk identifies available education programs for high demand, family-sustaining occupations.

Imbalances in North Central

The CORI Crosswalk begins with the identification of high-demand, family-sustaining occupations⁷⁵ in the North Central region for which postsecondary credential attainment gaps exist. In the North Central region, the CORI Crosswalk revealed the following occupations to be in high demand and facing a supply shortage and a potential insufficient production of qualified graduates in the region. Notable occupations in high demand with NO credential programs in the region include elementary school and middle school teachers, accountants, and auditors. This means that no postsecondary credential programs exist in the North Central region for these in-demand, family-sustaining wage occupations. Noteworthy occupations where programs exist but with inadequate credentialed graduates being produced to meet demand include registered nurses, general and operations managers, and industry machine mechanics.

More information regarding high demand occupations and supply shortages for postsecondary credential programs can be found at [Washington STEM, Credential Opportunity by Region and Industry Crosswalk](#).

Limitations and future improvements of CORI

The CORI analysis does have some limitations. Online degrees are not factored into regional “supply” of credentials awarded (CIP) in the region, such as Western Governor University, a nonprofit online university that offers teaching degrees to place-bound students without local access to such degrees.

Future editions of CORI could include a tiered approach working to pay special attention to the level of supply and demand, moving beyond the current red and yellow color scheme to include more nuance. In addition, while developing and testing the CORI Crosswalk, regional leaders identified some areas where they felt high regional demand was not reflected. Washington STEM is currently working with local Workforce Development Area economists to identify and better understand occupations where region-specific improvements in data might be made to capture regional demand better as it is experienced “on the ground.”

⁷⁵Figures for regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx) , 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018.

DISCUSSION:

Too many local students find the education needed to obtain in demand family sustaining careers to be an *opportunity mirage* that they are unable to successfully attain. Better preparing local students to compete in the new economy is an equity AND an economic imperative.

A regional approach is warranted as each of the regions in Washington has fundamentally different educational and economic contexts with differing problems and solutions in each. We believe local leaders are best able to create the smart, innovative, and potentially disruptive changes needed to substantially move the needle on educational opportunity that matches job market needs.

Region specific recommendations:

- Work to get more students, especially Latinx students, ready for Kindergarten
- Reduce K-12 success gaps
- Increase high school graduation rates
- Increase apprenticeship enrollment
- Establish metrics to increase successful transfer from local community colleges to four-year institutions for baccalaureate-seeking students
- Create instructional programs and increased production capacity in CORI shortage fields
- Work to make place-bound students more aware of public online options such as Western Governors University for high-demand credential options

NORTH OLYMPIC REGION: EQUITY AND OPPORTUNITY BY THE NUMBERS

EXECUTIVE SUMMARY

The North Olympic Region of Washington State faces a challenge in preparing students for the family-sustaining, in-demand jobs that exist in the region. Currently, 59.8 percent of locally-originating cohorts (defined at ninth grade entry) enroll in a postsecondary program, while only 37.8 percent earn any form of postsecondary credential by age 26, far short of what is needed by the local labor market. There are subgroup disparities in both enrollment and attainment. While female students and white students overall in the region attain postsecondary credentials at higher rates than the statewide average, all other groups attain at lower rates than the state average, and some (e.g. low-income and American Indian/Alaska Native students) show troubling gaps. If the North Olympic Region aims to close supply-demand gaps for in-demand, family-sustaining wage jobs, *162⁷⁶ more students in each year than the prior year need to obtain a credential between now and the high school graduating class of 2030.*⁷⁷

Local postsecondary institutions have added numerous programs to meet demand in recent years, but opportunities exist to do more. For example, while the number of apprenticeship programs in the region is strong, enrollment in these programs is small. In addition, in the region, there are no postsecondary education preparation programs in such in-demand fields as middle school teachers, elementary school teachers, and human resource specialists.

THE NORTH OLYMPIC REGION

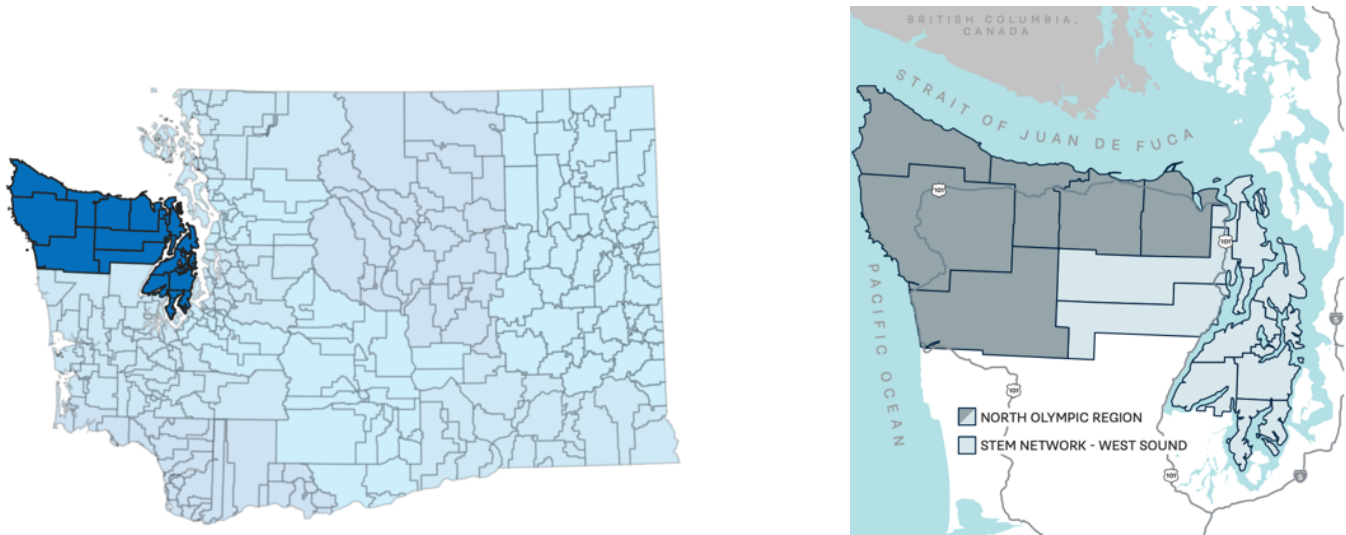
The North Olympic Region's boundaries are based on those included in Educational Service District (ESD) 114 and the Olympic Workforce Development Area (WDA). The region also includes Bainbridge Island and North Mason School Districts, which are associated with the Seattle-King and Pacific Mountain WDAs respectively, as well as the Peninsula School District, which is associated ESD 121 and the Tacoma-Pierce WDA. The North Olympic Region is home to growing information and technology, healthcare, engineering, and construction, spanning from Arlington to Lynnwood. The region is made up of 19 school districts, 13 of which are members of the West Sound STEM Network. The Network's business, education, and community partners are working to close credential attainment gaps, especially for students of color and students from low-income families. They aim to increase the number of local students who become computer and information technology professionals, construction and trades professionals, engineers, and healthcare professionals.

⁷⁶ Goal numbers have been updated in January 2019 from previous reports based on new projections from the Education Research & Data Center. Goal numbers for the North Olympic Region were set by the West Sound STEM Network and exceed projected job openings in occupations typically requiring a credential for the region.

⁷⁷ For a full explanation of this estimate see Figure 2 and Figure 3.

The North Olympic Region had a school-aged population of 63,420 in 2016 approximately 3,958 students graduate from high school each year. This is about 86.3 percent of the ninth-grade cohort that was originally expected to graduate compared to the statewide rate of 82.4 percent (OSPI, ERDC).⁷⁸ The K-12 population growth rate is approximately 0.8 percent annually.

Figure 37: North Olympic Region and Capital STEAM Network Geographical Boundaries

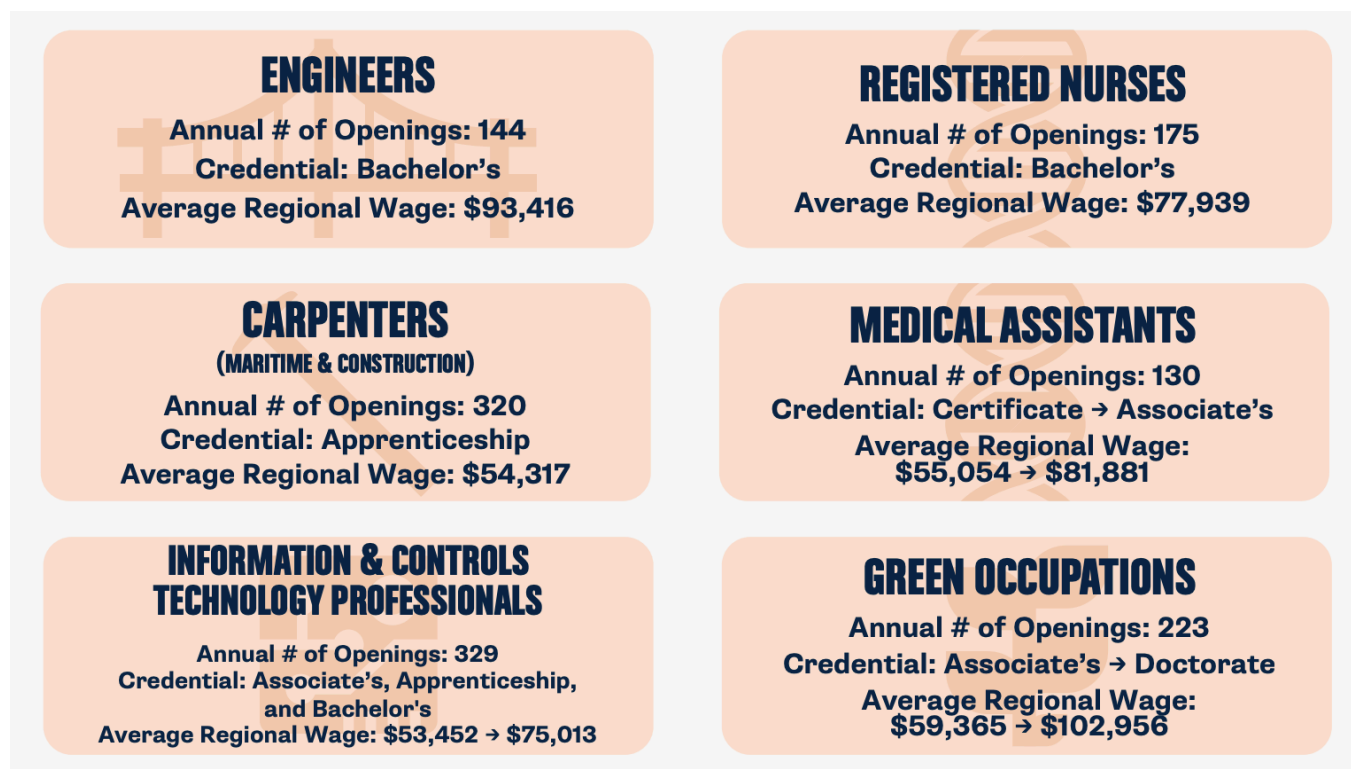


Jobs in high demand in the North Olympic Region include those in healthcare, technology, education, construction, and trades. These jobs pay family-sustaining wages, for example⁷⁹:

⁷⁸ OSPI “2014-2015 Graduation Rates by School 5Yr Cohort” <http://reportcard.ospi.k12.wa.us/DataDownload.aspx>; ERDC “2015 High School Feedback Report” <http://www.erdcddata.wa.gov/hsfb.asp>.

⁷⁹ Figures for regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx) , 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018

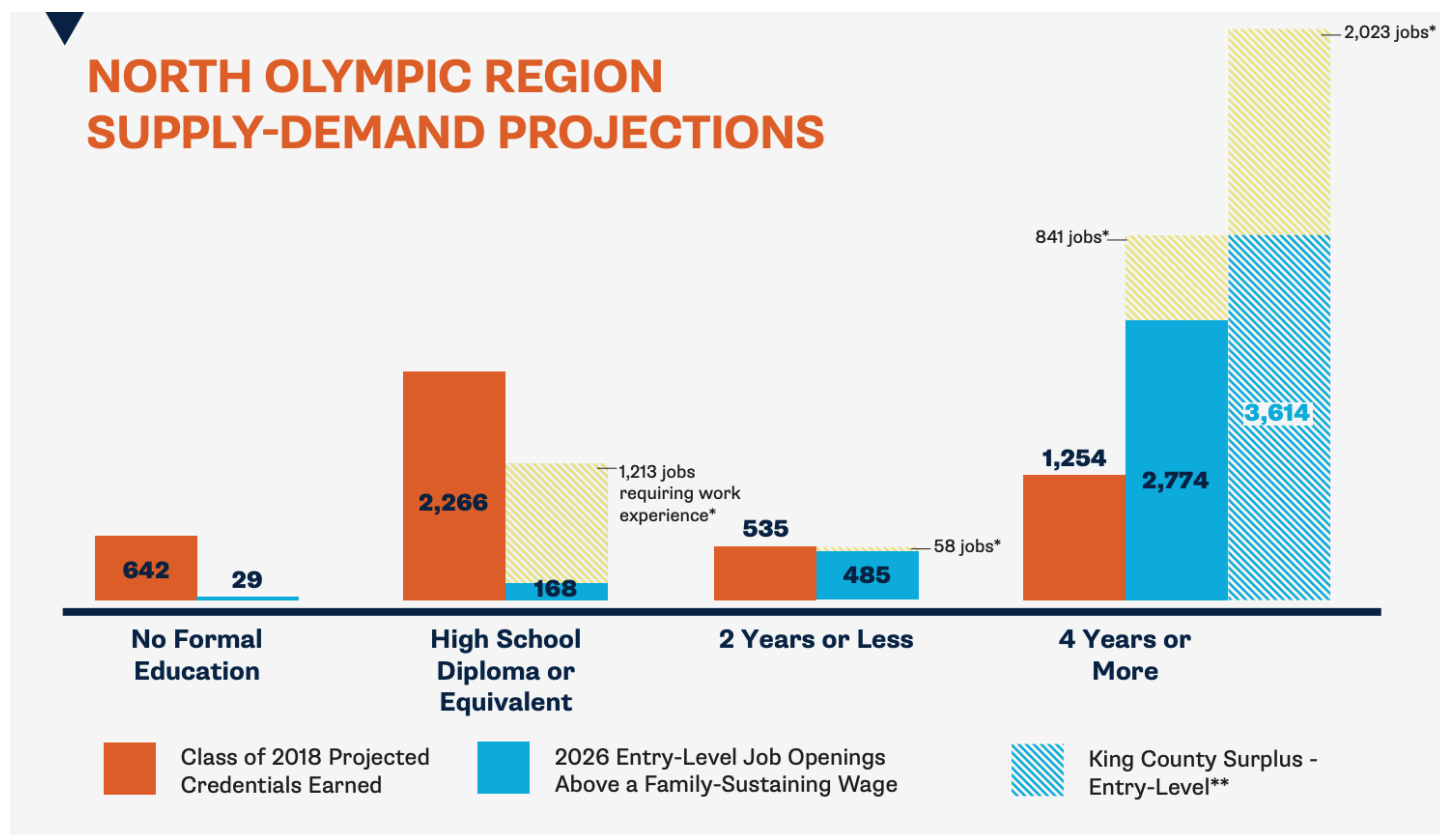
Figure 38: Examples of In-Demand, Family-Sustaining Wage Jobs in the North Olympic Region



NORTH OLYMPIC REGION FINDINGS

Moving more students from obtaining a high school diploma or equivalent as their highest education level to a four-year degree will ensure that they, and the region, can thrive economically. The North Olympic Region, like others in the state, has a large gap between the number of projected jobs available that will require a degree calling for four-years' study or more to obtain a family-sustaining wage and the number of students currently projected to earn such a degree. On the other hand, the region has far too many young people with only a high school diploma or less compared to the number of family-wage jobs available to people with such preparation (see Figure 39).

Figure 39: Comparison of North Olympics' Class of 2018 Projected Credential Completion to 2026 Projected Job Openings by Type of Credential Needed to Obtain Jobs

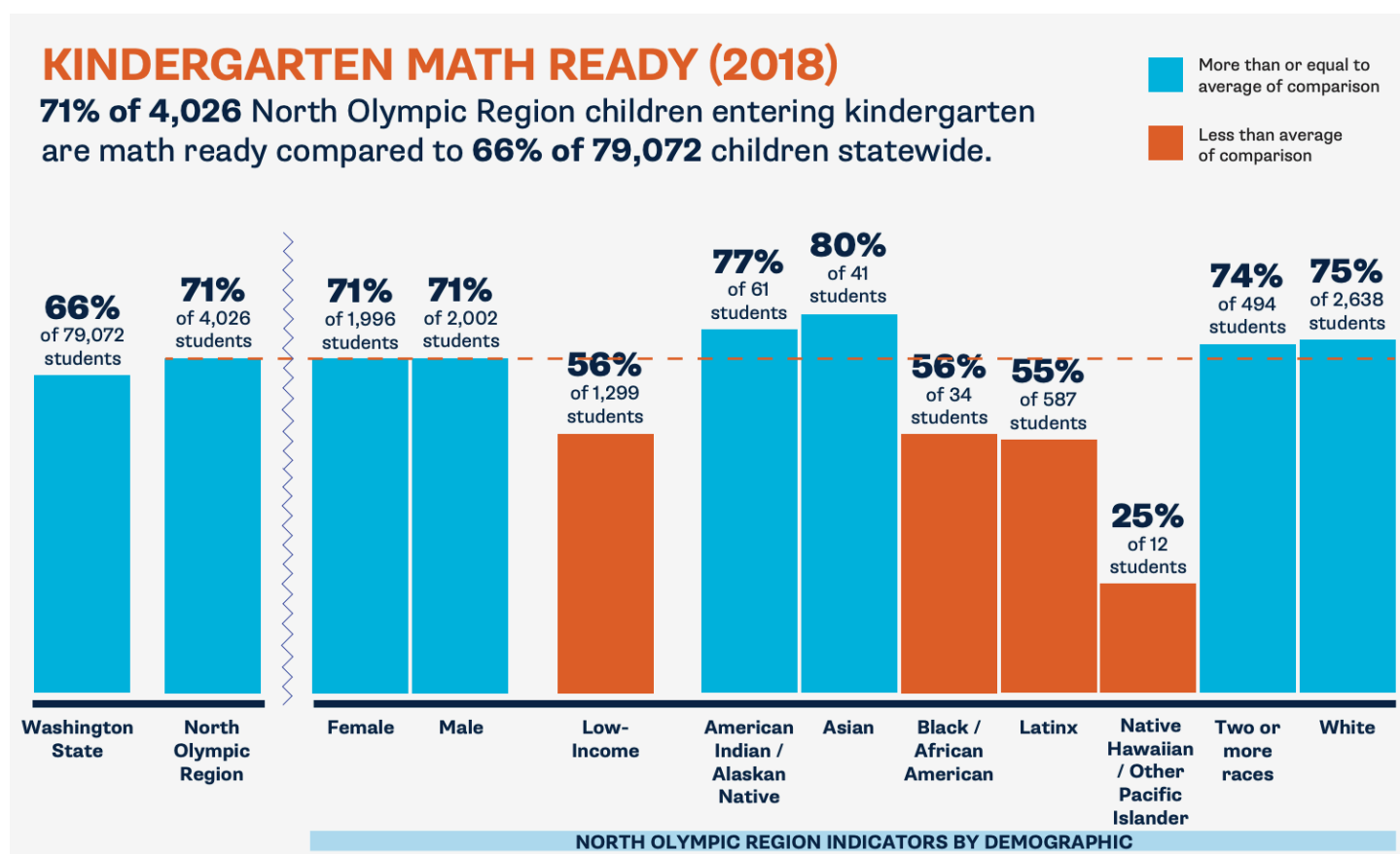


Increasingly, educators, policy makers, and local leaders are examining the entire Kindergarten-to-postsecondary education-to-careers pathway to determine where interventions are needed. Obtaining a family-sustaining job does not begin with a job search or even in postsecondary education. The foundation for such careers begins in elementary school or even before. Washington STEM has worked to create early indicators of prospects for high school graduation and postsecondary study necessary to compete for STEM and other family sustaining jobs. Examining these indicators and trends in them allows us to begin to answer the question: *Where are identifiable gaps that lead students in the North Olympic Region to fall behind in their pursuit of needed credentials ?*

Kindergarten Math Readiness

The first step in the formal education to career pathway is Kindergarten. More students in the North Olympic Region enter Kindergarten math ready⁸⁰ than is true statewide. As the graphic below shows, 71 percent of North Olympic Region students enter Kindergarten with the math skills that they need at that level. Of concern is the gap in the number and percentages of Latinx and low-income students who arrive ready for Kindergarten.

Figure 40: North Olympic 2018 Kindergarten Math Readiness by Demographic



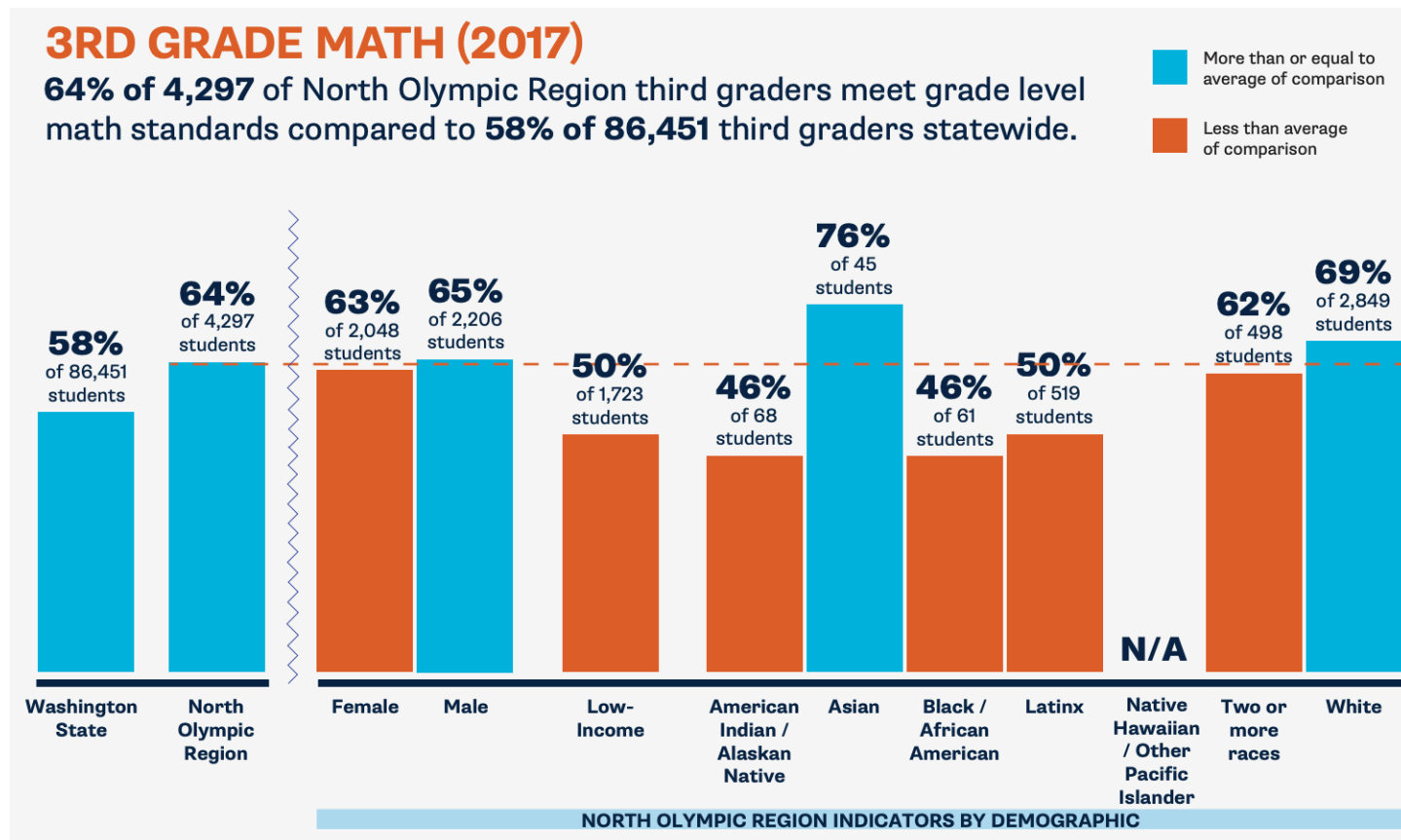
⁸⁰ OSPI defines math readiness for children beginning Kindergarten as: saying a sequence of numbers up to 20; counting objects up to 10, comparing objects' size, length, or weight; and identifying the position of objects by using words like beside, inside, next to, above, or below. Office of the Superintendent of Public Instruction, Washington State Report Card – WaKIDS:

<http://reportcard.ospi.k12.wa.us/WaKidsDetailPage.aspx?domain=WaKIDS&groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18&gradeLevelId=3&waslCategory=1&chartType=1>

Third Grade Math Achievement

The regional picture for third grade math achievement⁸¹ shows concerning trends for underserved students of color. The region is performing above statewide achievement (percentage achieving the state's proficiency benchmark) for all students in aggregate. However, underserved students of color are not having their needs met and the trend is moving in the opposite direction. In fact, the percentages of underserved students of color meeting benchmarks has dropped since Kindergarten.

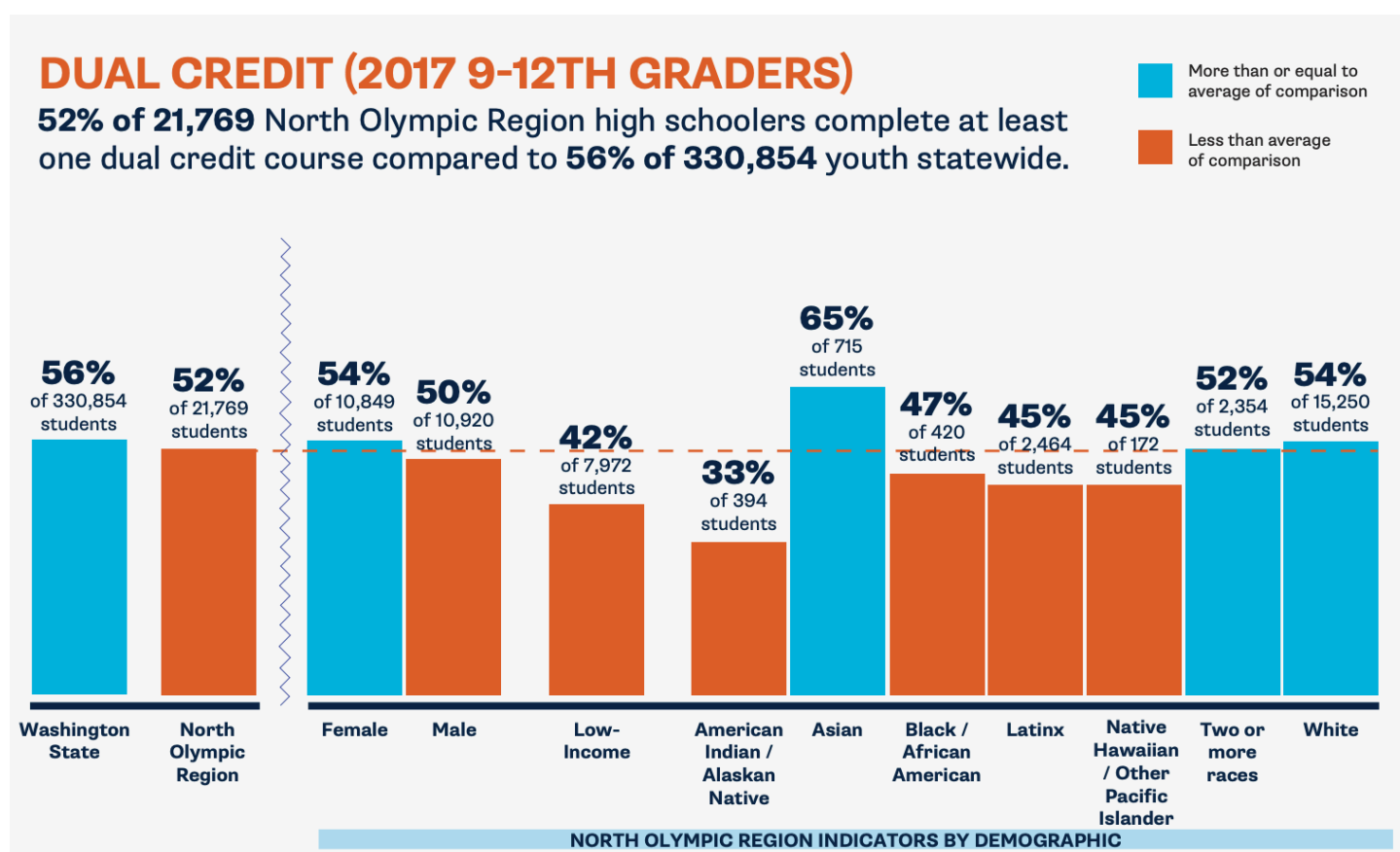
Figure 41: North Olympic 2017 Third Grade Math Assessment Outcomes by Demographic



Dual Credit Course Completion

Completing dual credit⁸² courses allows high school students to earn college credit while still enrolled in high school, giving them a leg up on enrolling in and completing college credentials. The North Olympic Region as a whole shows a dual credit enrollment rate below the state average. In the region, 52 percent of high school students complete at least one dual credit course at any point in high school, compared to 56 percent of youth statewide. However, once again underserved students of color lag behind, as do low-income students. Overall Asian students complete these courses at rates above the state and regional averages.

Figure 42: North Olympic High School Students' (9th through 12th grade) Completion of at Least One Dual Credit Course as of 2017

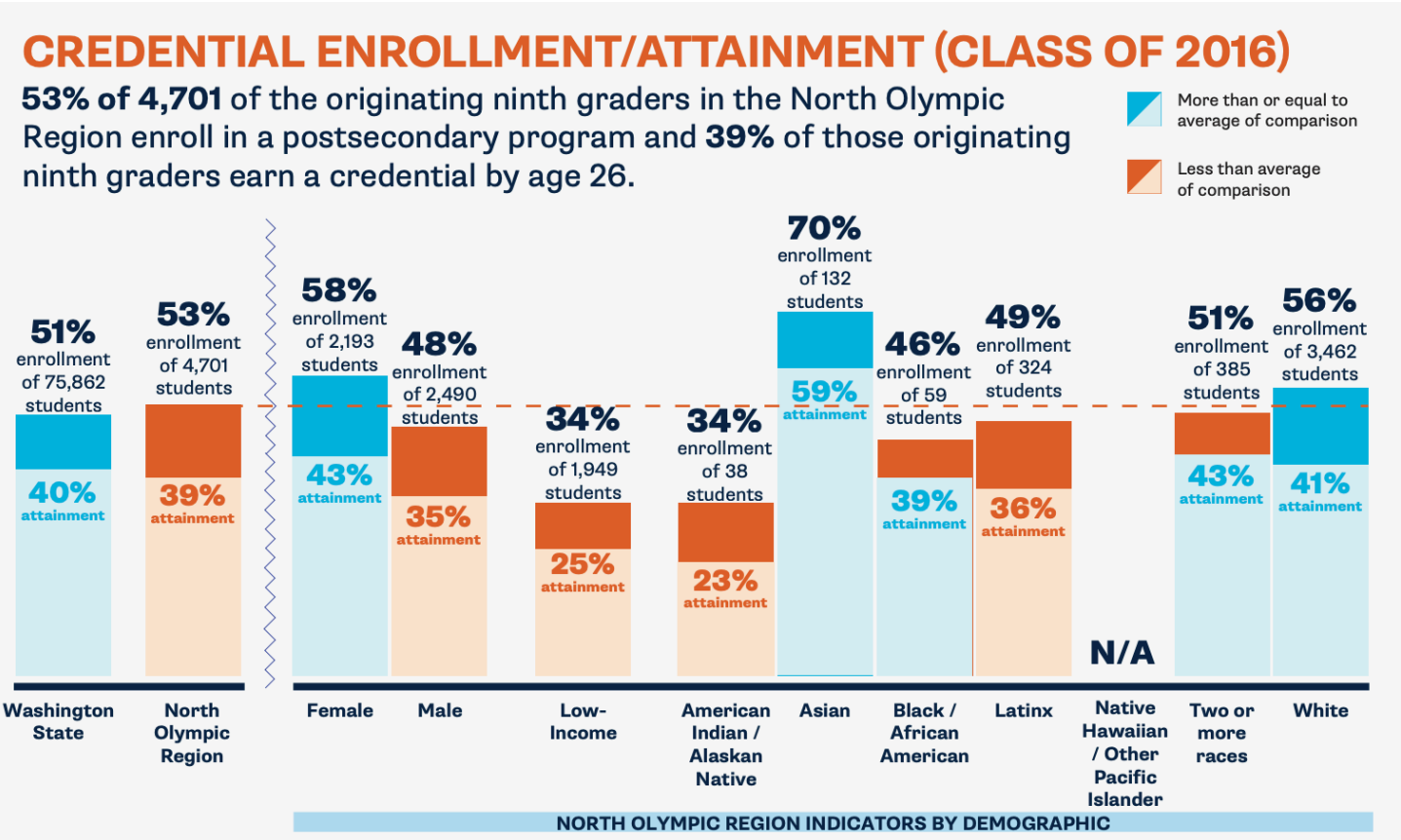


⁸² Office of the Superintendent of Public Instruction, Washington State Report Card - HS Dual Credit
http://reportcard.ospi.k12.wa.us/DualCredit_2.aspx?domain=DualCredit&groupLevel=District&schoolId=1&reportLevel=State&yrs=2016-17&year=2016-17

Postsecondary Enrollment & Completion

Over half (53 percent) of the North Olympic Region 2016 ninth-grade cohort enroll in a postsecondary program, but only 39 percent earn any credential by age 26, far short of the 70 percent goal. Like other indicators, this one too demonstrates serious subgroup disparities in terms of enrollment and attainment. While female students and white and Asian students overall attain postsecondary credentials at higher rates than the statewide average, all other groups lag behind.

Figure 43: North Olympic Credential Enrollment and Projected Completion for the High School Class of 2016



The most popular college for students in the North Olympic Region to attend after high school is Olympic College, where 28 percent of the region’s residents enroll. A large percentage of students also go to public or private institutions out of state (24 percent enrollment). Given these high rates of enrollment in community colleges, it is essential that transfer students are able to successfully transfer to a four-year degree option. The most recent data available shows overall community colleges in the state have high associate degree completion rates but low transfer rates as compared to other states.⁸³

Figure 44: Enrollment by Institution for the Graduates of Class of 2016 for the North Olympic Region

| North Olympic Region | | | |
|--|---------------------------|---|---------------------------|
| Top Postsecondary Institution | HS Cohort Enrollment Rate | Top Postsecondary Institution In-Region | HS Cohort Enrollment Rate |
| Olympic College | 28% | Olympic College | 24% |
| Four Year Private or Out-of-State | 24% | Peninsula College | 6% |
| University of Washington | 8% | | |
| Two Year Community or. Technical College | 7% | | |
| Western Washington University | 6% | | |

In addition to postsecondary institutions’ credential offerings, a large number of apprenticeship programs exist in the region. There were 130 programs operating in 2018; however, only 1,169 of the region’s residents (not necessarily locally-originating high school graduates since available data do not differentiate) were enrolled in apprenticeship programs and 153 students completed apprenticeship training in the region.

2018 North Olympic Region Apprenticeships

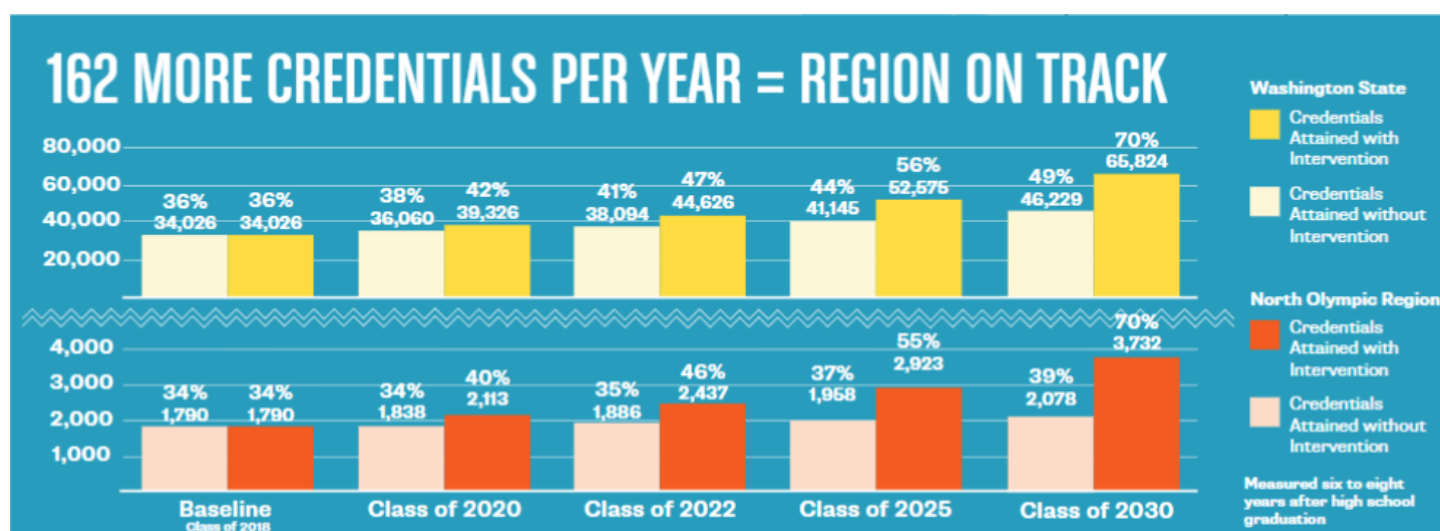
| | |
|---|-------|
| Apprenticeship programs operating in the region | 130 |
| 2018 active apprentices living in the region | 1,169 |
| 2018 apprenticeship completions by region residents | 153 |

⁸³ Jenkins, D., & Fink, J. (2016). Tracking Transfer: New Measures of Institutional and State Effectiveness in Helping Community College Students Attain Bachelor's Degrees. *Community College Research Center, Teachers College, Columbia University*.

More can and should be done to direct more of the region's high school graduates into these alternative postsecondary training opportunities.

Our analysis concludes that the region will need to **support 162 more North Olympic Region-originating students in earning a postsecondary or apprenticeship credential each year** (i.e., 162 more each year than the prior year) from now until 2030 for the region to be on track for attaining the region specific 70 percent goal by 2030. To achieve this goal, the region⁸⁴ will need to specifically focus on systems changes that can close the significant outcomes gaps that currently exist for underrepresented students of color as well as students from low-income families.

Figure 45: North Olympic Region's Trajectory for Increased Number of Locally-Originating High School Students Earning Postsecondary Credentials to Obtain Locally Family-Sustaining Wage Jobs



While 162 is an annual average it is meant to set a benchmark number of what each region should aim to accomplish each year to meet the 2030 target. Below we break down yearly actual annual increases based on increasing cohort sizes and expected completion percentages.

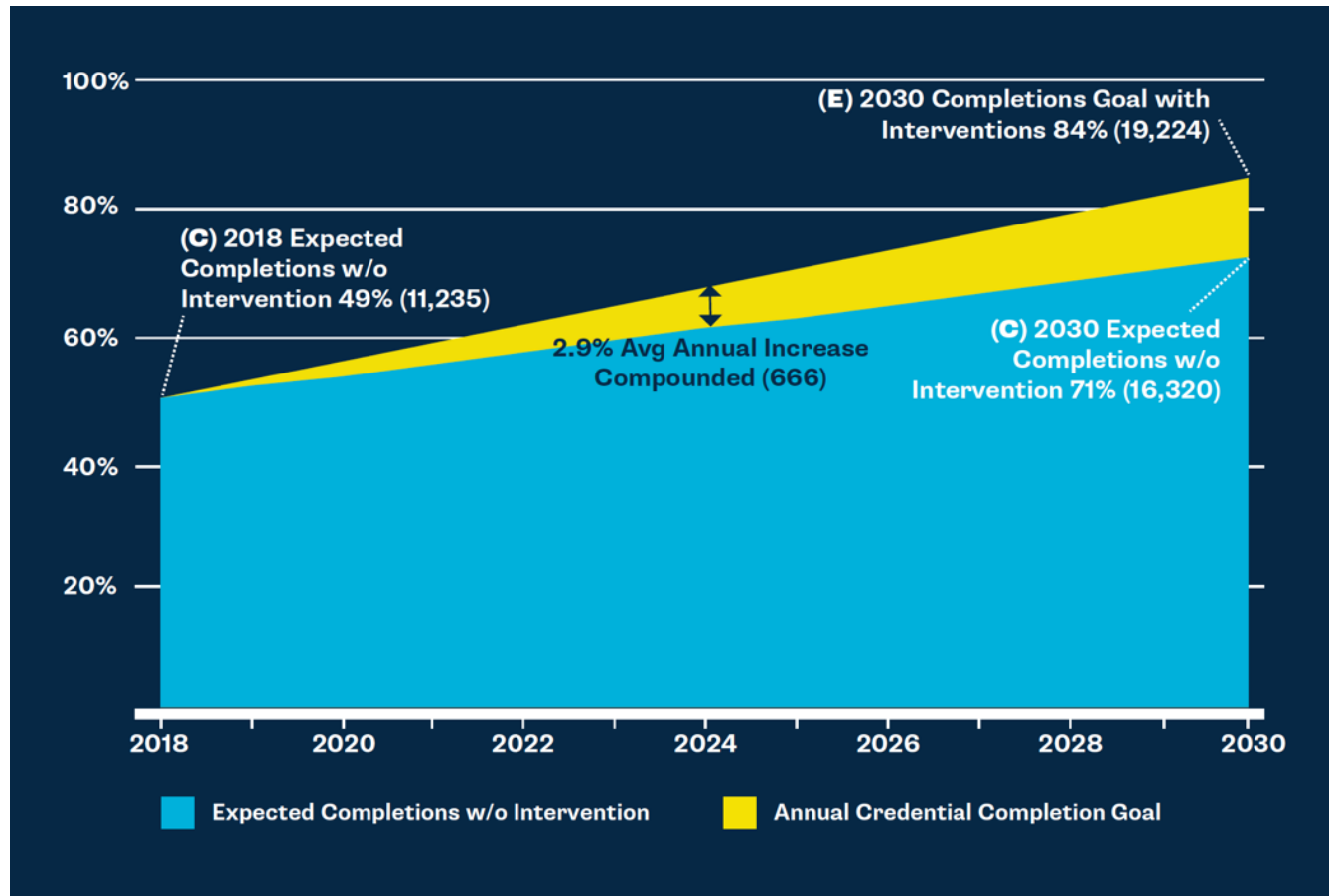
⁸⁴ Washington STEM has produced a similar estimate for each region in the state. Taken together these regional estimates will allow the state to reach its goal.

Figure 46: Projections of Current Expected Credentials Earned by Each North Olympic High School Cohort and Year-Over-Year Increases Needed to Meet Goals

NORTH OLYMPIC REGION ANNUAL CREDENTIAL INCREASE GOALS 2019-2030

| A. High School Class | B. 9th Grade Cohort Size | C. Expected Credential Completions without intervention | D. Annual Completion % Needed to meet goal | E. Annual Completions Goals | F. Increase needed to meet goal (E - C = F) | G. YoY difference in increase needed to meet goal |
|----------------------|--------------------------|---|--|---------------------------------|--|---|
| 2018 | 4,698 | 1,790 | 38% | 1,790 | | |
| 2019 | 4,725 | 1,800 | 41% | 1,925 | 126 | 126 |
| 2020 | 4,655 | 1,773 | 43% | 2,021 | 248 | 122 |
| 2021 | 4,718 | 1,797 | 46% | 2,174 | 376 | 129 |
| 2022 | 4,776 | 1,819 | 49% | 2,327 | 508 | 132 |
| 2023 | 4,828 | 1,839 | 51% | 2,481 | 642 | 134 |
| 2024 | 4,962 | 1,890 | 54% | 2,682 | 792 | 150 |
| 2025 | 5,184 | 1,975 | 57% | 2,940 | 965 | 173 |
| 2026 | 5,274 | 2,009 | 59% | 3,131 | 1,122 | 157 |
| 2027 | 5,236 | 1,995 | 62% | 3,248 | 1,253 | 131 |
| 2028 | 5,242 | 1,997 | 65% | 3,391 | 1,394 | 141 |
| 2029 | 5,234 | 1,994 | 67% | 3,525 | 1,531 | 137 |
| 2030 | 5,331 | 2,031 | 70% | 3,732 | 1,701 | 170 |
| Region | | 2018 Cohort Estimated Credential Attainment | 2030 Cohort Estimated Student Headcount | 2030 Credential Attainment Goal | Average Annual Increase Needed to meet 2030 Goal | Annual Increase to Meet 2030 Goal |
| North Olympic | | 4,698 | 5,331 | 3,732 | 162 | 2.70% |

Figure 47: Area Graph of Projections of Current Expected Credentials and Year-Over-Year Increases Needed to Meet Goals (Letters Associate with Figure 46)



THE CREDENTIAL OPPORTUNITY BY REGION AND INDUSTRY (CORI) CROSSWALK

Washington STEM created The Credential Opportunity by Region and Industry (CORI) Crosswalk to analyze postsecondary credential attainment gaps that exist in each Washington State region for family-sustaining occupations. The CORI Crosswalk allows employers, industries, elected officials, and education sectors to make informed decisions regarding employment and postsecondary credential opportunities. The CORI analysis enables us to answer the research question:

Are there sufficient training programs and production capacity in this region that lead to local, high-demand, family-sustaining jobs? Where do training program gaps exist?

The CORI Crosswalk identifies gaps between high-demand, family-sustaining occupations and the supply of appropriately credentialed graduates in each region. The Crosswalk uses a color system to identify the areas where gaps exist. The red category highlights occupations that have a supply shortage and have NO available credential program for that occupation in that given region. The yellow category highlights occupations that have supply shortages despite credential programs available, i.e., the program or programs available in the region are not graduating a sufficient number of students to meet the labor market needs. Last, the green category outlines occupations that are in demand in the given region, and regional credential programs (Classification of Instructional Programs) that are producing an

adequate number of graduates to meet the regional labor market need for that given occupation. Thereby the CORI crosswalk identifies available education programs for high demand, family-sustaining occupations.

Imbalances in North Olympic Region

The CORI Crosswalk begins with the identification of high-demand, family-sustaining occupations⁸⁵ in the North Olympic region for which postsecondary credential attainment gaps exist. In the North Olympic region, the CORI Crosswalk revealed the following occupations to be in high demand and facing a supply shortage, with potential insufficient production of qualified graduates in the region. Notable occupations in high demand with NO credential programs in the region include market research analysts, dental hygienists, and human resource specialists. This means that no postsecondary credential programs exist in the North Olympic region for these in-demand, family-sustaining wage occupations. Noteworthy occupations where programs exist but with inadequate credentialed graduates being produced to meet demand include plumbers, pipefitters and steamfitters; registered nurses; and general and operations managers.

More information regarding high-demand occupations and supply shortages for postsecondary credential programs can be found at Washington STEM, Credential Opportunity by Region and Industry Crosswalk: https://washingtonstem.org/focus_area/career-pathways/#CORI.

Limitations and future improvements of CORI

The CORI analysis does have some limitations. Online degrees are not factored into regional “supply” of credentials awarded (CIP) in the region, such as Western Governor University, a nonprofit online university that offers teaching degrees to place-bound students without local access to such degrees.

Future editions of CORI could include a tiered approach working to pay special attention to the level of supply and demand, moving beyond the current red and yellow color scheme to include more nuance. In addition, while developing and testing the CORI Crosswalk, regional leaders identified some areas where they felt high regional demand was not reflected. Washington STEM is currently working with local Workforce Development Area economists to identify and better understand occupations where region specific improvements in data might be made to capture regional demand better as it is experienced “on the ground.”

DISCUSSION:

Too many local students, especially the growing population of underserved students of color, find the education needed to obtain in-demand, family-sustaining careers to be an *opportunity mirage* they are unable to successfully attain. Better preparing local students to compete in the new economy is an equity AND an economic imperative.

⁸⁵Figures for regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx) , 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018.

A regional approach is warranted as each of the regions in Washington has fundamentally different educational and economic contexts with differing problems and solutions in each. We believe local leaders are best able to create the smart, innovative, and potentially disruptive changes needed to substantially move the needle on educational opportunity that matches job market needs.

Region Specific Recommendations:

- Work to get more students, especially underserved students of color, ready for Kindergarten
- Attack success gaps between underserved students of color and white and Asian students in the K-12 system
- Increase dual credit offerings in high schools and pay attention to equity gaps in dual credit enrollment and outcomes
- Increase high school graduation rates
- Increase the enrollment in high-demand apprenticeship enrollment and completion
- Establish metrics and strategies to increase successful transfer from local community colleges to four-year institutions for baccalaureate-seeking students
- Create instructional programs of adequate capacity in CORI shortage fields
- Create opportunities for high-demand credentials so students do not need to attend out-of-state institutions to meet their educational needs

NORTHWEST REGION: EQUITY AND OPPORTUNITY BY THE NUMBERS

EXECUTIVE SUMMARY

The Northwest Region of Washington state faces a challenge in preparing students for the family-sustaining, in-demand jobs that exist in the region. In the Northwest Region, few jobs provide family-sustaining wages to students who do not have at least some postsecondary education. Currently, 63.7 percent of locally originating cohorts (defined at ninth grade entry) enroll in a postsecondary program, while only 35.2 percent earn any form of postsecondary credential by age 26, far short of what is needed by the local labor market. Like other indicators, there are subgroup disparities in both enrollment and attainment. While white students overall in the region attain postsecondary credentials at higher rates than the statewide average, all other groups attain at lower rates than the state average, demonstrating troubling gaps. If the Northwest Region aims to close supply-demand gaps for in-demand, family-sustaining wage jobs, an annual average of 151⁸⁶ *more students in each year than the prior year* need to obtain a credential between now and the high school graduating class of 2030.⁸⁷

Local postsecondary institutions have added numerous programs to meet demand in recent years, but opportunities exist to do more throughout the education system. For example, while the number of apprenticeship programs in the region is strong, enrollment in these programs is small. In the region, there are no postsecondary education preparation programs in such in-demand fields as human resources specialists, mechanical engineers and healthcare social workers.

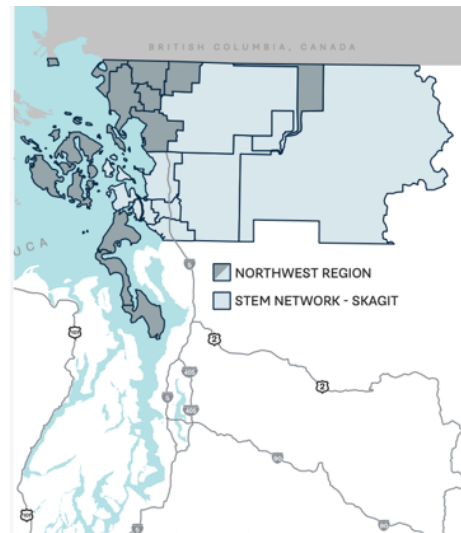
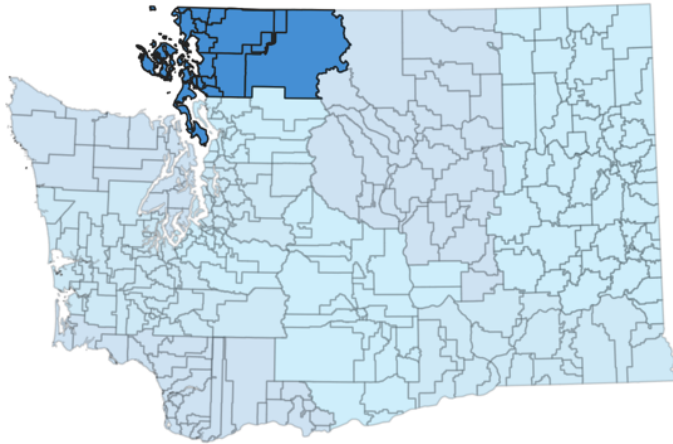
THE NORTHWEST REGION

The Northwest Region's boundaries are based on those of Educational Service District (ESD) 189 and Northwest Workforce Development Area (WDA). The region does not include school districts in Snohomish County, which are included in ESD 189. The Northwest Region is home to growing maritime, healthcare, engineering, and advanced manufacturing industries, spanning from Bellingham to Mount Vernon. The region is made up of 22 school districts, 8 of which are members of the Skagit STEM Network. The Network's business, education, and community partners are working to close credential attainment gaps, especially for students of color, young women, and students from low-income families. They aim to increase the number of local students who become engineers, healthcare professionals, and maritime/construction apprentices, which have 1,740 annual projected openings combined over the next five years.

Figure 48: Northwest Region and Partners Geographical Boundaries

⁸⁶ Goal numbers have been updated in January 2019 from previous reports based on new projections from the Education Research & Data Center.

⁸⁷ For a full explanation of this estimate see Figure 2 and Figure 3.



The Northwest Region had a school-aged population of 53,612 in 2016 and approximately 3,368 students graduate from high school each year. This is about 83.3 percent of the ninth-grade cohort that was originally expected to graduate compared to the statewide rate of 82.4 percent (OSPI, ERDC).⁸⁸ The K-12 population growth rate is approximately 0.62 percent annually. The region has, proportionally, a large white population and a large Latinx population (WA Office of Financial Management⁸⁹, WA Caseload Forecast Council⁹⁰).

Jobs in high demand in the Northwest Region include those in healthcare, maritime, construction, and engineering. These jobs pay family-sustaining wages, for example⁹¹:

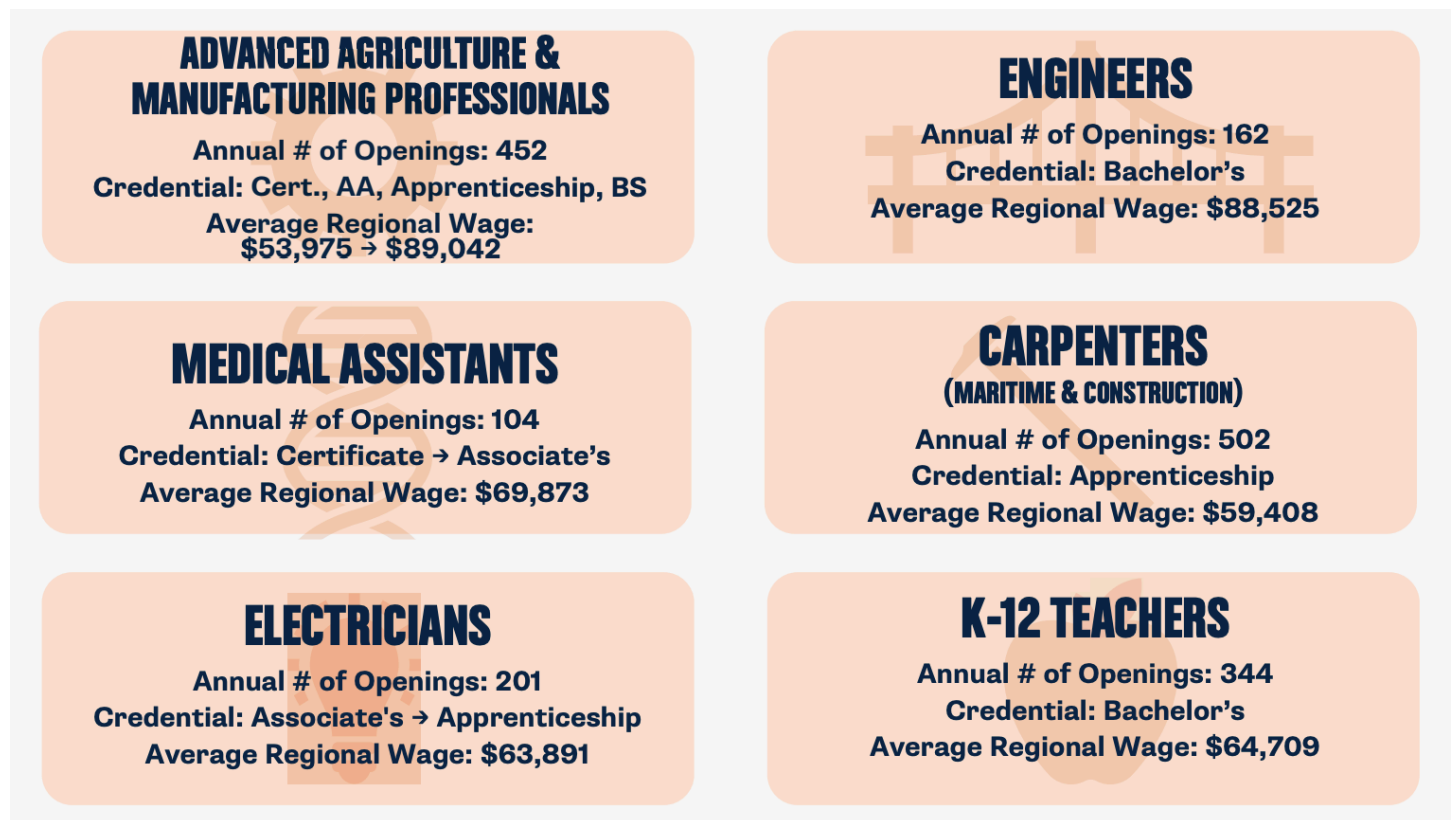
⁸⁸ OSPI “2014-2015 Graduation Rates by School 5Yr Cohort” <http://reportcard.ospi.k12.wa.us/DataDownload.aspx>; ERDC “2015 High School Feedback Report” <http://www.erdcddata.wa.gov/hsfb.asp>.

⁸⁹ 2017 Projections of the Population by Age and Sex for Growth Management - Ages 5-19. Retrieved from <https://www.ofm.wa.gov/washington-data-research/population-demographics/population-forecasts-and-projections>

⁹⁰ Common Schools Education Long Range Projections - Headcounts. Retrieved from https://www.cfc.wa.gov/Education_Common_Schools_Enrollment.htm

⁹¹ Regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx) , 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018

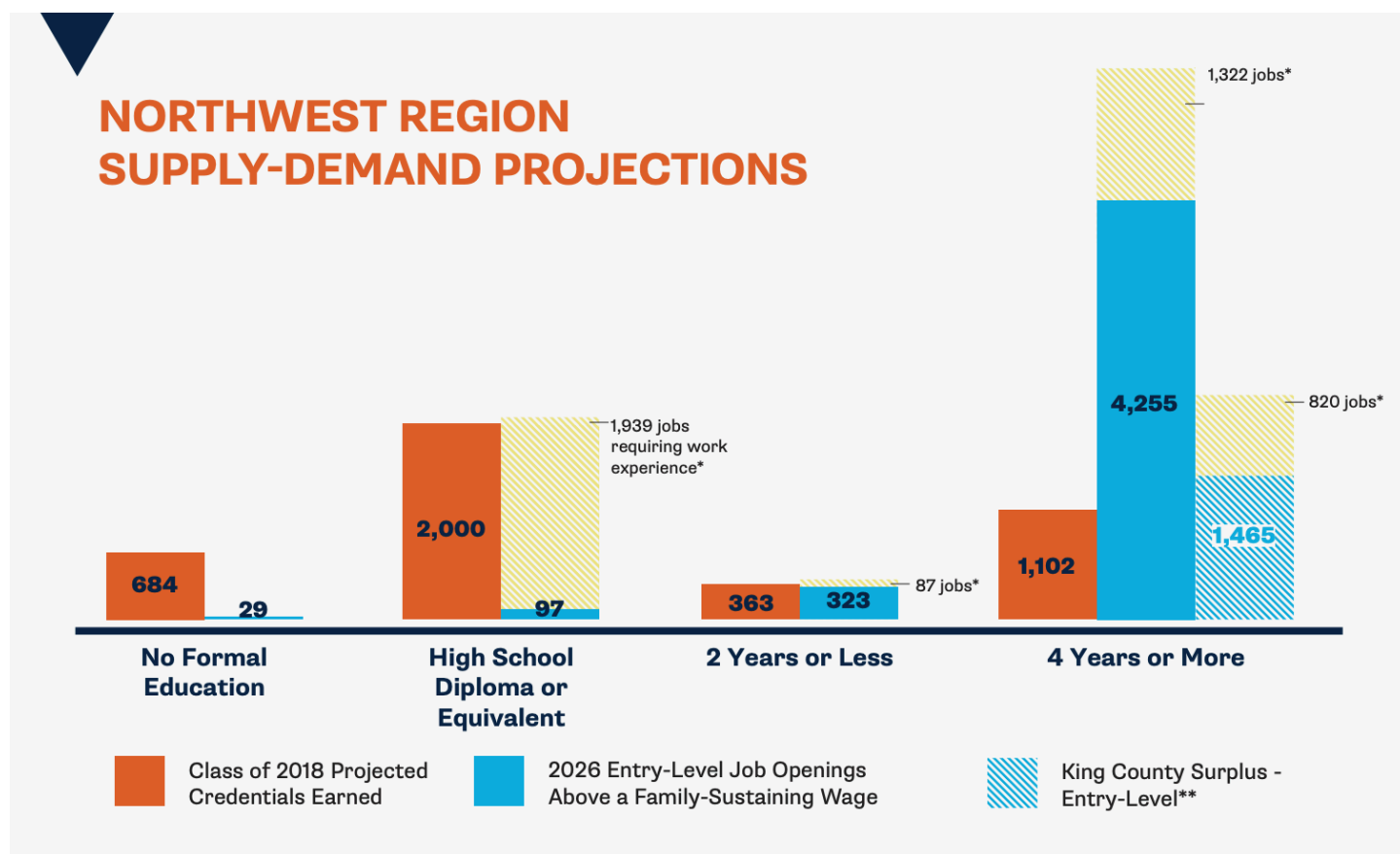
Figure 49: Examples of In-Demand, Family-Sustaining Wage Jobs in the Northwest Region



NORTHWEST REGION FINDINGS

Moving more students from obtaining a high school diploma or equivalent as their highest education level to a four-year degree will ensure that they, and the region, can thrive economically. The Northwest Region, like others in the state, has a large gap between the number of projected jobs available that will require a two-year degree in some technical and healthcare areas and a degree calling for four-years' study or more to obtain a family-sustaining wage and the number of students currently projected to earn such a degree. On the other hand, the region has far too many young people with only a high school diploma or less compared to the number of family sustaining jobs available to people with such preparation (see Figure 50).

Figure 50: Comparison of the Northwest Region's Class of 2018 Projected Credential Completion to 2026 Projected Job Openings by Type of Credential Needed to Obtain Jobs



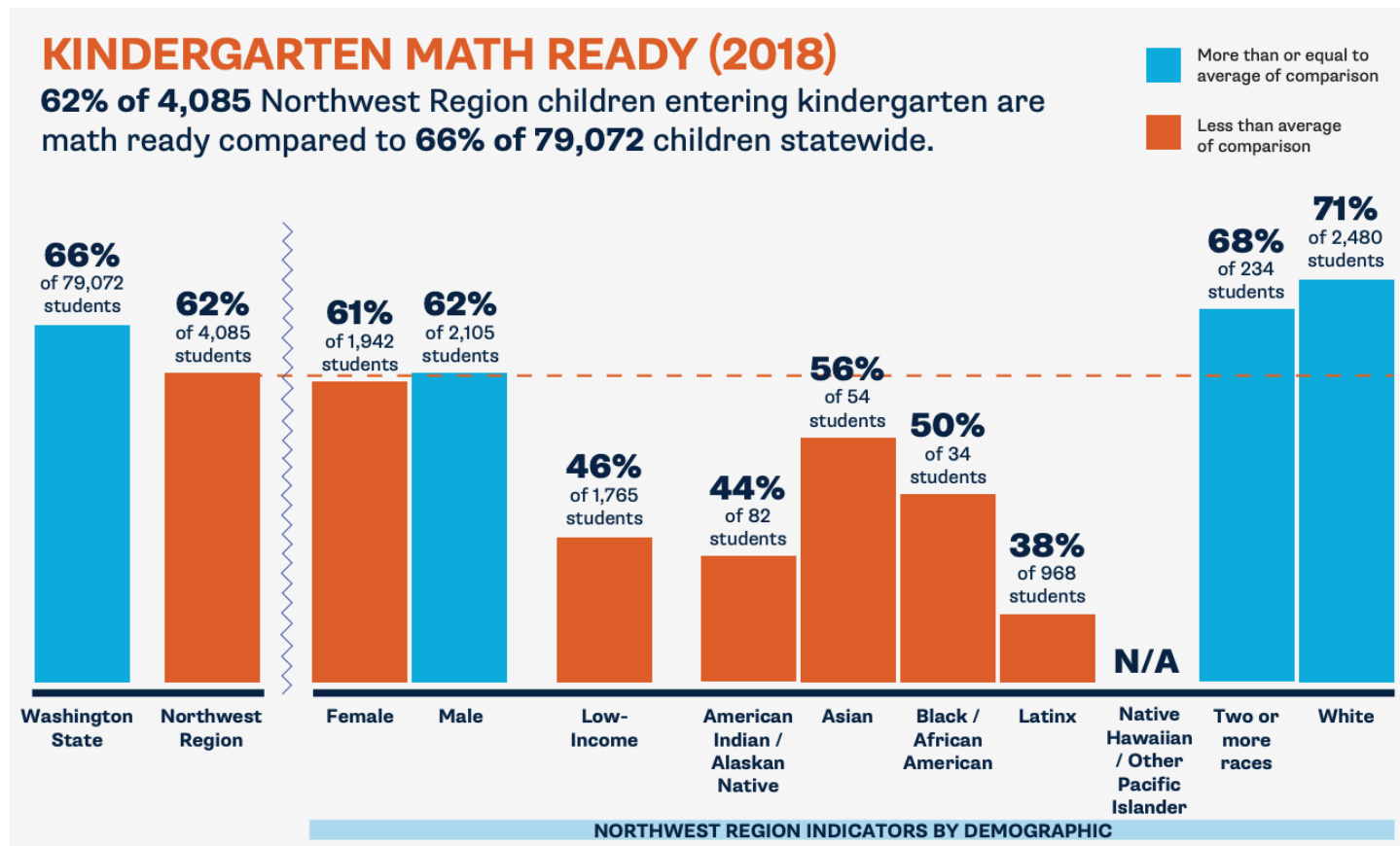
Increasingly, educators, policy makers, and local leaders are examining the entire Kindergarten-to-postsecondary education-to-careers pathway to determine where interventions are needed. Obtaining a family-sustaining job does not begin with a job search or even in postsecondary education. The foundation for such careers begins in elementary school or even before. Washington STEM has worked to create early indicators of prospects for high school graduation and postsecondary study necessary to compete for STEM and other family sustaining jobs. Examining these indicators and trends in them allows us to begin to answer the question:

Where are identifiable gaps that lead students in the Northwest Region to fall behind in their pursuit of needed credentials?

Kindergarten Math Readiness

The first step in the formal education-to-career pathway is Kindergarten. Fewer students in the Northwest Region enter Kindergarten math ready⁹² than is true statewide. As the graphic below shows, only 62 percent of Northwest Region students enter Kindergarten with the math skills that they need at that level. While white students are, at 71 percent, above the statewide average of 66 percent math ready, students from all other racial and ethnic groups fall well behind.

Figure 51: Northwest Region 2018 Kindergarten Math Readiness by Demographic



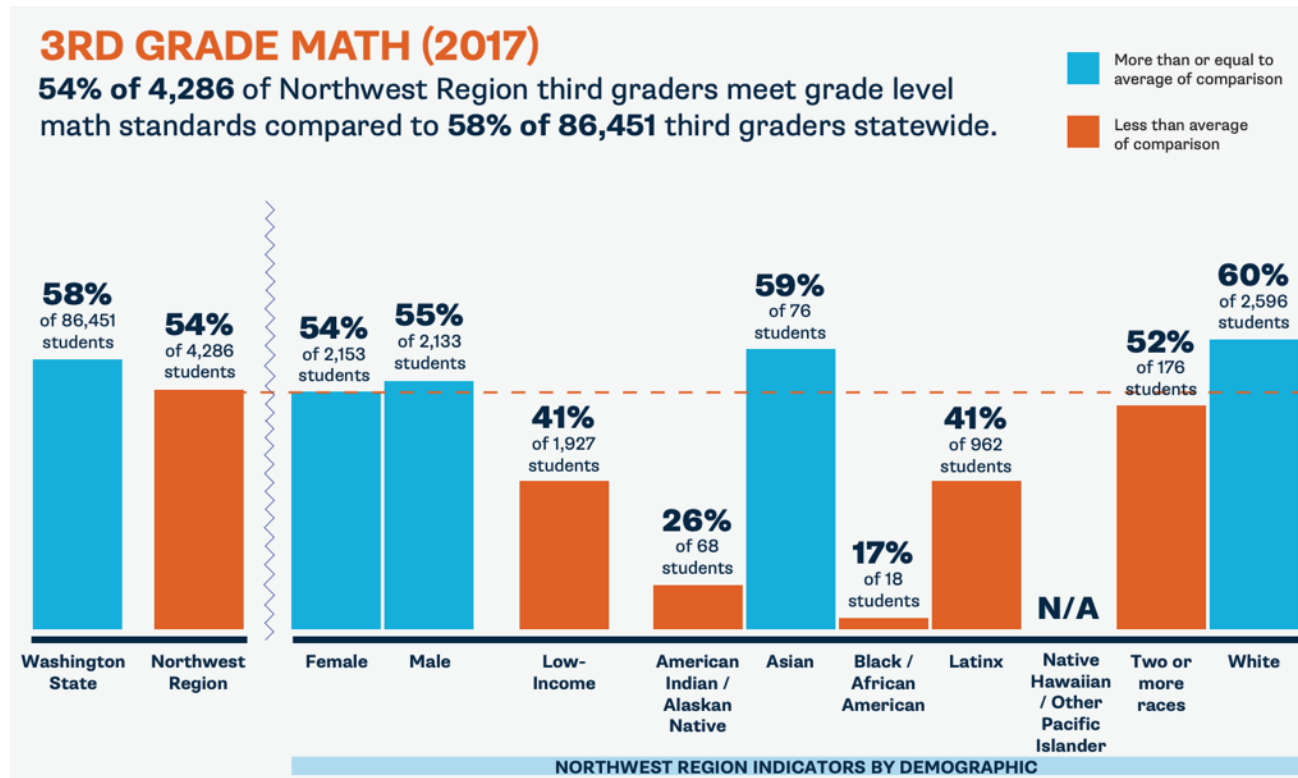
Third Grade Math Achievement

⁹² OSPI defines math readiness for children beginning Kindergarten as: saying a sequence of numbers up to 20; counting objects up to 10; comparing objects' size, length, or weight; and identifying the position of objects by using words like beside, inside, next to, above, or below (Office of the Superintendent of Public Instruction, Washington State Report Card - WaKIDS:

<http://reportcard.ospi.k12.wa.us/WaKidsDetailPage.aspx?domain=WaKIDS&groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18&gradeLevelId=3&waslCategory=1&chartType=1>

The regional picture for third grade math achievement⁹³ shows concerning trends for underserved students of color and low-income students. The gap between regional and statewide achievement (percentage achieving the state's proficiency benchmark) has been nearly eliminated for all students in aggregate. However, underserved students of color are not having their needs met, setting them up to be unprepared for future math requirements.

Figure 52: Northwest Region 2017 Third Grade Math Assessment Outcomes by Demographic

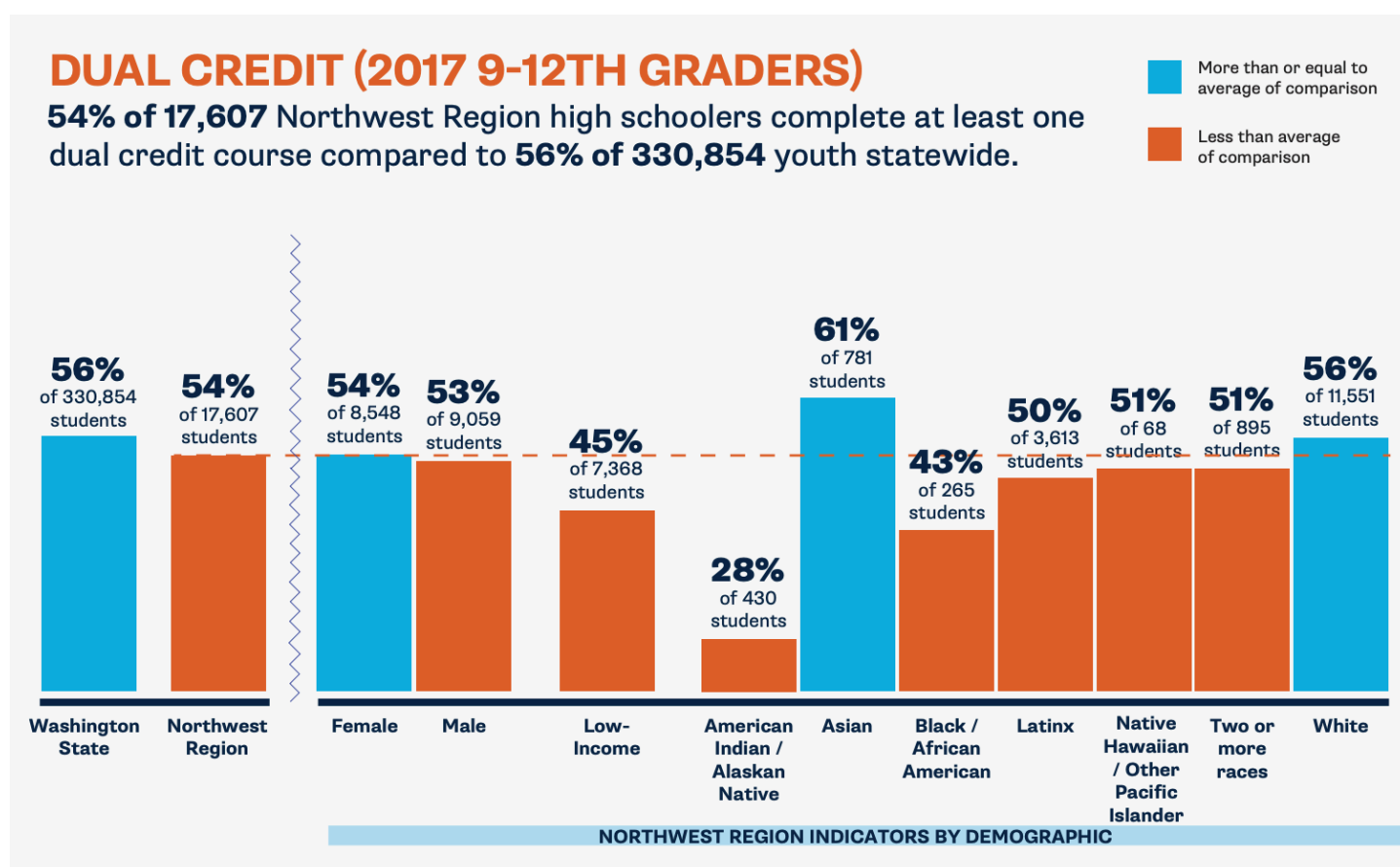


⁹³ Office of the Superintendent of Public Instruction, Washington State Report Card - Summary
<http://reportcard.ospi.k12.wa.us/summary.aspx?groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18>

Dual Credit

Next, we look at completion of dual credit courses by high school students. Completing dual credit⁹⁴ courses allows high school students to earn college credit while still enrolled in high school, giving them a leg up on enrolling and competing college credentials. The Northwest Region as a whole shows a dual credit enrollment rate slightly below the state average. In the region, 54 percent of high school students complete at least one dual credit course at any point in high school, compared to 56 percent of youth statewide. However, once again, underserved students of color lag behind, as do low-income students. Of particular note are the small numbers of Native American/Alaskan Native students enrolling in dual credit. Overall, Asian students complete these courses at rates above the state and regional averages.

Figure 53: Northwest Region High School Students' (9th through 12th grade) Completion of at Least One Dual Credit Course as of 2017

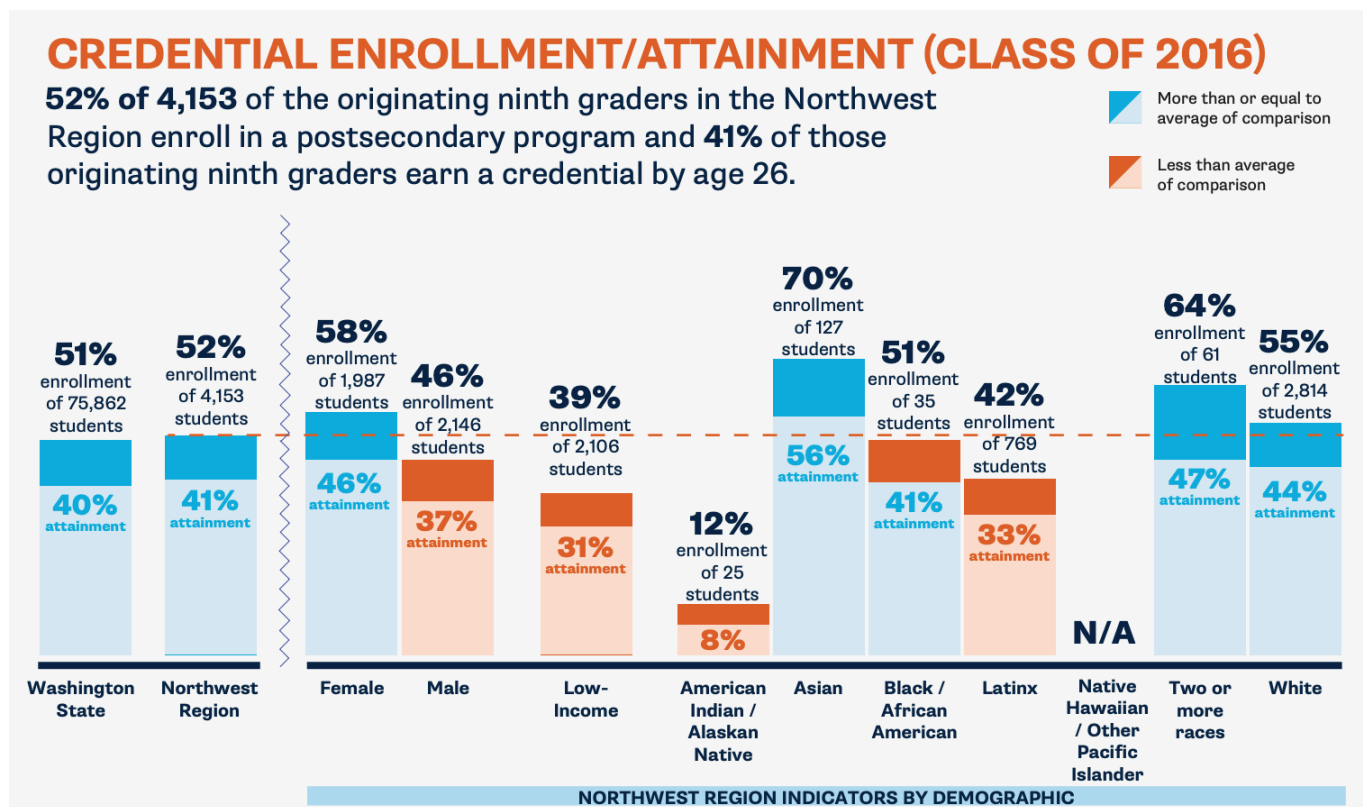


⁹⁴ Office of the Superintendent of Public Instruction, Washington State Report Card - HS Dual Credit
http://reportcard.ospi.k12.wa.us/DualCredit_2.aspx?domain=DualCredit&groupLevel=District&schoolId=1&reportLevel=State&yrs=2016-17&year=2016-17

Over half (52 percent) of the Northwest Region 2016 ninth-grade cohort enroll in a postsecondary program but only 41 percent earn any credential by age 26, far short of the 69.7 percent goal. Like other indicators, this one too demonstrates serious subgroup disparities in terms of enrollment and attainment. While female students and white and Asian students overall attain postsecondary credentials at higher rates than the statewide average, all other groups lag behind.

Postsecondary Enrollment & Completion

Figure 54: Northwest Region Credential Enrollment and Projected Completion for the High School Class of 2016



The two most popular colleges for students in the Northwest Region to attend after high school are Whatcom and Skagit Valley Community College, each yield 18 percent of students who enroll in postsecondary education directly after high school (36 percent combined enrollment) Western Washington University attracts 11 percent of students. Given these high rates of enrollment in community colleges it is essential that transfer students are able to successfully transfer to a four-year

degree option. The most recent data available shows overall community colleges in the state have high associate degree completion rates but low transfer rates as compared to other states.⁹⁵

Figure 55: Enrollment by Institution for the Graduates of the Class of 2016 for the Northwest Region

| Northwest Region | | | |
|------------------------------------|---------------------------|---|---------------------------|
| Top Postsecondary Institution | HS Cohort Enrollment Rate | Top Postsecondary Institution In-Region | HS Cohort Enrollment Rate |
| Four Year- Private or Out of State | 18% | Skagit Valley College | 18% |
| Skagit Valley College | 18% | Whatcom College | 18% |
| Whatcom College | 18% | Western Washington University | 11% |
| Western Washington University | 11% | Bellingham Technical College | 6% |
| University of Washington | 8% | | |

In addition to postsecondary institutions' credential offerings, a large number of apprenticeship programs exist in the region. In 2018, 895 of the region's residents (not necessarily locally-originating high school graduates since available data do not differentiate) were enrolled in apprenticeship programs and 91 students completed apprenticeship training in the region.

2018 Northwest Region Apprenticeships

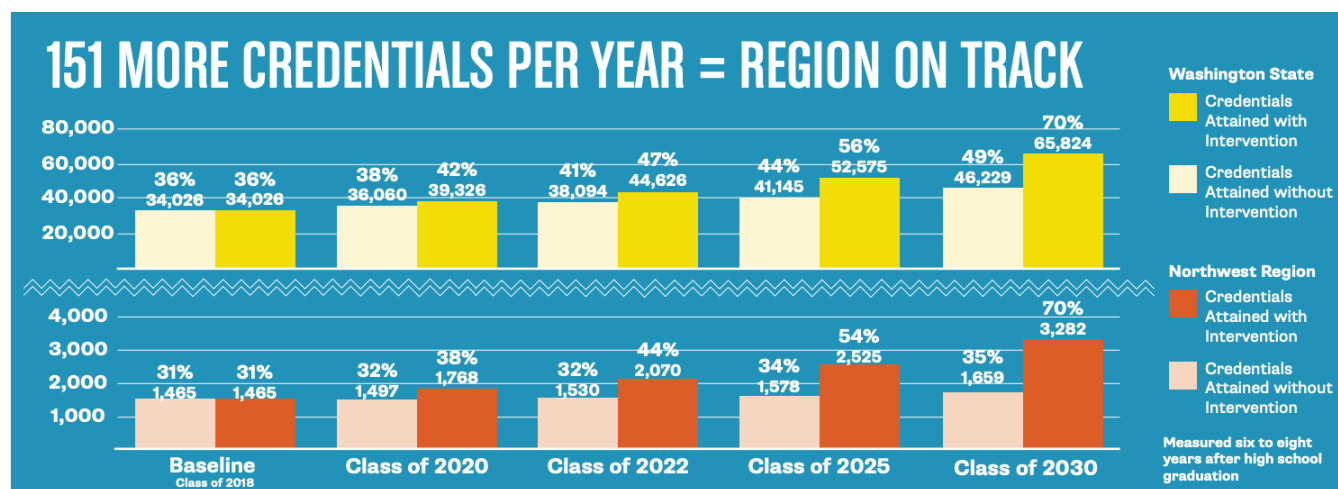
| | |
|---|-----|
| Apprenticeship programs operating in the region | 97 |
| 2018 active apprentices living in the region | 895 |
| 2018 apprenticeship completions by region residents | 91 |

More can and should be done to direct more of the region's high school graduates into these alternative postsecondary training opportunities.

⁹⁵ Jenkins, D., & Fink, J. (2016). Tracking Transfer: New Measures of Institutional and State Effectiveness in Helping Community College Students Attain Bachelor's Degrees. *Community College Research Center, Teachers College, Columbia University*.

Our analysis concludes that the region will need to **support 151 more Northwest Region-originating students in earning a postsecondary or apprenticeship credential each year** (i.e., 151 more each year than the prior year) from now until 2030 for the region to be on track for attaining the region specific 69.7 percent goal by 2030. To achieve this goal, the region⁹⁶ will need to specifically focus on systems changes that can close the significant outcomes gaps that currently exist for underrepresented students of color as well as students from low-income families.

Figure 56: Northwest Region’s Trajectory for Increased Number of Locally-Originating High School Students Earning Postsecondary Credentials to Obtain Locally Family-Sustaining Wage Jobs



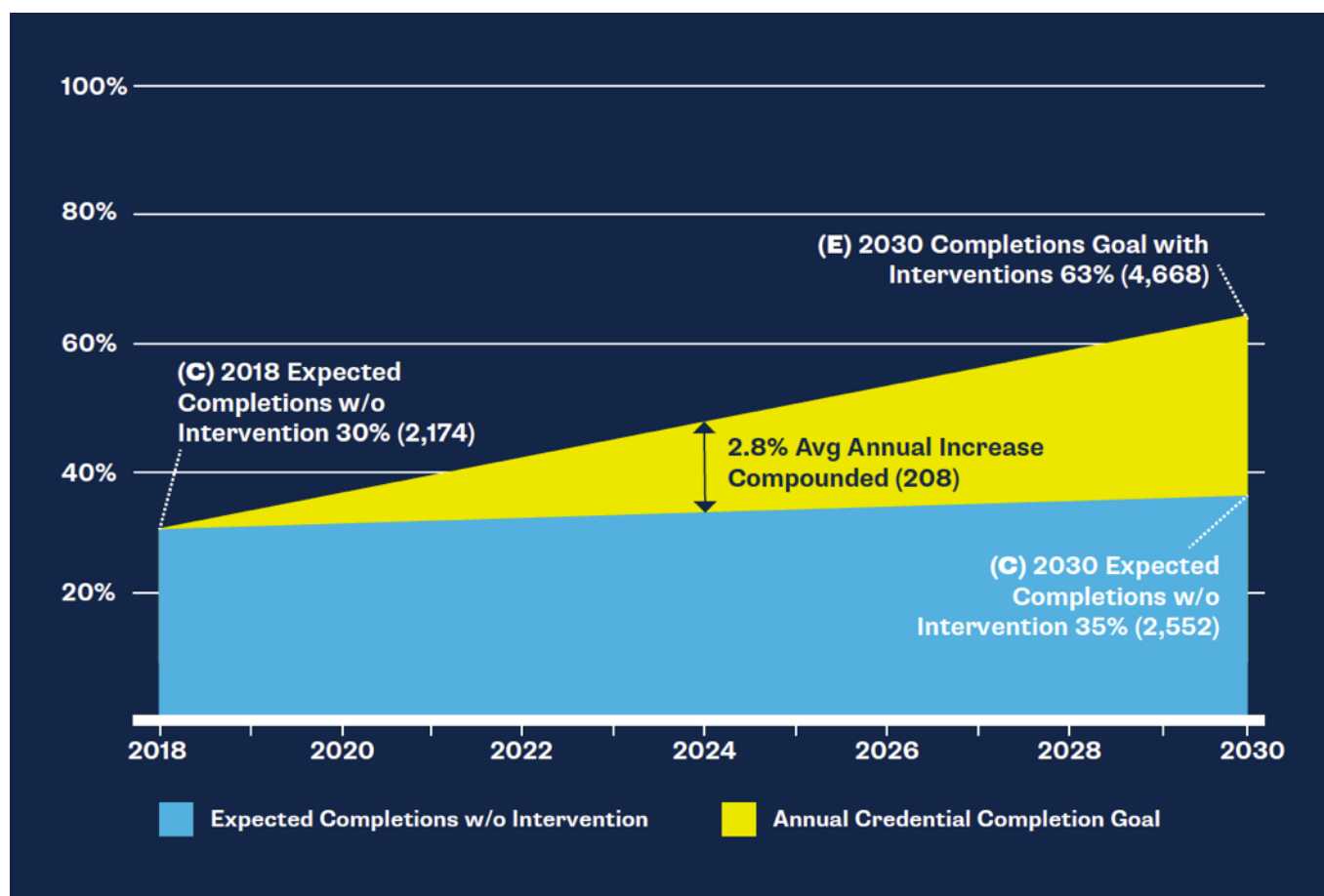
While 151 is an annual average, it is meant to set a benchmark number of what each region should aim to accomplish each year to meet the 2030 target. Below we break down yearly actual annual increases based on estimated cohort sizes and expected completion percentages.

⁹⁶ Washington STEM has produced a similar estimate for each region in the state. Taken together these regional estimates will allow the state to reach its goal.

Figure 57: Projections of Current Expected Credentials Earned by Each Northwest Region High School Cohort and Year-Over-Year Increases Needed to Meet Goals

| A. High School Class | B. 9th Grade Cohort Size | C. Expected Credential Completions without intervention | D. Annual Completion % Needed to meet goal | E. Annual Completions Goals | F. Increase needed to meet goal (E - C = F) | G. YoY difference in increase needed to meet goal |
|----------------------|--------------------------|---|--|---------------------------------|--|---|
| 2018 | 4,149 | 1,465 | 35% | 1,465 | | |
| 2019 | 4,172 | 1,473 | 38% | 1,593 | 120 | 120 |
| 2020 | 4,111 | 1,451 | 41% | 1,687 | 236 | 116 |
| 2021 | 4,166 | 1,471 | 44% | 1,829 | 358 | 123 |
| 2022 | 4,217 | 1,489 | 47% | 1,973 | 483 | 125 |
| 2023 | 4,264 | 1,506 | 50% | 2,117 | 611 | 128 |
| 2024 | 4,382 | 1,547 | 53% | 2,301 | 754 | 142 |
| 2025 | 4,578 | 1,616 | 55% | 2,535 | 918 | 165 |
| 2026 | 4,657 | 1,644 | 58% | 2,712 | 1,068 | 149 |
| 2027 | 4,624 | 1,633 | 61% | 2,826 | 1,193 | 125 |
| 2028 | 4,629 | 1,635 | 64% | 2,961 | 1,327 | 134 |
| 2029 | 4,623 | 1,632 | 67% | 3,089 | 1,457 | 131 |
| 2030 | 4,708 | 1,662 | 70% | 3,282 | 1,619 | 162 |
| Region | | 2018 Cohort Estimated Credential Attainment | 2030 Cohort Estimated Student Headcount | 2030 Credential Attainment Goal | Average Annual Increase Needed to meet 2030 Goal | Annual Increase to Meet 2030 Goal |
| Northwest | | 4,149 | 4,708 | 3,282 | 151 | 2.90% |

Figure 58: Area Graph of Projections of Current Expected Credentials and Year-Over-Year Increases Needed to Meet Goals (Letters Associate with Figure 57)



THE CREDENTIAL OPPORTUNITY BY REGION AND INDUSTRY (CORI) CROSSWALK

Washington STEM created The Credential Opportunity by Region and Industry (CORI) Crosswalk to analyze postsecondary credential attainment gaps that exist in each Washington state region for family-sustaining occupations. The CORI Crosswalk allows employers, industries, elected officials, and education sectors to make informed decisions regarding employment and postsecondary credential opportunities. The CORI analysis enables us to answer the research question:

Are there sufficient training programs and production capacity in this region that lead to local, high-demand, family-sustaining jobs? Where do training program gaps exist?

The CORI Crosswalk identifies gaps between high-demand, family-sustaining occupations and the supply of appropriately credentialed graduates in each region. The Crosswalk uses a color system to identify the areas where gaps exist. The red category highlights occupations that have a supply shortage and have NO available credential program for that occupation in that given region. The yellow category highlights occupations that have supply shortages despite credential programs available, i.e., the program or programs available in the region are not graduating a sufficient number of students to meet

the labor market needs. Last, the green category outlines occupations that are in demand in the given region, and regional credential programs (Classification of Instructional Programs) that are producing an adequate number of graduates to meet the regional labor market need for that given occupation. Thereby the CORI crosswalk identifies available education programs for high demand, family-sustaining occupations.

Imbalances in Northwest Region

The CORI Crosswalk begins with the identification of high-demand, family-sustaining occupations⁹⁷ in the Northwest Region for which postsecondary credential attainment gaps exist. In the Northwest Region, the CORI Crosswalk revealed the following occupations to be in high demand and facing a supply shortage, and a potential insufficient production of qualified graduates in the region. Notable occupations in high demand with NO credential programs in the region include human resources specialists, mechanical engineers, and civil engineers. This means that no postsecondary credential programs exist in the Northwest Region for these in-demand, family-sustaining wage occupations. Noteworthy occupations where programs exist but with inadequate credentialed graduates being produced to meet demand include carpenters, registered nurses, and electricians.

More information regarding high demand occupations and supply shortages for postsecondary credential programs can be found at [Washington STEM, Credential Opportunity by Region and Industry Crosswalk](#).

Limitations and future improvements of CORI

The CORI analysis does have some limitations. Online degrees are not factored into regional “supply” of credentials awarded (CIP) in the region, such as Western Governor University, a nonprofit online university that offers teaching degrees to place-bound students without local access to such degrees.

Future editions of CORI could include a tiered approach working to pay special attention to the level of supply and demand, moving beyond the current red and yellow color scheme to include more nuance. In addition, while developing and testing the CORI Crosswalk, regional leaders identified some areas where they felt high regional demand was not reflected. Washington STEM is currently working with local Workforce Development Area economists to identify and better understand occupations where region specific improvements in data might be made to capture regional demand better as it is experienced “on the ground.”

Region Specific Recommendations:

- Work to get more students, especially underserved students of color, ready for Kindergarten

⁹⁷Figures for regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx) , 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018.

- Attack success gaps between underserved students of color and white and Asian students in the K-12 system
- Increase dual credit offerings in high schools and pay attention to equity gaps in dual credit enrollment and outcomes
- Increase high school graduation rates
- Increase the enrollment in high-demand apprenticeship enrollment and completion
- Establish metrics and strategies to increase successful transfer from local community colleges to four-year institutions for baccalaureate-seeking students
- Create instructional programs of adequate capacity in CORI shortage fields

PIERCE COUNTY REGION: EQUITY AND OPPORTUNITY BY THE NUMBERS

EXECUTIVE SUMMARY

By 2030 the Pierce County Region needs to significantly increase the number of students achieving postsecondary credentials who can compete for family-sustaining jobs in the region. In particular, the region shows a troubling gap between its population of underserved students of color and Asian and white students in nearly every measure of K-12 readiness and educational outcomes. Currently, 51 percent of locally-originating cohorts enroll in a postsecondary program, and 36 percent earn any form of postsecondary credential by age 26, far short of what is needed. Like other indicators, this one demonstrates subgroup disparities regarding both postsecondary enrollment and attainment. While Asian and female students overall attain postsecondary credentials at higher rates than the statewide average, all other groups attain at lower rates than the state average. If the Pierce County Region aims to close supply-demand gaps for in-demand, family-sustaining wage jobs, an annual average of 241⁹⁸ *more students each year than the prior year* need to obtain a credential between now and the high school graduating class of 2030.⁹⁹

Opportunities exist to increase the number of students achieving a postsecondary credential throughout the educational system. For example, while the number of apprenticeship programs in the region is strong, enrollment in these programs is small. In addition, local postsecondary institutions have added numerous programs to meet demand in recent years; however, there are no postsecondary education preparation programs in such in-demand fields as civil engineers, lawyers, and special education or elementary school teachers.

PIERCE COUNTY REGION

The Pierce County Region's boundaries are based on those included in the Tacoma-Pierce Workforce Development Area (WDA). The region includes school districts in Educational Service District (ESD) 121, except for schools located in King County, as well as Fife school district which is associated with the King County Region. The Pierce County Region is home to growing information and technology, healthcare, K-12 education, and construction industries spanning from Gig Harbor to Eatonville. The region is made up of 13 school districts. Tacoma Public Schools is the largest district in the region and is served by the Tacoma STEAM Network. The Network's business, education, and community partners are working to close credential attainment gaps, especially for students of color and students from low-income families. They aim to increase the number of local students who become computer and IT

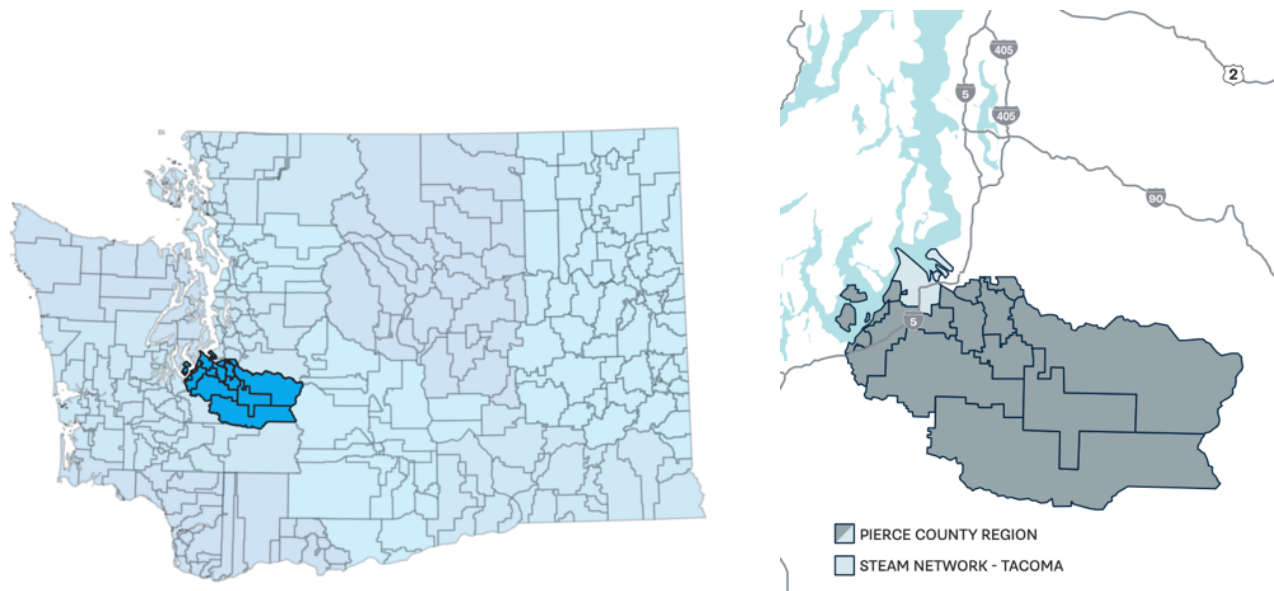
⁹⁸ Goal numbers have been updated in January 2019 from previous reports based on new projections from the Education Research & Data Center

⁹⁹ For a full explanation of this estimate see Figure 2 and Figure 3.

professionals, construction and trades professionals, teachers, and healthcare professionals, which have 3,250 annual projected openings combined over the next five years.

The 2018 ninth grade adjusted cohort high school graduation rate for this region is 90.5 percent, compared to the statewide rate of 82.4 percent (OSPI, ERDC).¹⁰⁰ The region has a school-aged population of 100,037 and approximately 7,118 students graduate from high school each year. The K-12 population growth rate is approximately 0.8 percent annually. (WA Office of Financial Management¹⁰¹, WA Caseload Forecast Council¹⁰²).

Figure 59: Pierce County Region and Partners Geographical Boundaries



Jobs in high demand in the Pierce County Region include those in healthcare, technology, education, construction, and trades. These jobs pay family-sustaining wages, for example¹⁰³:

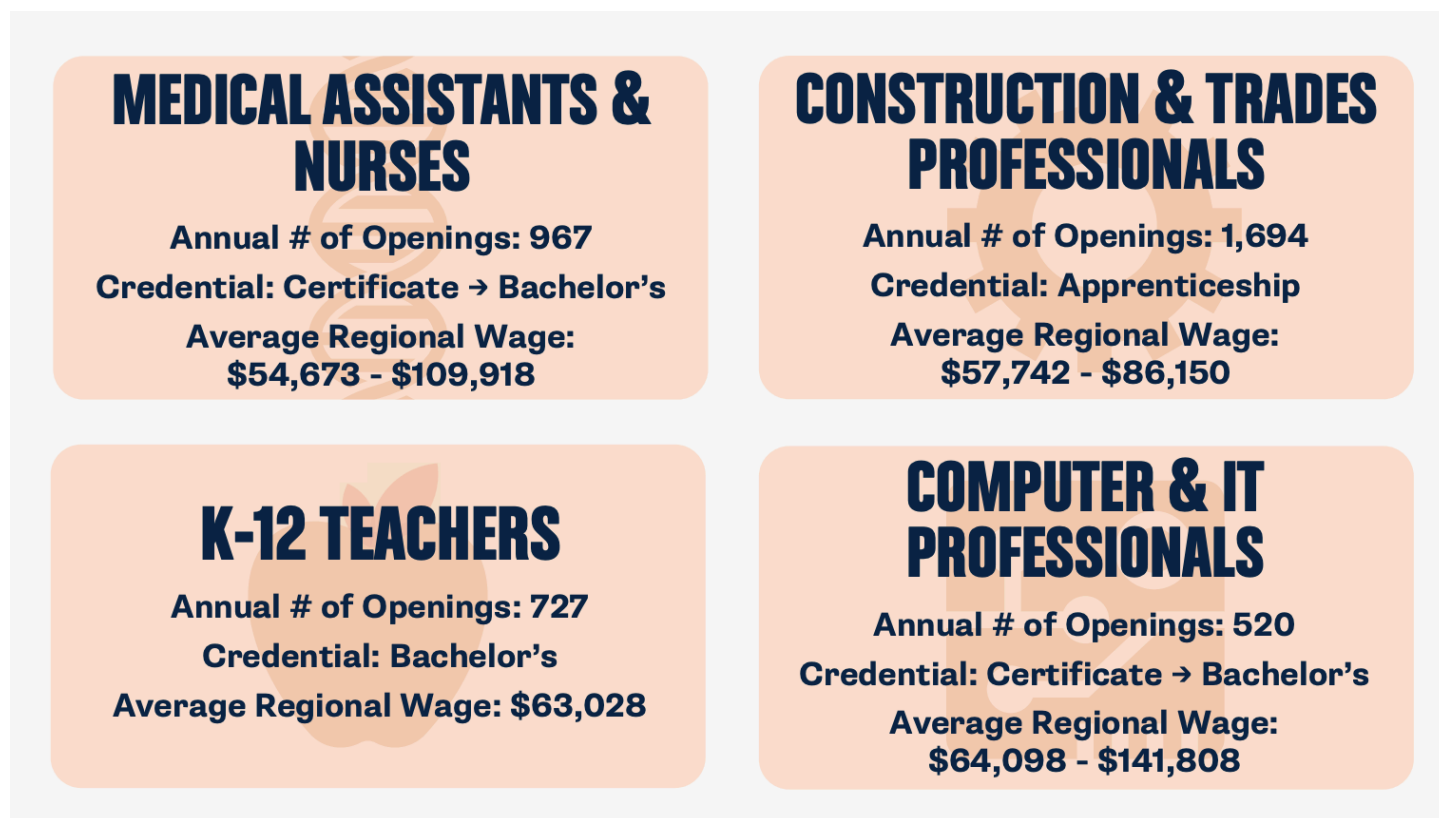
¹⁰⁰ OSPI “2014-2015 Graduation Rates by School 5Yr Cohort” <http://reportcard.ospi.k12.wa.us/DataDownload.aspx>; ERDC “2015 High School Feedback Report” <http://www.erdcddata.wa.gov/hsfb.asp>

¹⁰¹ 2017 Projections of the Population by Age and Sex for Growth Management - Ages 5-19. Retrieved from <https://www.ofm.wa.gov/washington-data-research/population-demographics/population-forecasts-and-projections>

¹⁰² Common Schools Education Long Range Projections - Headcounts. Retrieved from https://www.cfc.wa.gov/Education_Common_Schools_Enrollment.htm

¹⁰³ Figures for regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations:

Figure 60: Examples of In-Demand, Family-Sustaining Wage Jobs in Pierce County

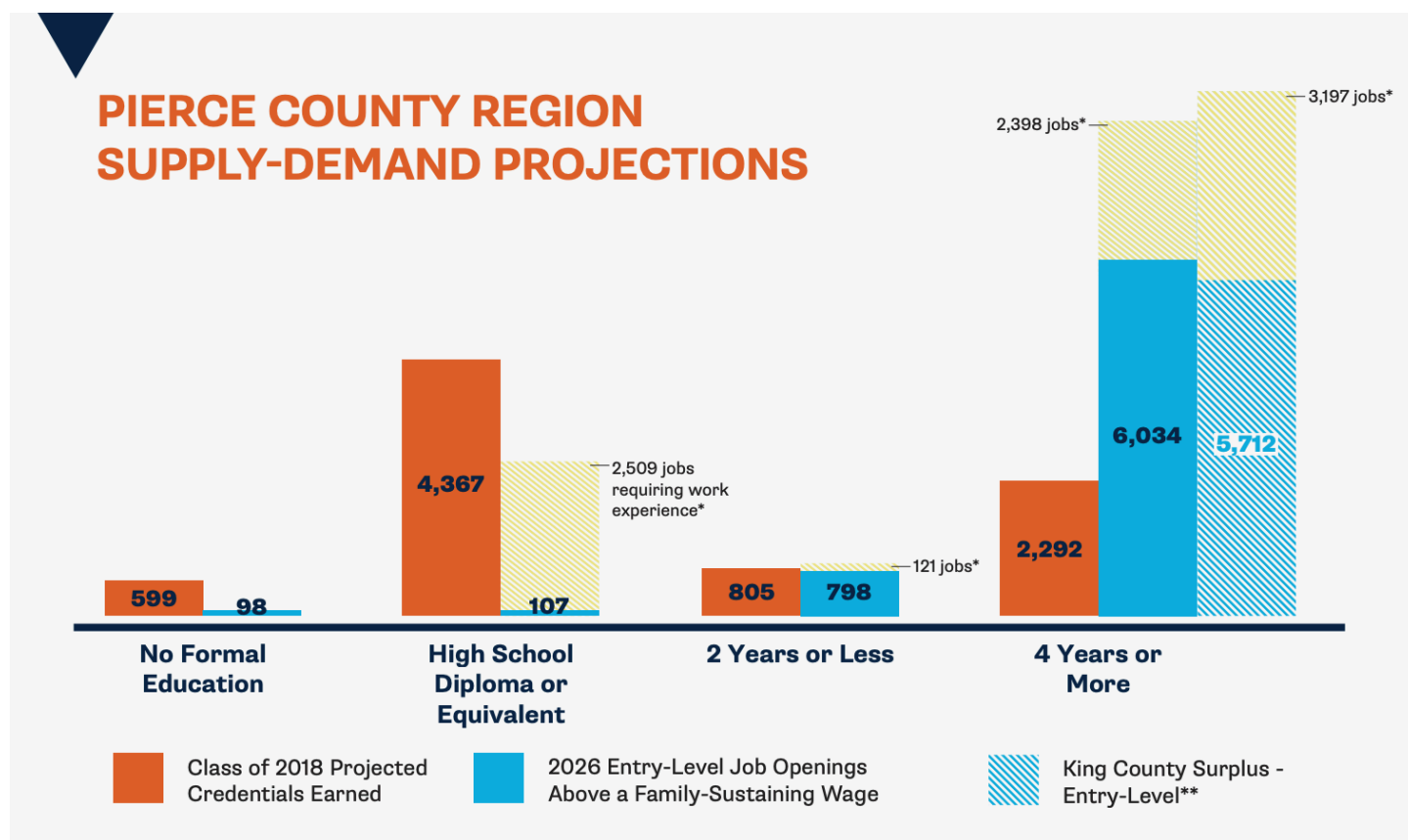


PIERCE COUNTY REGION FINDINGS

Moving more students from obtaining a high school diploma or equivalent as their highest education level to a four-year degree will ensure that they, and the region, can thrive economically. In the Pierce County Region, like other regions in the state, there is a large gap between the number of projected jobs available that will require a postsecondary credential to obtain a family-sustaining wage and the number of students currently projected to earn such a degree. On the other hand, the region has far too many young people with only a high school diploma or less compared to the number of family-wage jobs available to people with such preparation (see Figure 61).

[https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx) , 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018.

Figure 61: Comparison of Pierce County's Class of 2018 Projected Credential Completion to 2026 Projected Job Openings by Type of Credential Needed to Obtain Jobs



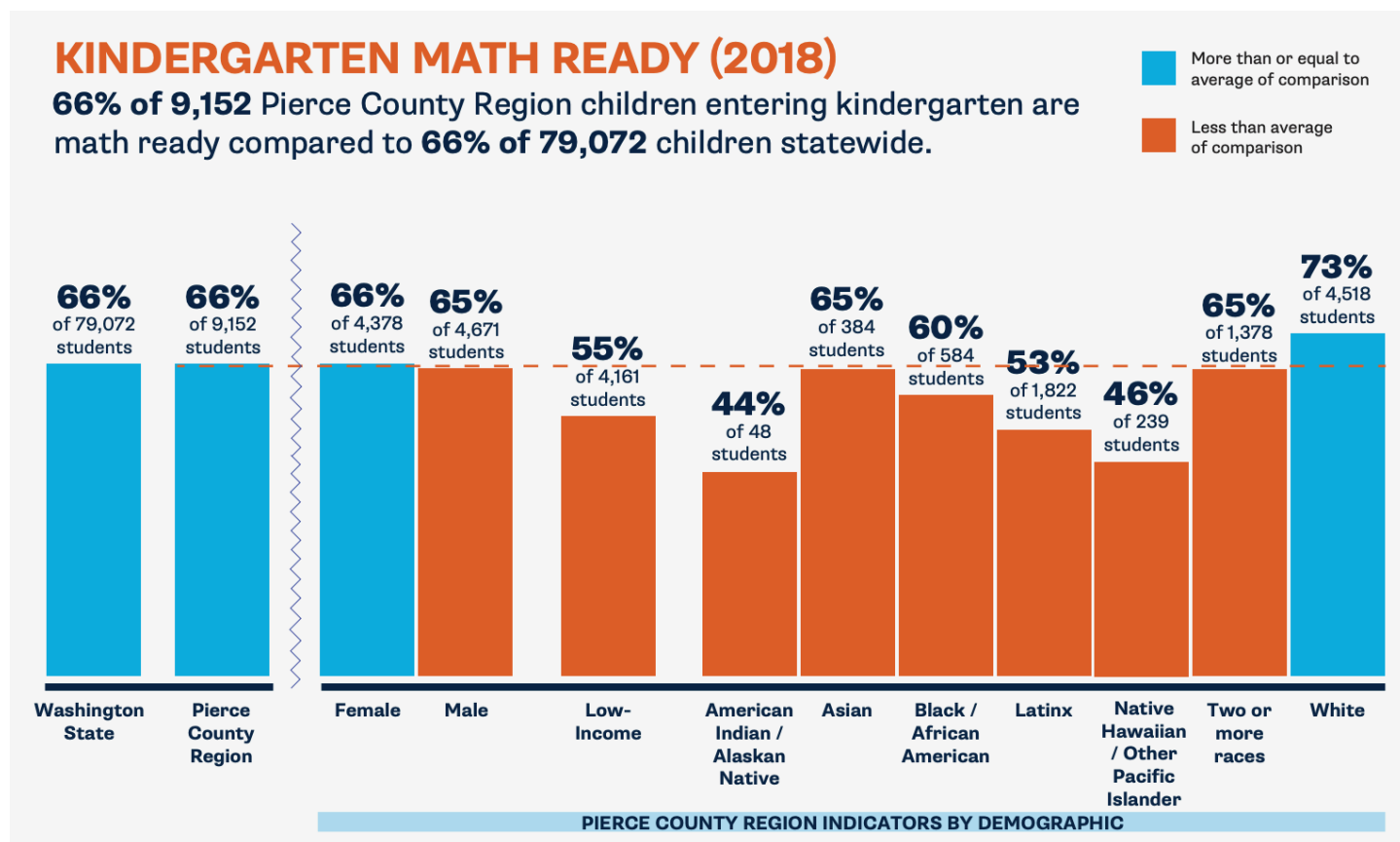
Increasingly, educators, policy makers, and local leaders are examining the entire Kindergarten-to-postsecondary-education-to-careers pathway to determine where interventions are needed. Obtaining a family-sustaining job does not begin with a job search or even in postsecondary education. The foundation for such careers begins in elementary school or even before. Washington STEM has worked to create early indicators of prospects for high school graduation and postsecondary study necessary to compete for STEM and other family sustaining jobs. Examining these indicators and trends in them allows us to begin to answer the question:

Where are identifiable gaps along this pathway that lead students in the Pierce County Region to fall behind in their pursuit of needed credentials?

Kindergarten Math Ready

The first step in the formal education-to-career pathway is Kindergarten. The Pierce County Region mirrors the state as a whole in the number of students that enter Kindergarten math ready¹⁰⁴ than is true statewide. As the graphic below shows, 66 percent of Pierce County Region students enter Kindergarten with the math skills that they need at that level. While white students far exceed the statewide average of 66 percent math ready, all other racial and ethnic groups as well as low-income students fall behind.

Figure 62: Pierce County 2018 Kindergarten Math Readiness by Demographic



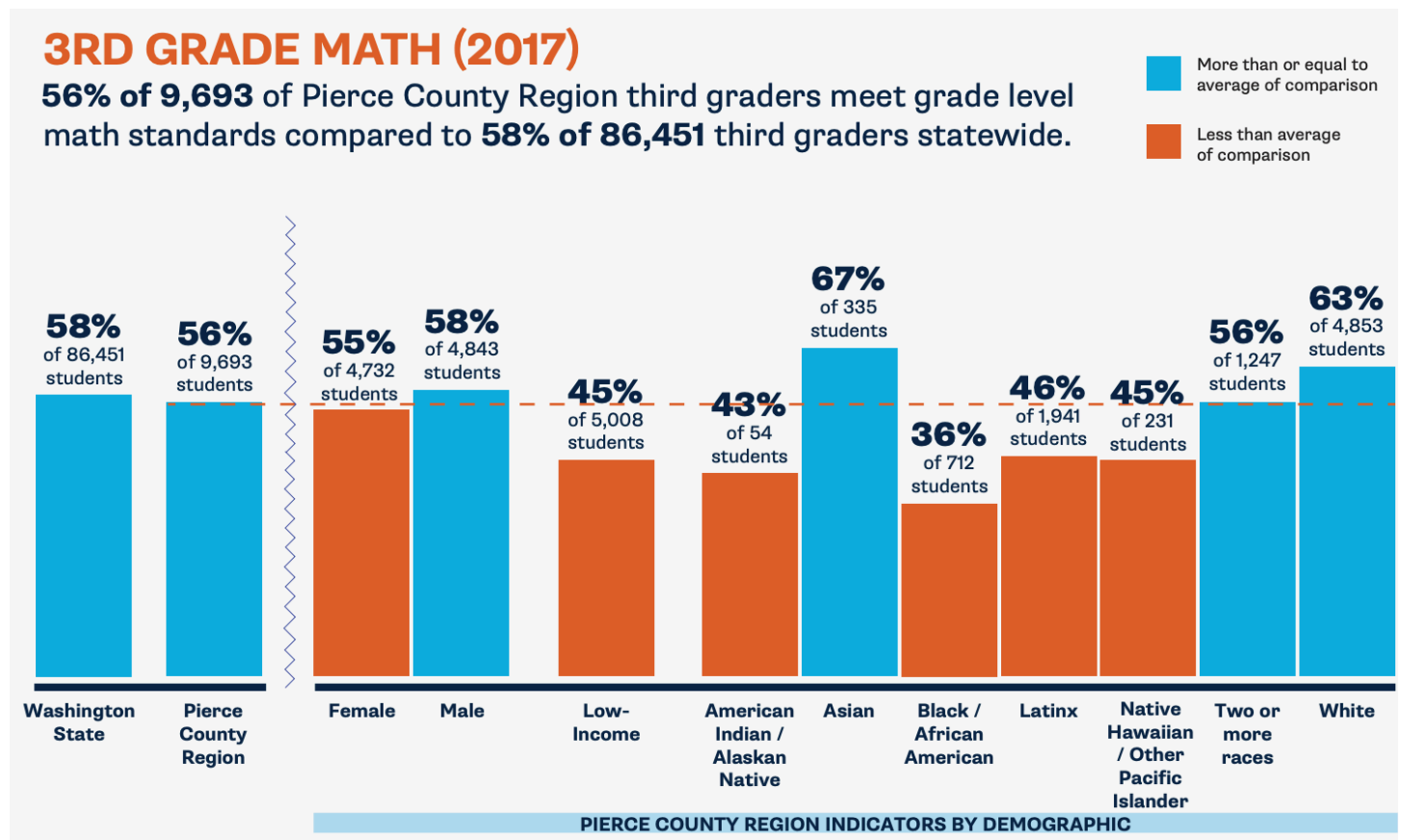
Third Grade Math Achievement

¹⁰⁴ OSPI defines math readiness for children beginning Kindergarten as: saying a sequence of numbers up to 20, counting objects up to 10, comparing objects' size, length, or weight, and identifying the position of objects by using words like beside, inside, next to, above, or below. Office of the Superintendent of Public Instruction, Washington State Report Card - WaKIDS:

<http://reportcard.ospi.k12.wa.us/WaKidsDetailPage.aspx?domain=WaKIDS&groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18&gradeLevelId=3&waslCategory=1&chartType=1>

A troubling reality is that the disparities increase by the time students reach third grade. In fact, third grade math achievement¹⁰⁵ scores show a gap of over 30 percentage points between Asian and Black/African American children. Students who are low income or underserved students of color demonstrate significantly lower scores than their white, Asian, and higher income peers. Overall, the region demonstrates scores just below the state average and closing these success gaps is imperative to preparing students for the future and boosting regional competitiveness.

Figure 63: Pierce County 2017 Third Grade Math Assessment Outcomes by Demographic

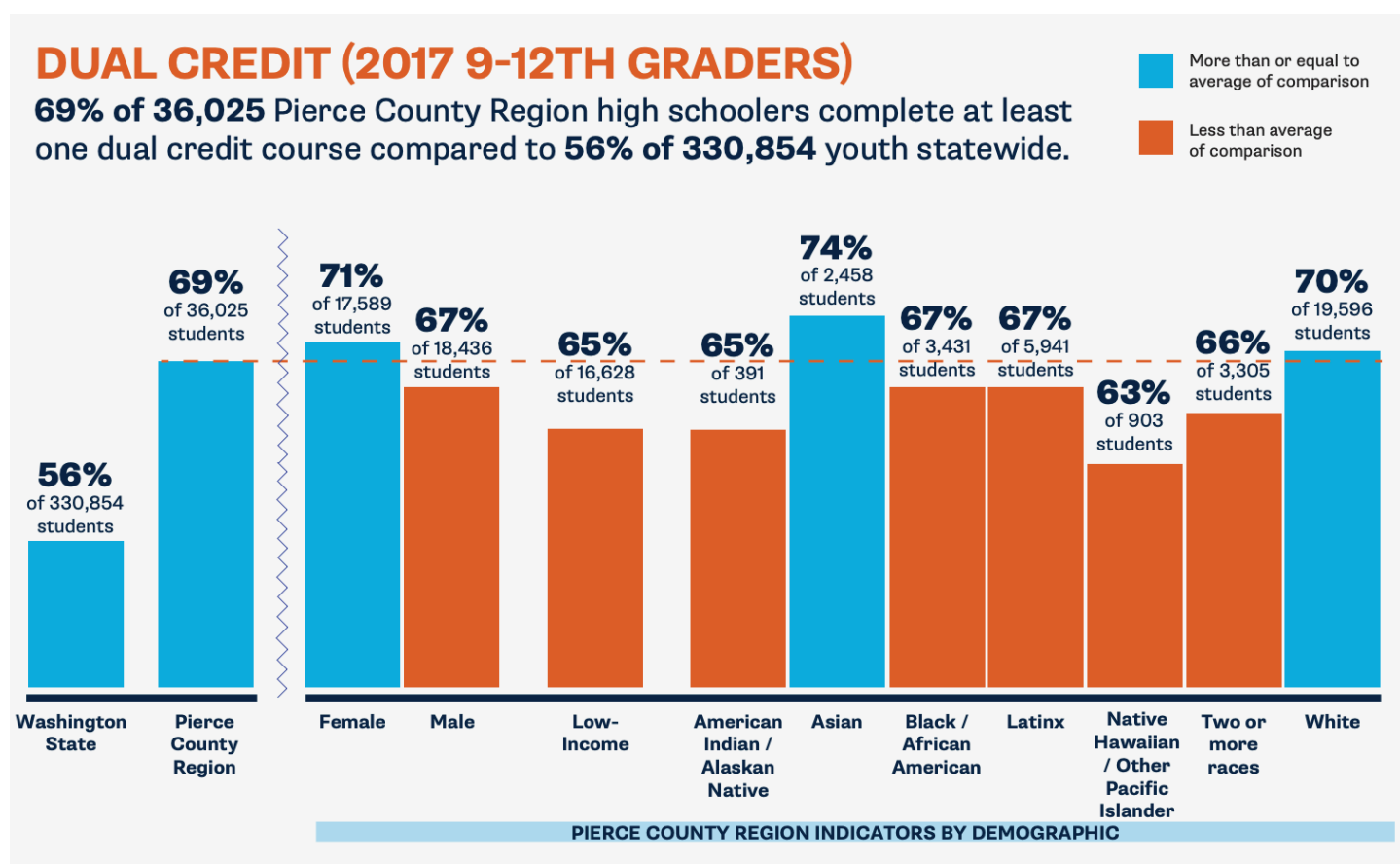


¹⁰⁵ Office of the Superintendent of Public Instruction, Washington State Report Card - Summary
<http://reportcard.ospi.k12.wa.us/summary.aspx?groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18>

Dual Credit

Completing dual credit¹⁰⁶ courses allows high school students to earn college credit while still enrolled in high school. The Pierce County Region as a whole shows a dual credit enrollment rate well above the state average. All other student groups, including low income students, are enrolling in dual credit at or above the state average, likely due to the strong dual credit opportunities in the region. However, racial and ethnic, as well as income, disparities persist in dual credit enrollment and completion.

Figure 64: Pierce County High School Students' (9th through 12th grade) Completion of at Least One Dual Credit Course as of 2017



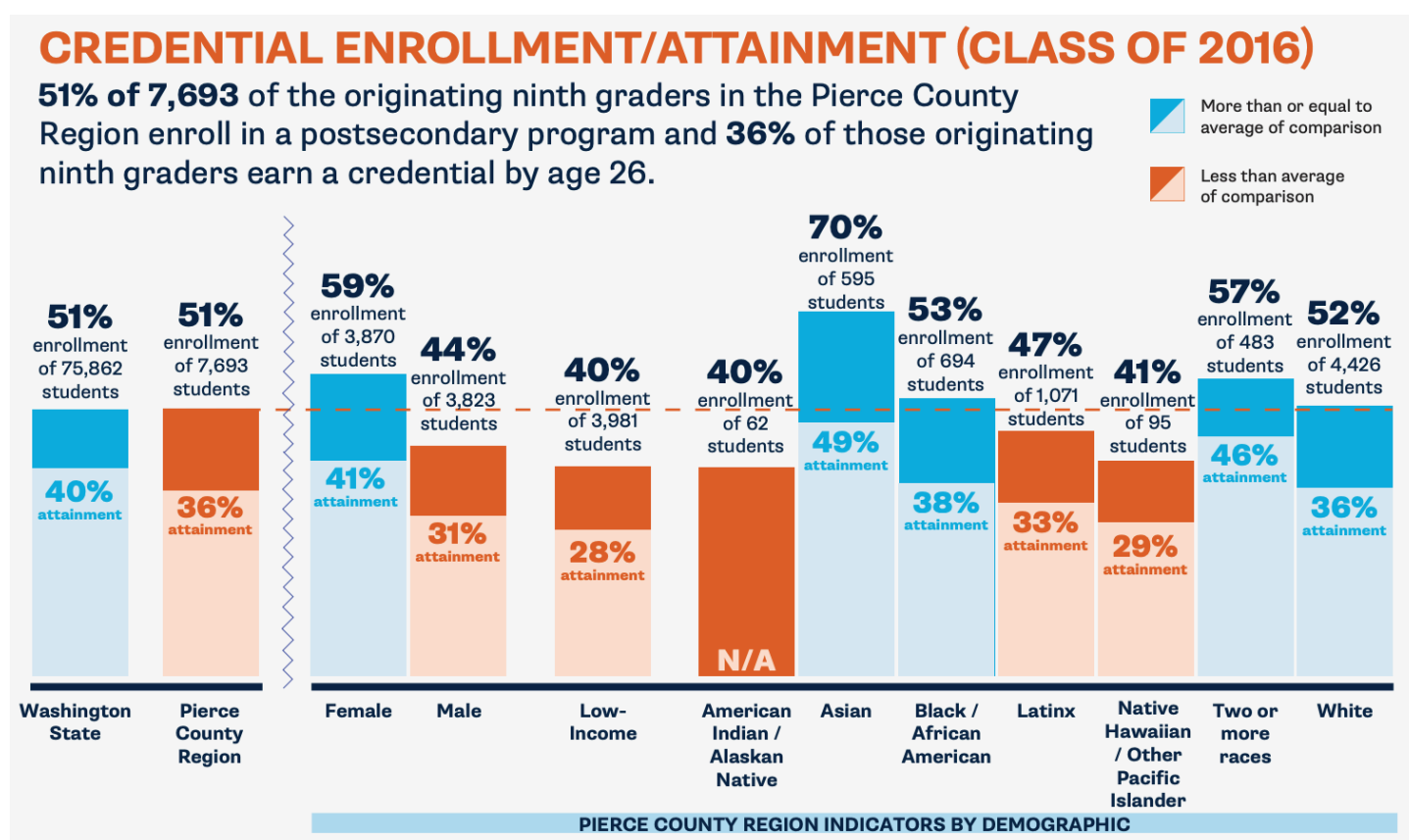
Slightly over half (51 percent) of the Pierce County Region 2016 ninth-grade cohort enroll in a postsecondary program but only 36 percent earn any credential by age 26, far short of the Washington

¹⁰⁶ Office of the Superintendent of Public Instruction, Washington State Report Card - HS Dual Credit
http://reportcard.ospi.k12.wa.us/DualCredit_2.aspx?domain=DualCredit&groupLevel=District&schoolId=1&reportLevel=State&yrs=2016-17&year=2016-17

Roundtable goal of 70 percent postsecondary credential attainment set for the high school class of 2030.¹⁰⁷ Like other indicators, this one too demonstrates serious subgroup disparities in terms of postsecondary enrollment and attainment. While female students and Asian students overall attain postsecondary credentials at higher rates than the statewide average, all other groups lag behind. Given the large numbers of underserved students of color who are not completing the credentials needed to obtain family-sustaining jobs, it's likely these populations will continue to be pushed to the economic and social margins in the Pierce County Region. Seriously addressing these structural disparities is an economic and equity imperative in the region.

Postsecondary Enrollment & Completion

Figure 65: Pierce County Credential Enrollment and Projected Completion for the High School Class of 2016



¹⁰⁷Washington Roundtable, *The Credential Is Essential*, report series: <https://www.waroundtable.com/2018/06/12/credential-is-essential/>

Students in Pierce County Region that attend college directly after high school enroll most often in local community colleges. Both campuses of Pierce College as well as Tacoma Community College are popular, 38 percent of recent high school graduates who enrolled in postsecondary education directly after high school chose one of these three campuses. An additional 11 percent enrolled in the University of Washington. Given these high rates of enrollment in community colleges, it is essential that transfer students are able to successfully transfer to a four-year degree option. The most recent data available shows overall community colleges in the state have high associate degree completion rates but low transfer rates as compared to other states.¹⁰⁸

Figure 66: Enrollment by Institution for the Graduates of the Class of 2016 for Pierce Region

| Pierce Region | | | |
|-------------------------------------|---------------------------|---|---------------------------|
| Top Postsecondary Institution | HS Cohort Enrollment Rate | Top Postsecondary Institution In-Region | HS Cohort Enrollment Rate |
| Four Year - Private or Out-of-State | 20% | Pierce College Fort Steilacoom | 15% |
| Pierce College Fort Steilacoom | 15% | Pierce College Puyallup | 13% |
| Pierce College Puyallup | 13% | Tacoma College | 10% |
| University of Washington | 11% | Clover Park College | 3% |
| Tacoma College | 10% | Bates College | 2% |

In addition to postsecondary institutions' credential offerings, a large number of apprenticeship programs exist in the region, but they are often sparsely enrolled relative to the population. In 2018, just 269 of the region's residents (not necessarily locally originating high school graduates) completed apprenticeship training.

2018 Pierce County Region Apprenticeships

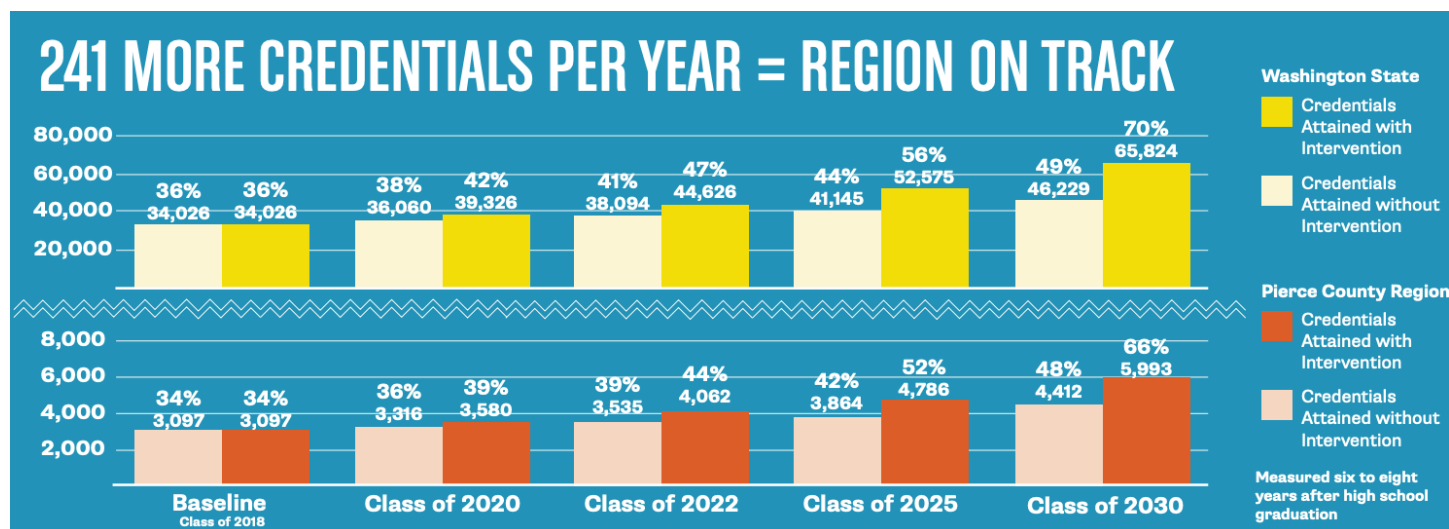
| | |
|---|-------|
| Apprenticeship programs operating in the region | 143 |
| 2018 active apprentices living in the region | 2,348 |
| 2018 apprenticeship completions by region residents | 269 |

More can and should be done to direct the region's high school graduates into these alternative postsecondary training opportunities.

¹⁰⁸ Jenkins, D., & Fink, J. (2016). Tracking Transfer: New Measures of Institutional and State Effectiveness in Helping Community College Students Attain Bachelor's Degrees. *Community College Research Center, Teachers College, Columbia University*.

Our analysis concludes that the region will need to **support 241 more Pierce County Region-originating students in earning a postsecondary credential or apprenticeship each year** (i.e., 241 more each year than the prior year) from now until 2030 for the region to be on track for attaining the 65.5 percent goal for that region.¹⁰⁹ To achieve this goal, the region will need to specifically focus on systems changes that can close the significant outcomes gaps that currently exist for underrepresented students of color as well as students from low-income families.

Figure 67: Pierce County’s Trajectory for Increased Number of Locally-Originating High School Students Earning Postsecondary Credentials to Obtain Locally Family-Sustaining Wage Jobs



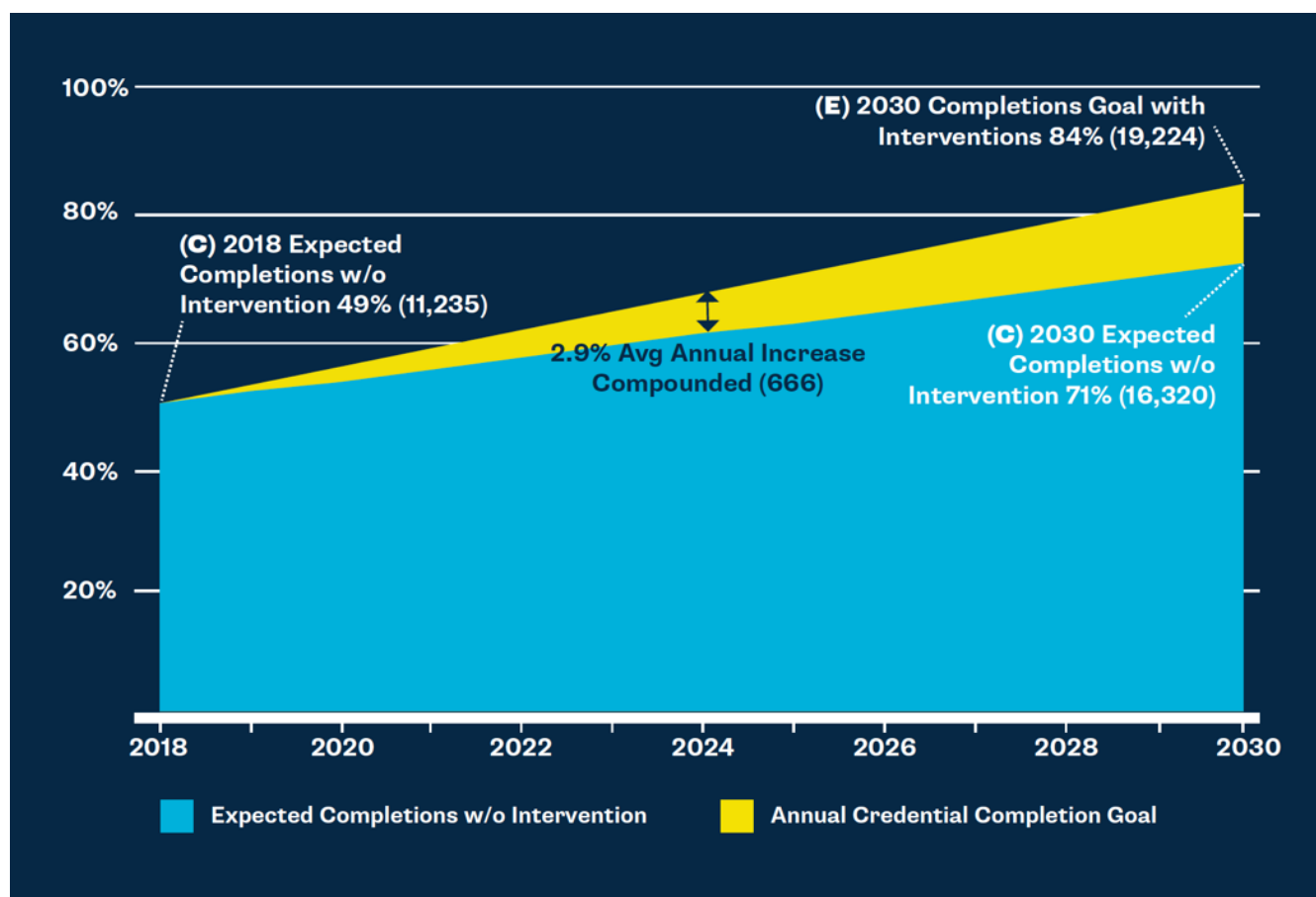
While 241 is an annual average, it is meant to set a benchmark number of what each region should aim to accomplish each year to meet the 2030 target. Below we break down yearly actual annual increases based on increasing cohort sizes and expected completion percentages.

¹⁰⁹ Washington STEM has produced a similar estimate for each region in the state, taken together these regional estimates will allow the state to reach its goal.

Figure 68: Projections of Current Expected Credentials Earned by Each Pierce County High School Cohort and Year-Over-Year Increases Needed to Meet Goals

| A. High School Class | B. 9th Grade Cohort Size | C. Expected Credential Completions without intervention | D. Annual Completion % Needed to meet goal | E. Annual Completions Goals | F. Increase needed to meet goal (E - C = F) | G. YoY difference in increase needed to meet goal |
|----------------------|--------------------------|---|--|---------------------------------|--|---|
| 2018 | 8,062 | 3,097 | 38% | 3,097 | | |
| 2019 | 8,109 | 3,115 | 41% | 3,298 | 183 | 183 |
| 2020 | 7,988 | 3,068 | 43% | 3,429 | 361 | 178 |
| 2021 | 8,097 | 3,110 | 45% | 3,658 | 548 | 188 |
| 2022 | 8,196 | 3,148 | 47% | 3,888 | 740 | 192 |
| 2023 | 8,287 | 3,183 | 50% | 4,118 | 935 | 195 |
| 2024 | 8,516 | 3,271 | 52% | 4,425 | 1,153 | 218 |
| 2025 | 8,897 | 3,417 | 54% | 4,823 | 1,406 | 252 |
| 2026 | 9,051 | 3,477 | 56% | 5,111 | 1,635 | 229 |
| 2027 | 8,987 | 3,452 | 59% | 5,278 | 1,826 | 191 |
| 2028 | 8,997 | 3,456 | 61% | 5,487 | 2,031 | 205 |
| 2029 | 8,983 | 3,451 | 63% | 5,681 | 2,231 | 200 |
| 2030 | 9,150 | 3,515 | 66% | 5,993 | 2,479 | 248 |
| Region | | 2018 Cohort Estimated Credential Attainment | 2030 Cohort Estimated Student Headcount | 2030 Credential Attainment Goal | Average Annual Increase Needed to meet 2030 Goal | Annual Increase to Meet 2030 Goal |
| Pierce County | | 8,062 | 9,150 | 5,993 | 241 | 2.30% |

Figure 69: Area Graph of Projections of Current Expected Credentials and Year-Over-Year Increases Needed to Meet Goals (Letters Associate with Figure 68)



THE CREDENTIAL OPPORTUNITY BY REGION AND INDUSTRY (CORI) CROSSWALK

Washington STEM created The Credential Opportunity by Region and Industry (CORI) Crosswalk to analyze postsecondary credential attainment gaps that exist in each Washington state region for family-sustaining occupations. The CORI Crosswalk allows employers, industries, elected officials, and education sectors to make informed decisions regarding employment and postsecondary credential opportunities. The CORI analysis enables us to answer the research question:

Are there sufficient training programs and production capacity in this region that lead to local, high-demand, family-sustaining jobs? Where do training program gaps exist?

The CORI Crosswalk identifies gaps between high-demand, family-sustaining occupations and the supply of appropriately credentialed graduates in each region. The Crosswalk uses a color system to identify the areas where gaps exist. The red category highlights occupations that have a supply shortage and have NO available credential program for that occupation in that given region. The yellow category highlights occupations that have supply shortages despite credential programs available, i.e., the program or programs available in the region are not graduating a sufficient number of students to meet

the labor market needs. Last, the green category outlines occupations that are in demand in the given region, and regional credential programs (Classification of Instructional Programs) that are producing an adequate number of graduates to meet the regional labor market need for that given occupation. Thereby the CORI crosswalk identifies available education programs for high demand, family-sustaining occupations.

Imbalances in the Pierce County Region

The CORI Crosswalk begins with the identification of high-demand, family-sustaining occupations¹¹⁰ in the Pierce County region for which postsecondary credential attainment gaps exist. In the Pierce County region, the CORI Crosswalk revealed the following occupations to be in high demand and facing a supply shortage, and a potential insufficient production of qualified graduates in the region. Notable occupations in high demand with NO credential programs in the region include civil engineers, lawyers, and pharmacists. This means that no postsecondary credential programs exist in the Pierce County region for these in-demand, family-sustaining wage occupations. Noteworthy occupations where programs exist but with inadequate credentialed graduates being produced to meet demand include software developers, construction managers, and registered nurses.

More information regarding high demand occupations and supply shortages for postsecondary credential programs can be found at [Washington STEM, Credential Opportunity by Region and Industry Crosswalk: https://washingtonstem.org/focus_area/career-pathways/#CORI](https://washingtonstem.org/focus_area/career-pathways/#CORI).

Limitations and future improvements of CORI

The CORI analysis does have some limitations. Online degrees are not factored into regional “supply” of credentials awarded (CIP) in the region, such as Western Governor University, a nonprofit online university that offers teaching degrees to place-bound students without local access to such degrees.

Future editions of CORI could include a tiered approach working to pay special attention to the level of supply and demand, moving beyond the current red and yellow color scheme to include more nuance. In addition, while developing and testing the CORI Crosswalk, regional leaders identified some areas where they felt high regional demand was not reflected. Washington STEM is currently working with local Workforce Development Area economists to identify and better understand occupations where region-specific improvements in data might be made to capture regional demand better as it is experienced “on the ground.”

DISCUSSION:

¹¹⁰Figures for regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx) , 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018.

Too many local students find the education needed to obtain in-demand, family-sustaining careers to be an *opportunity mirage* that they are unable to successfully attain. Better preparing local students to compete in the new economy is an equity AND an economic imperative.

A regional approach is warranted as each of the regions in Washington has fundamentally different educational and economic contexts with differing problems and solutions in each. We believe local leaders are best able to create the smart, innovative, and potentially disruptive changes needed to substantially move the needle on educational opportunity that matches job market needs.

Region specific recommendations:

- Work to get more students, especially low-income and underserved students of color, ready for Kindergarten
- Attack K-12 success gaps
- Increase high school graduation rates and ensure students have the information they need to know their college academic program and financial options
- Increase apprenticeship enrollment
- Establish metrics to increase successful transfer from local community colleges to four-year institutions for baccalaureate seeking students
- Create instructional programs and increased production capacity in CORI shortage fields so local students do not need to leave the region to obtain high-demand credentials
- Work to make place-bound students more aware of public online options such as Western Governors University for high-demand credential options

SNOHOMISH REGION: EQUITY AND OPPORTUNITY BY THE NUMBERS

EXECUTIVE SUMMARY

The Snohomish Region of Washington state faces a challenge in preparing students for the family-sustaining, in-demand jobs that exist in the region. With the relatively high cost of living in the Snohomish Region, few jobs provide family-sustaining wages to students who do not have at least some postsecondary education. Currently, 58 percent of locally-originating cohorts (defined at ninth grade entry) enroll in a postsecondary program, while only 44 percent earn any form of postsecondary credential by age 26, far short of what is needed by the local labor market. Like other indicators, there are subgroup disparities in both enrollment and attainment. While female and Asian students overall in the region attain postsecondary credentials at higher rates than the statewide average, all other groups attain at lower rates than the state average, and some (e.g. Latinx students and American Indian/Alaska Native students) show troubling gaps. If the Snohomish Region aims to close supply-demand gaps for in-demand, family-sustaining wage jobs, an annual average of 288¹¹¹ *more students in each year than the prior year* need to obtain a credential between now and the high school graduating class of 2030.¹¹²

Local postsecondary institutions have added numerous programs to meet demand in recent years, but opportunities exist to do more throughout the education system. For example, while the number of apprenticeship programs in the region is strong, enrollment in these programs is small. In the region, there are no postsecondary education preparation programs in such in-demand fields as nurse practitioners and elementary and middle school teachers.

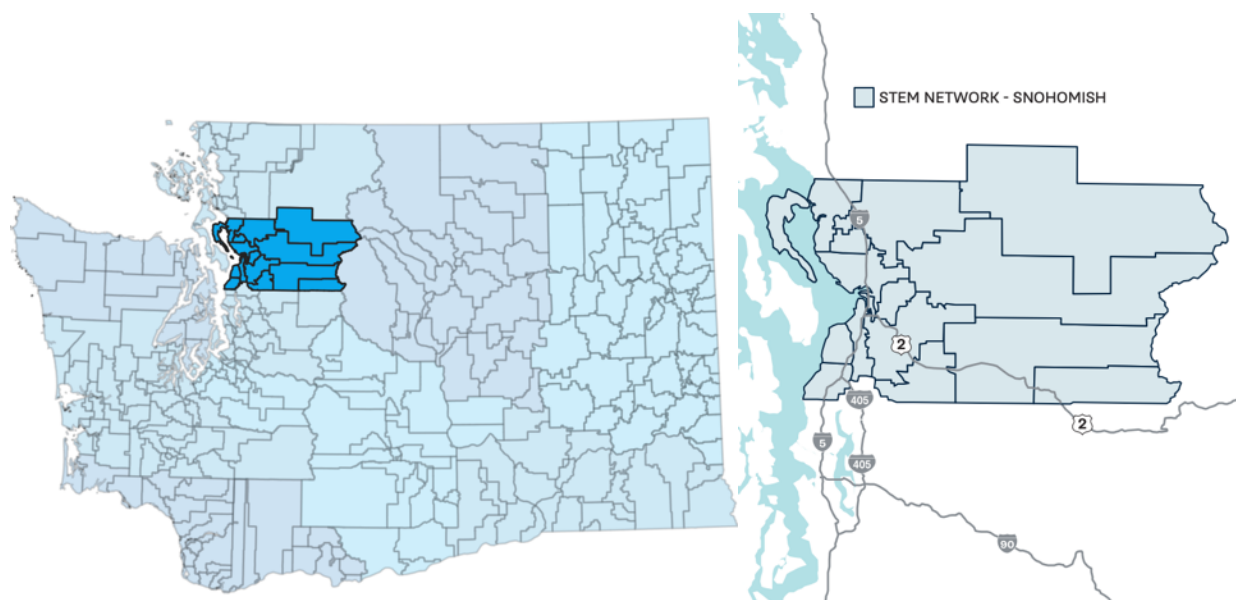
THE SNOHOMISH REGION

The Snohomish Region's boundaries are based on those included in Educational Service District (ESD) 189 and Snohomish Workforce Development Area (WDA). The region is composed of those school districts located in Snohomish County, with the exception of Northshore school district which is associated with the King County Region. The Snohomish Region is home to growing information and technology, healthcare, engineering, and construction, spanning from Arlington to Lynnwood. The region is made up of 14 school districts, all of which are members of the Snohomish STEM Network. The Network's business, education, and community partners are working to close credential attainment gaps, especially for students of color and students from low-income families. They aim to increase the number of local students who become computer and IT professionals, construction and trades professionals, engineers, and healthcare professionals.

¹¹¹ Goal numbers were updated in January 2019 from previous Washington STEM reports based on new projections from the Education Research & Data Center.

¹¹² In this instance, the "high school class of 2030" does not refer to only those students who make it to high school graduation; rather, this refers to the entire class who are at any time intending on graduating in 2030. Above and in other sections, we refer to this as the five-year adjusted cohort.

Figure 70: Snohomish Region Snohomish STEM Network Geographical Boundaries



The Snohomish Region had a school-aged population of 105,297 in 2016 and approximately 7,044 students graduate from high school each year. This is about 88.6 percent of the ninth-grade cohort that was originally expected to graduate compared to the statewide rate of 82.4% (OSPI, ERDC).¹¹³ The K-12 population growth rate is approximately 1.12 percent annually. The region has, proportionally, a large white population and a large Latinx population (WA Office of Financial Management¹¹⁴, WA Caseload Forecast Council¹¹⁵).

Jobs in high demand in the Snohomish Region include those in healthcare, technology, education, construction, and trades. These jobs pay family-sustaining wages, for example¹¹⁶:

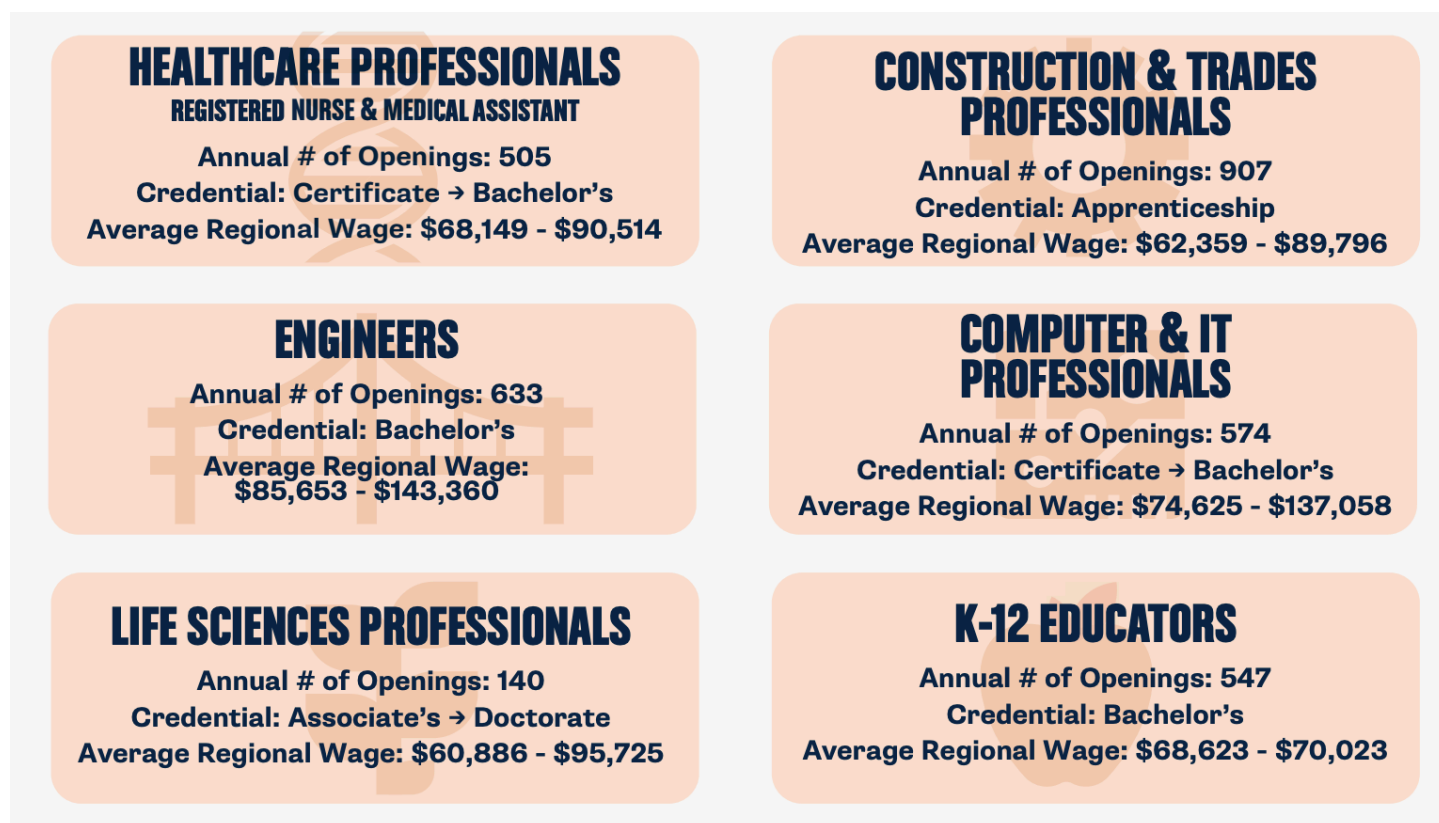
¹¹³ OSPI “2014-2015 Graduation Rates by School 5Yr Cohort,” retrieved from: <http://reportcard.ospi.k12.wa.us/DataDownload.aspx>; ERDC “2015 High School Feedback Report” <http://www.erdcddata.wa.gov/hsfb.asp>.

¹¹⁴ 2017 Projections of the Population by Age and Sex for Growth Management - Ages 5-19. Retrieved from <https://www.ofm.wa.gov/washington-data-research/population-demographics/population-forecasts-and-projections>

¹¹⁵ Common Schools Education Long Range Projections - Headcounts. Retrieved from https://www.cfc.wa.gov/Education_Common_Schools_Enrollment.htm

¹¹⁶ Regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx), 2017 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu>, retrieved December 2018.

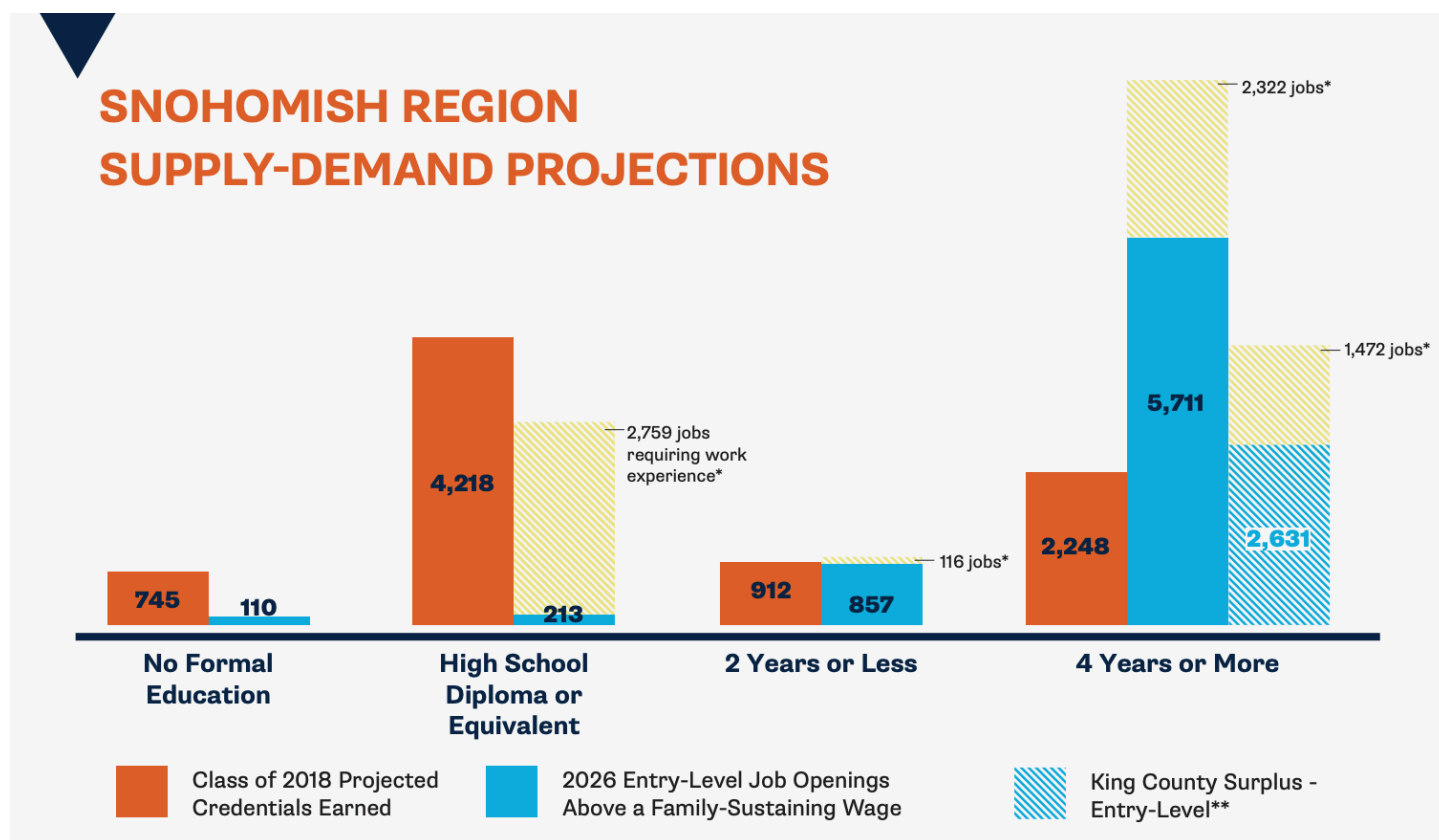
Figure 71: Examples of In-Demand, Family-Sustaining Wage Jobs in the Snohomish Region



SNOHOMISH REGION FINDINGS

Moving more students from obtaining a high school diploma or equivalent as their highest education level to a four-year degree will ensure that they, and the region, can thrive economically. The Snohomish Region, like others in the state, has a large gap between the number of projected jobs available that will require a two-year degree in some technical and healthcare areas and a degree calling for four-years' study or more to obtain a family-sustaining wage and the number of students currently projected to earn such a degree. On the other hand, the region has far too many young people with only a high school diploma or less compared to the number of family-wage jobs available to people with such preparation (see Figure 72).

Figure 72: Comparison of Snohomish Region's Class of 2018 Projected Credential Completion to 2026 Projected Job Openings by Type of Credential Needed to Obtain Jobs



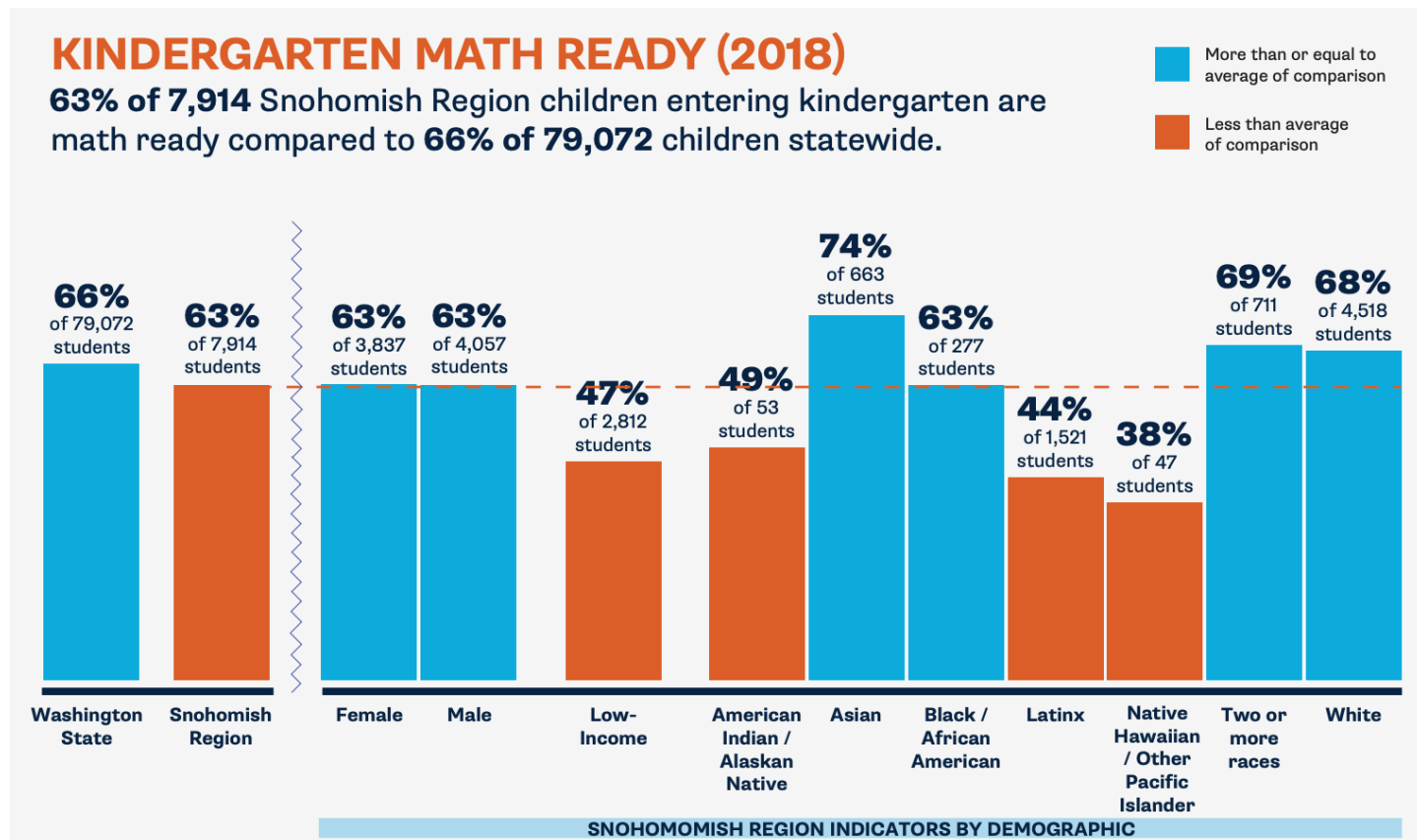
Increasingly, educators, policy makers, and local leaders are examining the entire Kindergarten-to-postsecondary education-to-careers pathway to determine where interventions are needed. Obtaining a family-sustaining job does not begin with a job search or even in postsecondary education. The foundation for such careers begins in elementary school or even before. Washington STEM has worked to create early indicators of prospects for high school graduation and postsecondary study necessary to compete for STEM and other family sustaining jobs. Examining these indicators and trends in them allows us to begin to answer the question:

Where are identifiable gaps that lead students in the Snohomish Region to fall behind in their pursuit of needed credentials?

Kindergarten Math Ready

The first step in the formal education to career pathway is Kindergarten. Fewer students in the Snohomish Region enter Kindergarten math ready¹¹⁷ than is true statewide. As the graphic below shows, only 63 percent of Snohomish Region students enter Kindergarten with the math skills that they need at that level. While white students are, at 68 percent, slightly above the statewide average of 66 percent math ready, all other racial and ethnic groups, except for Asian students, are well behind.

Figure 73: Snohomish Region 2018 Kindergarten Math Readiness by Demographic



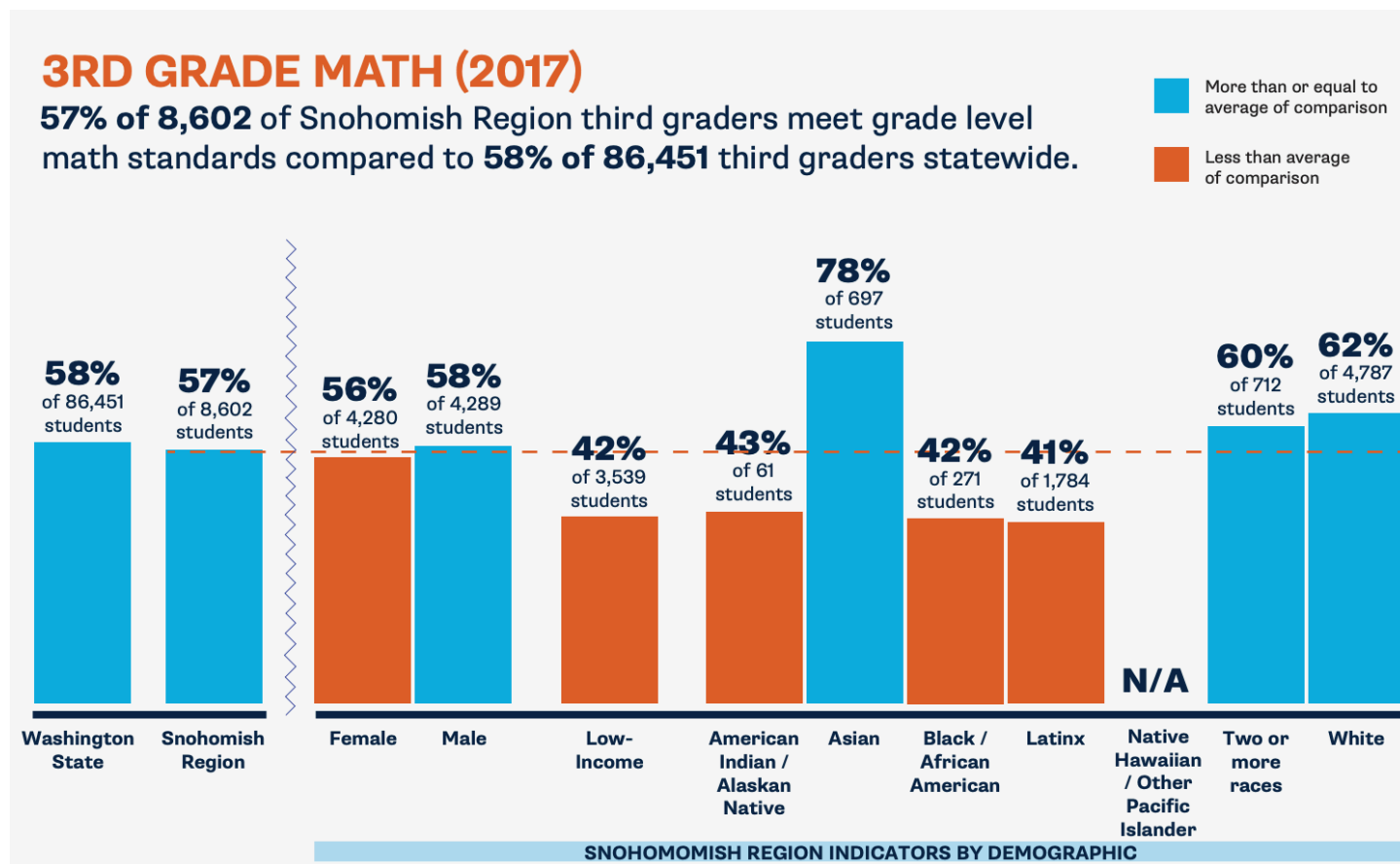
Third Grade Math Achievement

¹¹⁷ OSPI defines math readiness for children beginning Kindergarten as: saying a sequence of numbers up to 20; counting objects up to 10; comparing objects' size, length, or weight; and identifying the position of objects by using words like beside, inside, next to, above, or below (Office of the Superintendent of Public Instruction, Washington State Report Card - WaKIDS:

<http://reportcard.ospi.k12.wa.us/WaKidsDetailPage.aspx?domain=WaKIDS&groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18&gradeLevelId=3&waslCategory=1&chartType=1>

The regional picture for third grade math achievement¹¹⁸ shows concerning trends for underserved students of color. The gap between regional and statewide achievement (percentage achieving the state's proficiency benchmark) has been nearly eliminated for all students in aggregate. However, underserved students of color are not having their needs met, and the trend is moving in the opposite direction. In fact, the percentage of underserved students of color, especially Black/African American children, meeting benchmarks has dropped since Kindergarten.

Figure 74: Snohomish Region 2017 Third Grade Math Assessment Outcomes by Demographic

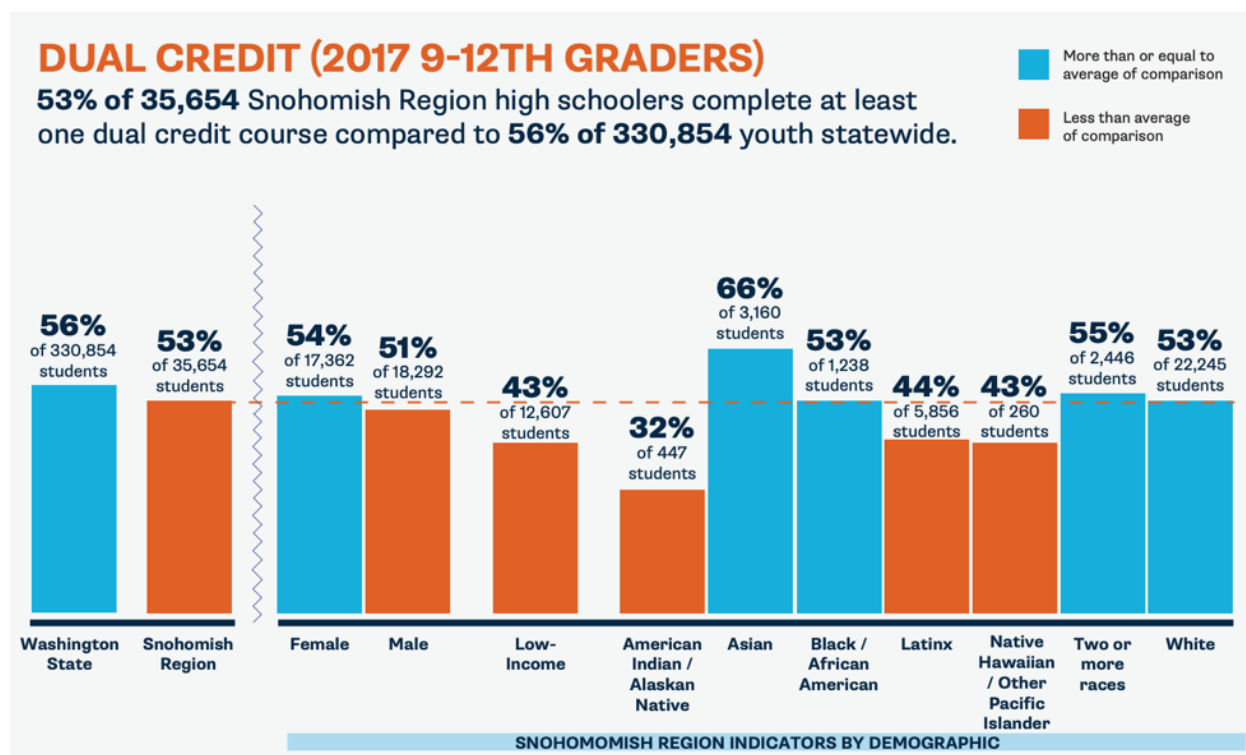


¹¹⁸ Office of the Superintendent of Public Instruction, Washington State Report Card - Summary
<http://reportcard.ospi.k12.wa.us/summary.aspx?groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18>

Dual Credit

Next, we look at completion of dual credit courses by high school students. Completing dual credit¹¹⁹ courses allows high school students to earn college credit while still enrolled in high school, giving them a leg up on enrolling and competing college credentials. The Snohomish Region as a whole shows a dual credit enrollment rate below the state average. In the region, 53 percent of high school students complete at least one dual credit course at any point in high school, compared to 56 percent of youth statewide. However, once again, underserved students of color lag behind, as do low-income students. Overall, Asian students complete these courses at rates above the state and regional averages.

Figure 75: Snohomish Region High School Students' (9th through 12th grade) Completion of at Least One Dual Credit course as of 2017

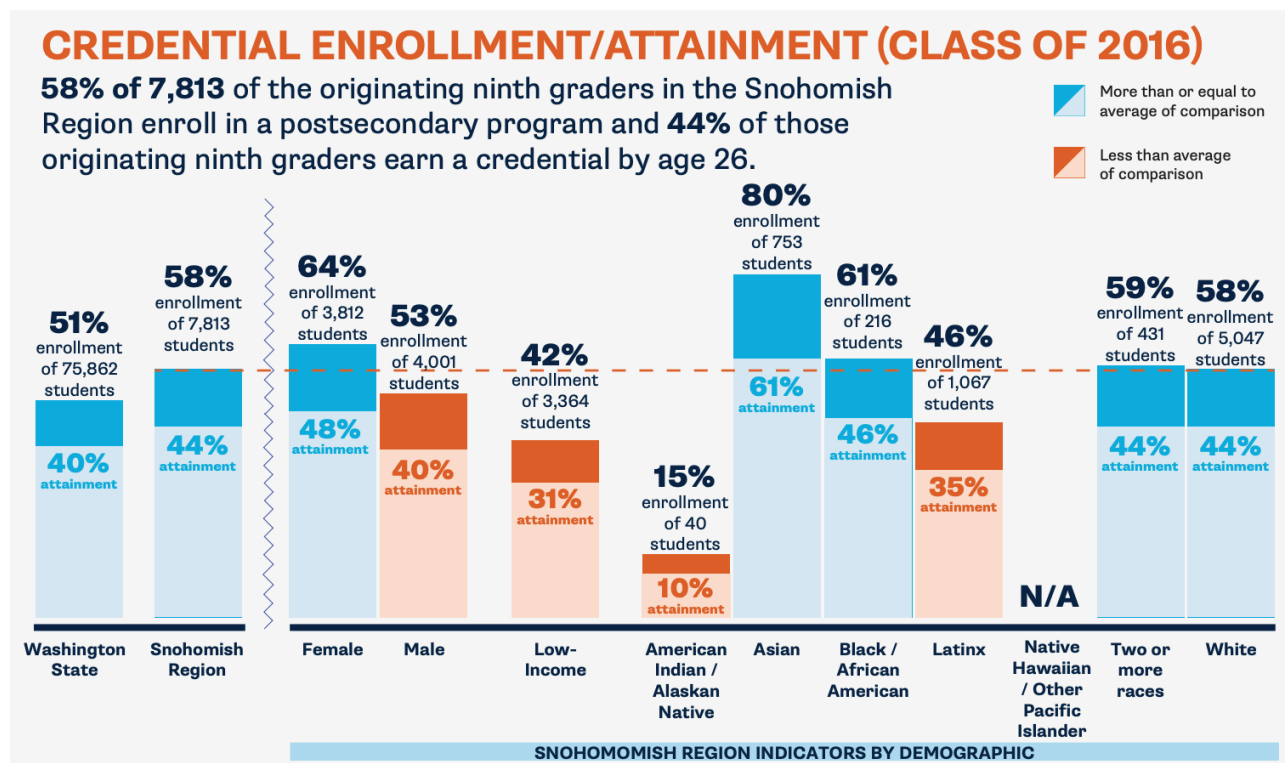


¹¹⁹Office of the Superintendent of Public Instruction, Washington State Report Card - HS Dual Credit
http://reportcard.ospi.k12.wa.us/DualCredit_2.aspx?domain=DualCredit&groupLevel=District&schoolId=1&reportLevel=State&yrs=2016-17&year=2016-17

Postsecondary Enrollment & Completion

Over half (58 percent) of the Snohomish Region 2016 ninth-grade cohort enroll in a postsecondary program but only 44 percent earn any credential by age 26, far short of the 70 percent goal. Like other indicators, this one too demonstrates serious subgroup disparities in terms of enrollment and attainment. While female students and white and Asian students overall attain postsecondary credentials at higher rates than the statewide average, all other groups lag behind.

Figure 76: Snohomish Region Credential Enrollment and Projected Completion for the High School Class of 2016



The most popular college for students in the Snohomish Region to attend after high school is Everett Community College, where 27 percent of the region's residents enroll. This is followed by the University of Washington and Edmonds Community College. Given these high rates of enrollment in community colleges it is essential that transfer students are able to successfully transfer to a four-year degree

option. The most recent data available shows overall community colleges in the state have high associate degree completion rates but low transfer rates as compared to other states.¹²⁰

Figure 77: Enrollment by Institution for the Graduates of the Class of 2016 for the Snohomish Region

| Snohomish Region | | | |
|-----------------------------------|---------------------------|---|---------------------------|
| Top Postsecondary Institution | HS Cohort Enrollment Rate | Top Postsecondary Institution In-Region | HS Cohort Enrollment Rate |
| Everett College | 27% | Everett College | 27% |
| Four Year Private or Out-of-State | 16% | Edmonds Community College | 10% |
| University of Washington | 15% | | |
| Edmonds Community College | 10% | | |
| Western Washington University | 7% | | |

In addition to postsecondary institutions' credential offerings, a large number of apprenticeship programs exist in the region. In 2018, 2,070 of the region's residents (not necessarily locally-originating high school graduates since available data do not differentiate) were enrolled in apprenticeship programs and 245 students completed apprenticeship training in the region.

2018 Snohomish Region Apprenticeships

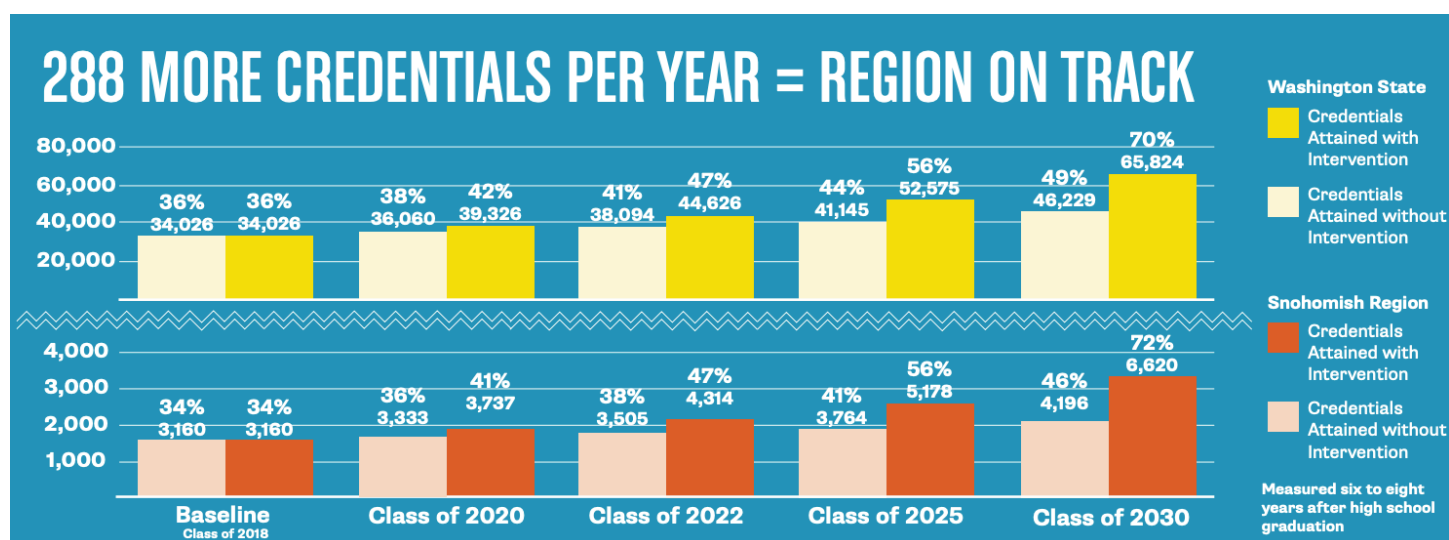
| | |
|---|-------|
| Apprenticeship programs operating in the region | 141 |
| 2018 active apprentices living in the region | 2,070 |
| 2018 apprenticeship completions by region residents | 245 |

¹²⁰ Jenkins, D., & Fink, J. (2016). Tracking Transfer: New Measures of Institutional and State Effectiveness in Helping Community College Students Attain Bachelor's Degrees. *Community College Research Center, Teachers College, Columbia University*.

More can and should be done to direct more of the region’s high school graduates into these alternative postsecondary training opportunities.

Our analysis concludes that the region will need to **support 288 more Snohomish Region-originating students in earning a postsecondary or apprenticeship credential each year** (i.e., 288 more each year than the prior year) from now until 2030 for the region to be on track for attaining the region-specific 71.8 percent goal by 2030. To achieve this goal, the region¹²¹ will need to specifically focus on systems changes that can close the significant outcomes gaps that currently exist for underrepresented students of color as well as students from low-income families.

Figure 78: Snohomish Region’s Trajectory for Increased Number of Locally-Originating High School Students Earning Postsecondary Credentials to Obtain Locally Family-Sustaining Wage Jobs



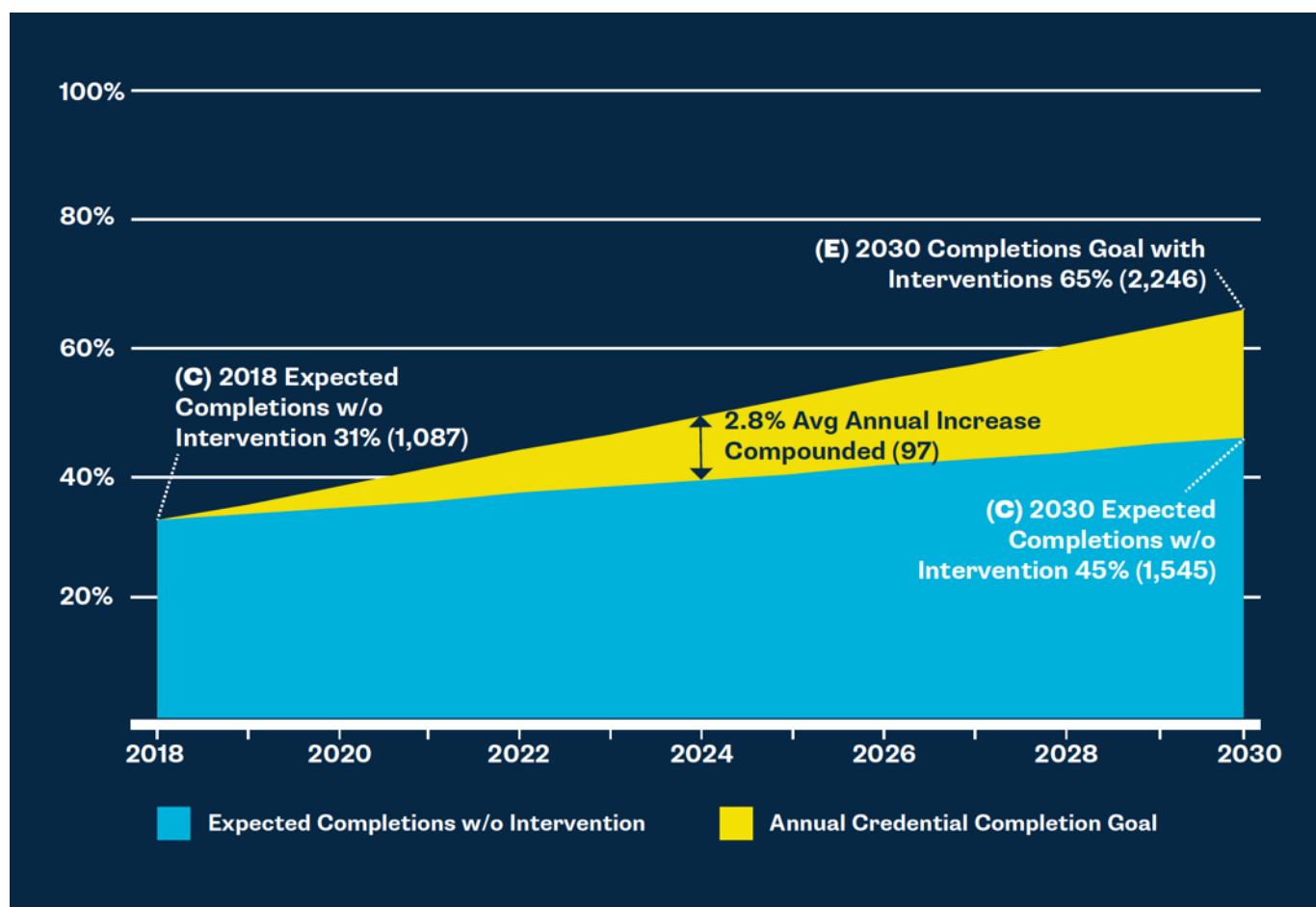
While 288 is an annual average, it is meant to set a benchmark number of what each region should aim to accomplish each year to meet the 2030 target. Below we break down yearly actual annual increases based on increasing cohort sizes and expected completion percentages.

¹²¹ Washington STEM has produced a similar estimate for each region in the state. Taken together these regional estimates will allow the state to reach its goal.

Figure 79: Projections of Current Expected Credentials Earned by Each Snohomish Region High School Cohort and Year-Over-Year Increases Needed to Meet Goals

| A. High School Class | B. 9th Grade Cohort Size | C. Expected Credential Completions without intervention | D. Annual Completion % Needed to meet goal | E. Annual Completions Goals | F. Increase needed to meet goal (E - C = F) | G. YoY difference in increase needed to meet goal |
|----------------------|--------------------------|---|--|---------------------------------|--|---|
| 2018 | 8,123 | 3,160 | 39% | 3,160 | | |
| 2019 | 8,169 | 3,179 | 42% | 3,403 | 224 | 224 |
| 2020 | 8,048 | 3,131 | 44% | 3,573 | 441 | 217 |
| 2021 | 8,157 | 3,174 | 47% | 3,845 | 671 | 230 |
| 2022 | 8,257 | 3,213 | 50% | 4,118 | 906 | 235 |
| 2023 | 8,349 | 3,248 | 53% | 4,393 | 1,145 | 239 |
| 2024 | 8,580 | 3,338 | 55% | 4,750 | 1,411 | 267 |
| 2025 | 8,963 | 3,488 | 58% | 5,208 | 1,720 | 309 |
| 2026 | 9,119 | 3,548 | 61% | 5,548 | 2,000 | 280 |
| 2027 | 9,054 | 3,523 | 64% | 5,757 | 2,234 | 234 |
| 2028 | 9,064 | 3,527 | 66% | 6,012 | 2,485 | 251 |
| 2029 | 9,050 | 3,521 | 69% | 6,251 | 2,730 | 244 |
| 2030 | 9,218 | 3,587 | 72% | 6,620 | 3,033 | 303 |
| Region | | 2018 Cohort Estimated Credential Attainment | 2030 Cohort Estimated Student Headcount | 2030 Credential Attainment Goal | Average Annual Increase Needed to meet 2030 Goal | Annual Increase to Meet 2030 Goal |
| Snohomish County | | 8,123 | 9,218 | 6,620 | 288 | 2.70% |

Figure 80: Area Graph of Projections of Current Expected Credentials and Year-Over-Year Increases Needed to Meet Goals (Letters Associate with Figure 79)



THE CREDENTIAL OPPORTUNITY BY REGION AND INDUSTRY (CORI) CROSSWALK

Washington STEM created The Credential Opportunity by Region and Industry (CORI) Crosswalk to analyze postsecondary credential attainment gaps that exist in each Washington state region for family-sustaining occupations. The CORI Crosswalk allows employers, industries, elected officials, and education sectors to make informed decisions regarding employment and postsecondary credential opportunities. The CORI analysis enables us to answer the research question:

Are there sufficient training programs and production capacity in this region that lead to local, high-demand, family-sustaining jobs? Where do training program gaps exist?

The CORI Crosswalk identifies gaps between high-demand, family-sustaining occupations and the supply of appropriately credentialed graduates in each region. The Crosswalk uses a color system to identify the areas where gaps exist. The red category highlights occupations that have a supply shortage and have NO available credential program for that occupation in that given region. The yellow category highlights occupations that have supply shortages despite credential programs available, i.e., the

program or programs available in the region are not graduating a sufficient number of students to meet the labor market needs. Last, the green category outlines occupations that are in demand in the given region, and regional credential programs (Classification of Instructional Programs) that are producing an adequate number of graduates to meet the regional labor market need for that given occupation. Thereby the CORI crosswalk identifies available education programs for high demand, family-sustaining occupations.

Imbalances in Snohomish Region

The CORI Crosswalk begins with the identification of high-demand, family-sustaining occupations¹²² in the Snohomish region for which postsecondary credential attainment gaps exist. In the Snohomish Region, the CORI Crosswalk revealed the following occupations to be in high demand, face a supply shortage, and potential insufficient production of qualified graduates in the region. Notable occupations in high demand with NO credential programs in the region include accountants and auditors, elementary school teachers, industrial engineers, and financial managers. This means that no postsecondary credential programs exist in the Snohomish Region for these in-demand, family-sustaining wage occupations. Noteworthy occupations where programs exist but with inadequate credentialed graduates being produced to meet demand include registered nurses, construction managers, and general and operations managers.

More information regarding high-demand occupations and supply shortages for postsecondary credential programs can be found at Washington STEM, Credential Opportunity by Region and Industry Crosswalk: https://washingtonstem.org/focus_area/career-pathways/#CORI.

Limitations and future improvements of CORI

The CORI analysis does have some limitations. Online degrees are not factored into regional “supply” of credentials awarded (CIP) in the region, such as Western Governor University, a nonprofit online university that offers teaching degrees to place-bound students without local access to such degrees.

Future editions of CORI could include a tiered approach working to pay special attention to the level of supply and demand, moving beyond the current red and yellow color scheme to include more nuance. In addition, while developing and testing the CORI Crosswalk, regional leaders identified some areas where they felt high regional demand was not reflected. Washington STEM is currently working with local Workforce Development Area economists to identify and better understand occupations where region specific improvements in data might be made to capture regional demand better as it is experienced “on the ground.”

¹²²Figures for regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx) , 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018.

DISCUSSION:

Too many local students, especially the growing population of underserved students of color, find the education needed to obtain in-demand, family-sustaining careers to be an *opportunity mirage* that they are unable to successfully attain. Better preparing local students to compete in the new economy is an equity AND an economic imperative.

A regional approach is warranted as each of the regions in Washington has fundamentally different educational and economic contexts with differing problems and solutions in each. We believe local leaders are best able to create the smart, innovative, and potentially disruptive changes needed to substantially move the needle on educational opportunity that matches job market needs.

Region Specific Recommendations:

- Work to get more students, especially underserved students of color, ready for Kindergarten
- Attack success gaps between underserved students of color and white and Asian students the K-12 system
- Increase dual credit offerings in high schools and pay attention to equity gaps in dual credit enrollment and outcomes
- Increase high school graduation rates
- Increase the enrollment in high-demand apprenticeship enrollment and completion
- Establish metrics and strategies to increase successful transfer from local community colleges to four-year institutions for baccalaureate-seeking students
- Create instructional programs of adequate capacity in CORI shortage fields

SOUTH CENTRAL REGION: EQUITY AND OPPORTUNITY BY THE NUMBERS

EXECUTIVE SUMMARY

The South Central Region of Washington state shows a large gap between its large population of Latinx students and its white students in nearly every measure of K-12 readiness and educational outcomes. Currently, 43 percent of locally-originating cohorts (defined at ninth grade entry) enroll in a postsecondary program, while only 30 percent earn any form of postsecondary credential by age 26, far short of what is needed by the local labor market. Like other indicators, these demonstrate subgroup disparities in both enrollment and attainment. While white students overall in the region attain postsecondary credentials at higher rates than the statewide average, all other groups attain at lower rates than the state average. If the South Central Region aims to close supply-demand gaps for in-demand, family-sustaining wage jobs, an annual average of 126¹²³ *more students in each year than the prior year* need to obtain a credential between now and the high school graduating class of 2030.¹²⁴

Local postsecondary institutions have added numerous programs to meet demand in recent years, but opportunities exist to do more throughout the education system. For example, while the number of apprenticeship programs in the region is strong, enrollment in these programs is small. In the region, there are no postsecondary education preparation programs for nurse practitioners, medical and health service managers, and massage therapists.

THE SOUTH CENTRAL REGION

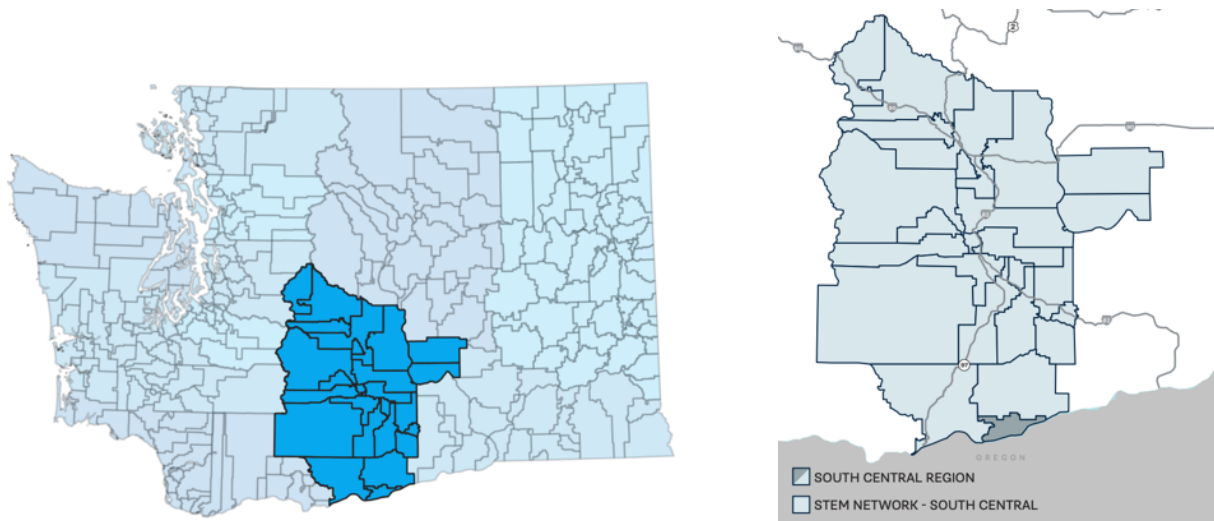
The South Central Region's boundaries are based on those of Educational Service District (ESD) 105 and the South Central Workforce Development Area (WDA). While the South Central WDA includes all of Skamania and Klickitat counties, school districts in Skamania and parts of Klickitat are associated with ESD 112 and the Southwest Region. In addition Royal and Wahluke School Districts, which are associated with the North Central WDA are included in the region as well as ESD 105. The region is home to growing information and technology, healthcare, K-12 education, and construction industries, spanning from Ellensburg to Yakima. The region is made up of 26 school districts, 25 of which are members of the South Central STEM Network. The Network's business, education, and community partners are working to close credential attainment gaps, especially for students of color and students from low-income families. They aim to increase the number of local students who become computer and IT professionals, construction and trades professionals, teachers, and healthcare professionals, which have 1,300 annual projected openings combined over the next five years. The 2016 ninth grade

¹²³ Goal numbers have been updated in January 2019 from previous reports based on new projections from Education Research & Data Center

¹²⁴ For a full explanation of this estimate see Figure 2 and Figure 3.

adjusted cohort high school graduation rate for this region is 83.2 percent, compared to the statewide rate of 82.4 percent (OSPI, ERDC).¹²⁵

Figure 81: South Central Region and STEAM Network – South Central Geographical Boundaries



The South Central Region had a school-aged population of 58,562 in 2016 and approximately 3,488 students graduate from high school each year. This is about 83.2 percent of the ninth-grade cohort that was originally expected to graduate. The K-12 population growth rate is approximately 0.36 percent annually. The region has, proportionally, a large Latinx population (WA Office of Financial Management¹²⁶, WA Caseload Forecast Council¹²⁷).

Jobs in high demand in the South Central Region include those in healthcare, technology, education, construction, and trades. These jobs pay family-sustaining wages, for example¹²⁸:

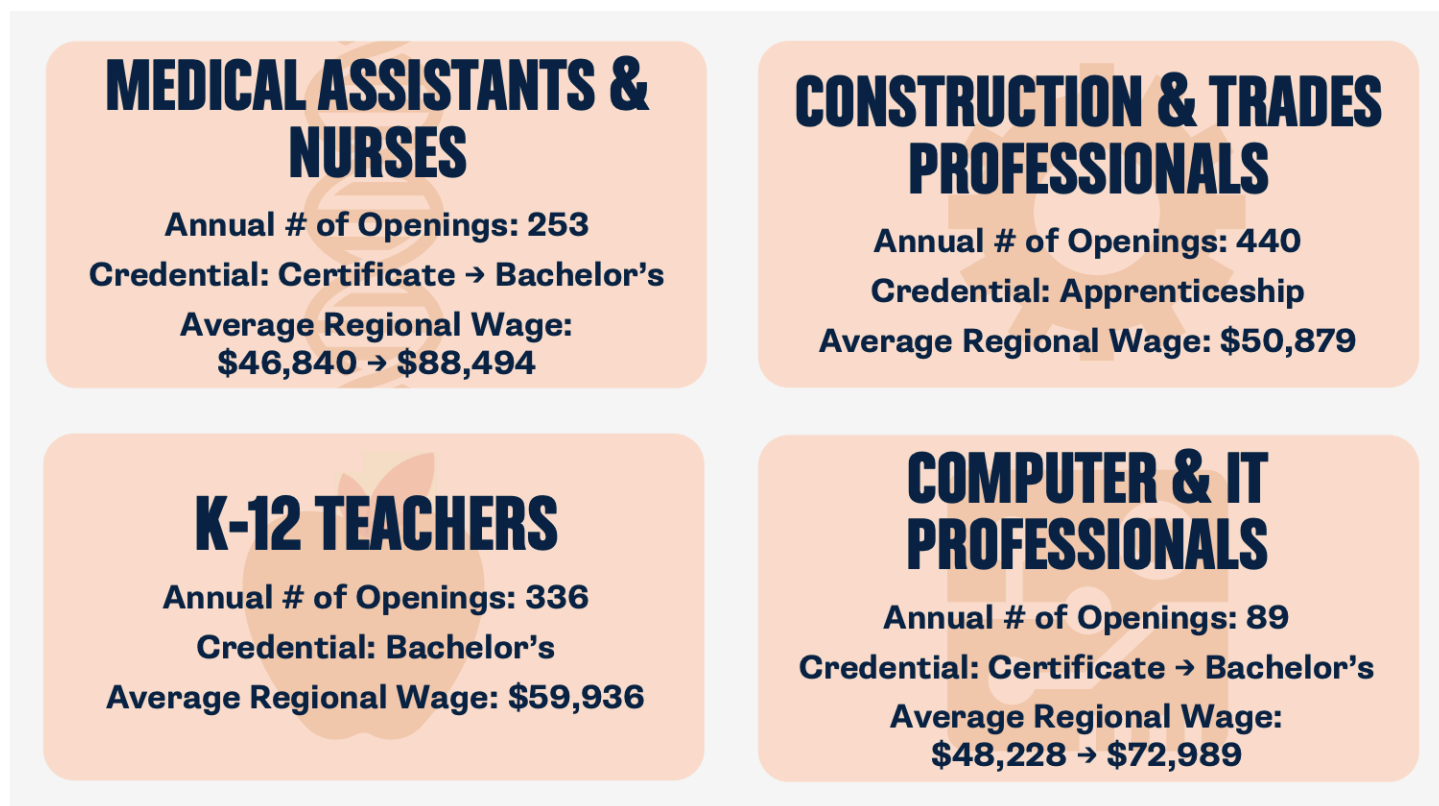
¹²⁵ OSPI “2014–2015 Graduation Rates by School 5Yr Cohort” <http://reportcard.ospi.k12.wa.us/DataDownload.aspx>; ERDC “2015 High School Feedback Report” <http://www.erdcddata.wa.gov/hsfb.asp>.

¹²⁶ 2017 Projections of the Population by Age and Sex for Growth Management - Ages 5-19. Retrieved from <https://www.ofm.wa.gov/washington-data-research/population-demographics/population-forecasts-and-projections>

¹²⁷ Common Schools Education Long Range Projections - Headcounts. Retrieved from https://www.cfc.wa.gov/Education_Common_Schools_Enrollment.htm

¹²⁸ Figures for regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx) , 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018.

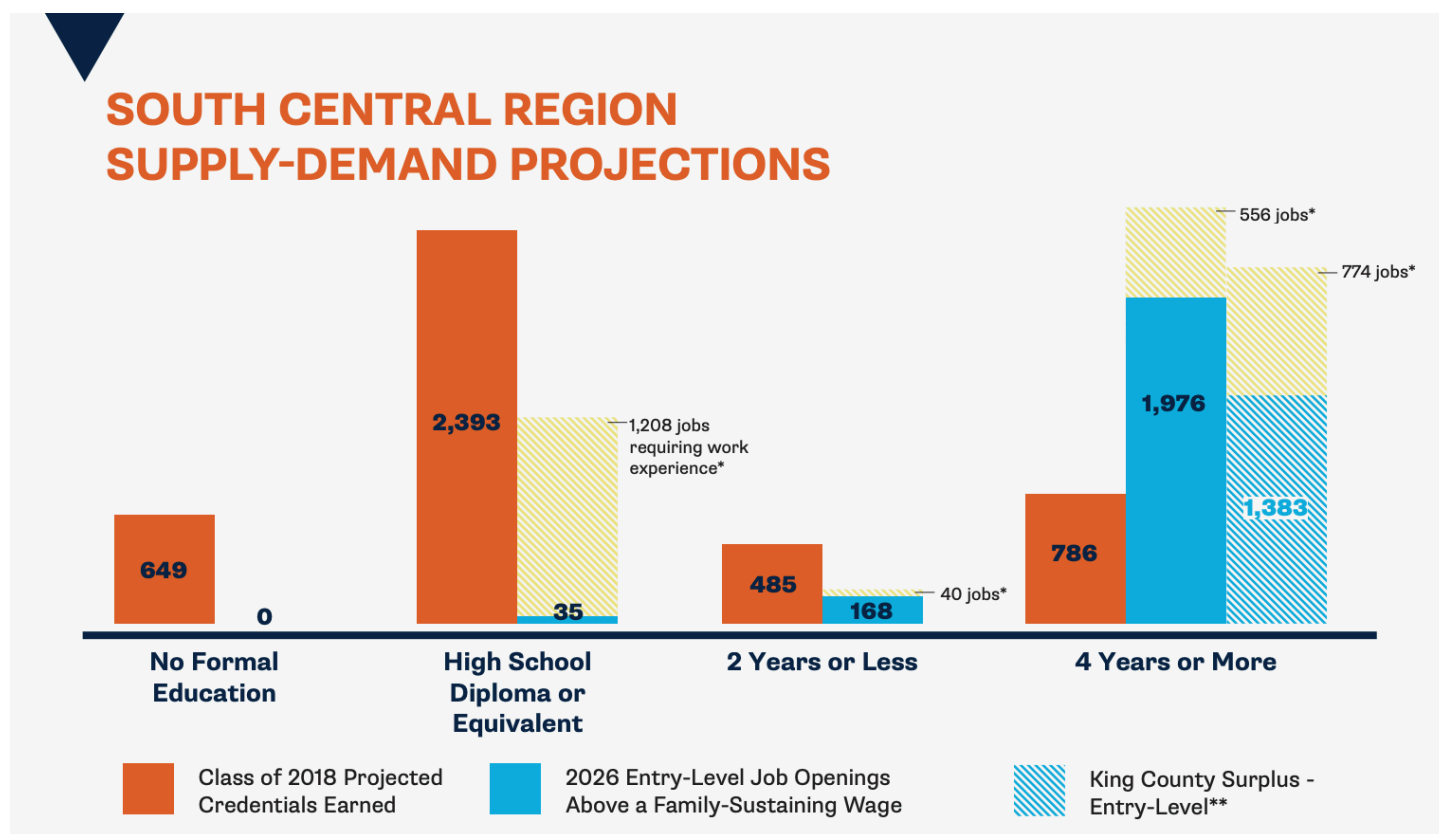
Figure 82: Examples of In-Demand, Family-Sustaining Wage Jobs in the South Central Region



SOUTH CENTRAL REGION FINDINGS

Moving more students from obtaining a high school diploma or equivalent as their highest education level to a four-year degree will ensure that they, and the region, can thrive economically. The South Central Region, like others in the state, has a large gap between the number of projected jobs available that will require a two-year degree, especially in healthcare areas, and a degree calling for four-years' study or more to obtain a family-sustaining wage and the number of students currently projected to earn such a degree. On the other hand, the region has far too many young people with only a high school diploma or less compared to the number of family-wage jobs available to people with such preparation (see Figure 83).

Figure 83: Comparison of South Central Class of 2018 Projected Credential Completion to 2026 Projected Job Openings by Type of Credential Needed to Obtain Jobs



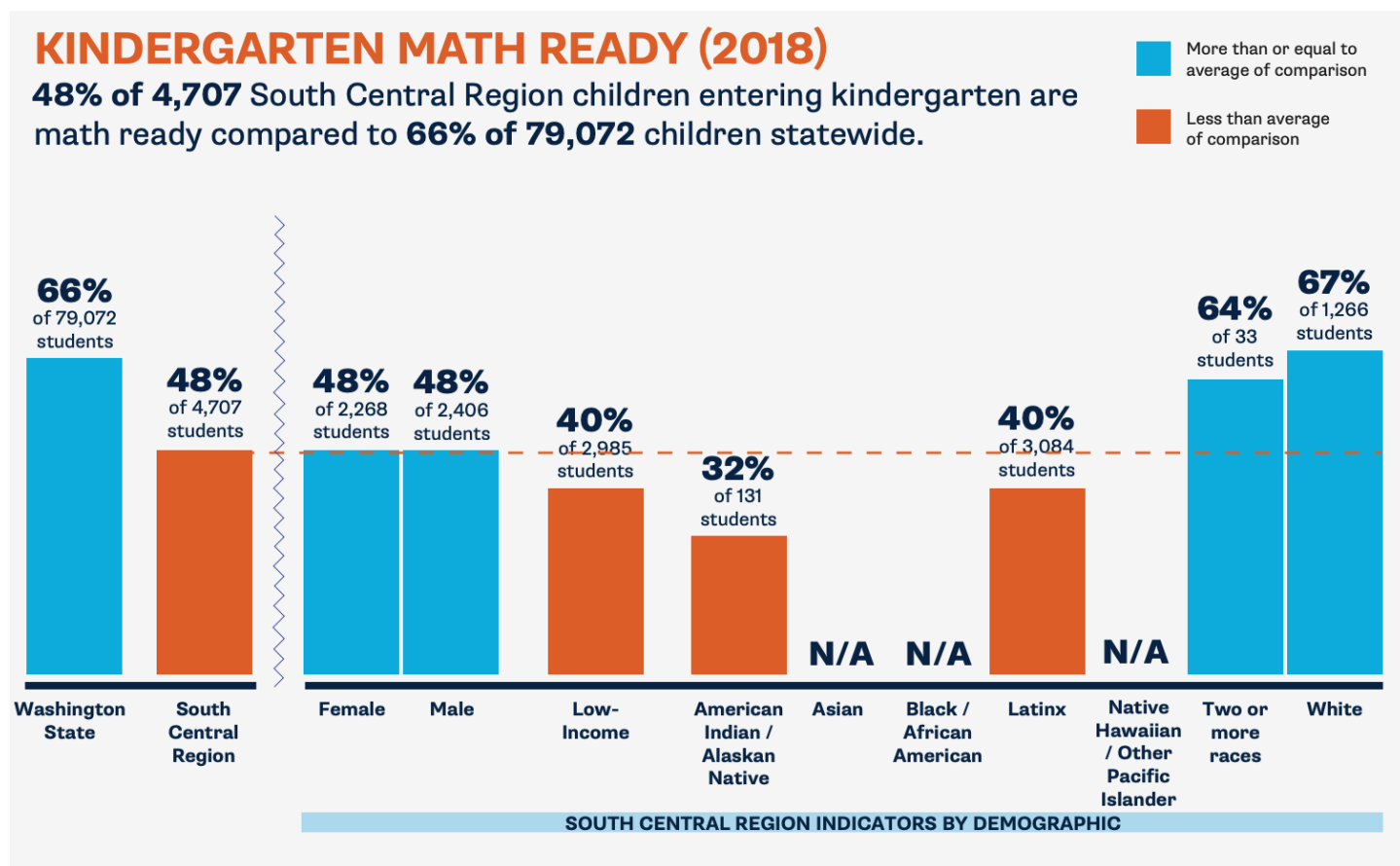
Increasingly, educators, policy makers, and local leaders are examining the entire Kindergarten-to postsecondary education-to careers pathway to determine where interventions are needed. Obtaining a family sustaining job does not begin with a job search, or even in postsecondary education. The foundation for such careers begins in elementary school or even before. Washington STEM has worked to create early indicators of prospects for high school graduation and postsecondary study necessary to compete for STEM and other family sustaining jobs. Examining these indicators and trends in them allows us to begin to answer the question:

Where are identifiable gaps that lead students in the South Central Region to fall behind in their pursuit of needed credentials?

Kindergarten Math Ready

The first step in the formal education-to-career pathway is Kindergarten. Fewer students in the South Central Region enter Kindergarten math ready¹²⁹ than is true statewide. As the graphic below shows, only 48 percent of South Central Region students enter Kindergarten with the math skills that they need at that level. While white students are, at 67 percent, slightly above the statewide average of 66 percent math ready, other racial and ethnic groups lag well behind.

Figure 84: South Central 2018 Kindergarten Math Readiness by Demographic



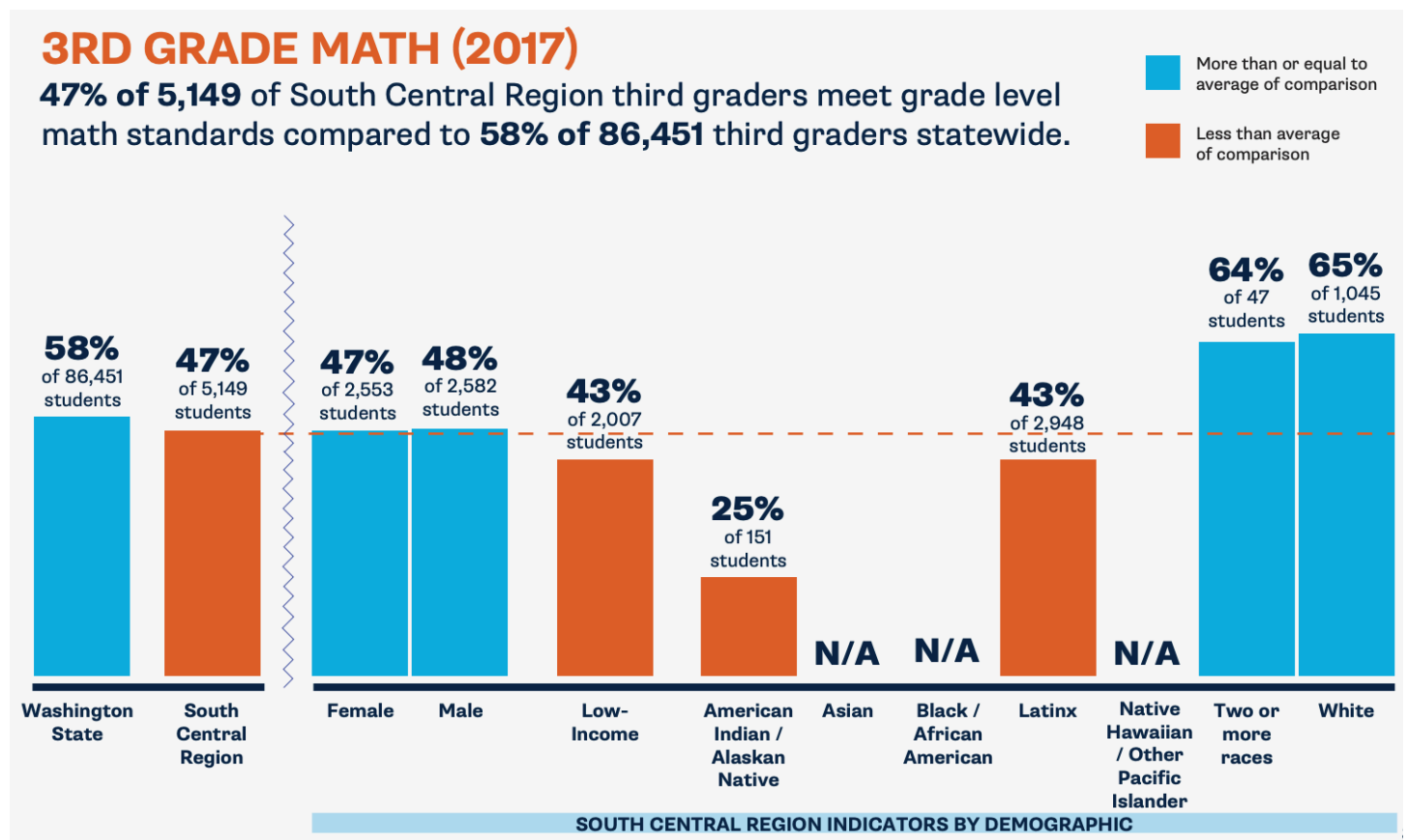
¹²⁹ OSPI defines math readiness for children beginning Kindergarten as: saying a sequence of numbers up to 20, counting objects up to 10, comparing objects' size, length, or weight, and identifying the position of objects by using words like beside, inside, next to, above, or below. Office of the Superintendent of Public Instruction, Washington State Report Card – WaKIDS:

<http://reportcard.ospi.k12.wa.us/WaKidsDetailPage.aspx?domain=WaKIDS&groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18&gradeLevelId=3&waslCategory=1&chartType=1>

Third Grade Math Achievement

The regional picture for third grade math achievement¹³⁰ shows concerning trends for underserved students of color. The gap between regional and statewide achievement (percentage achieving the state's proficiency benchmark) has narrowed slightly for all students in aggregate. However, underserved students of color are not having their needs met and the trend is moving in the opposite direction. The large population of Latinx students in this region are more than 20 percentage points lower in third grade math scores than their white peers.

Figure 85: South Central 2017 Third Grade Math Assessment Outcomes by Demographic

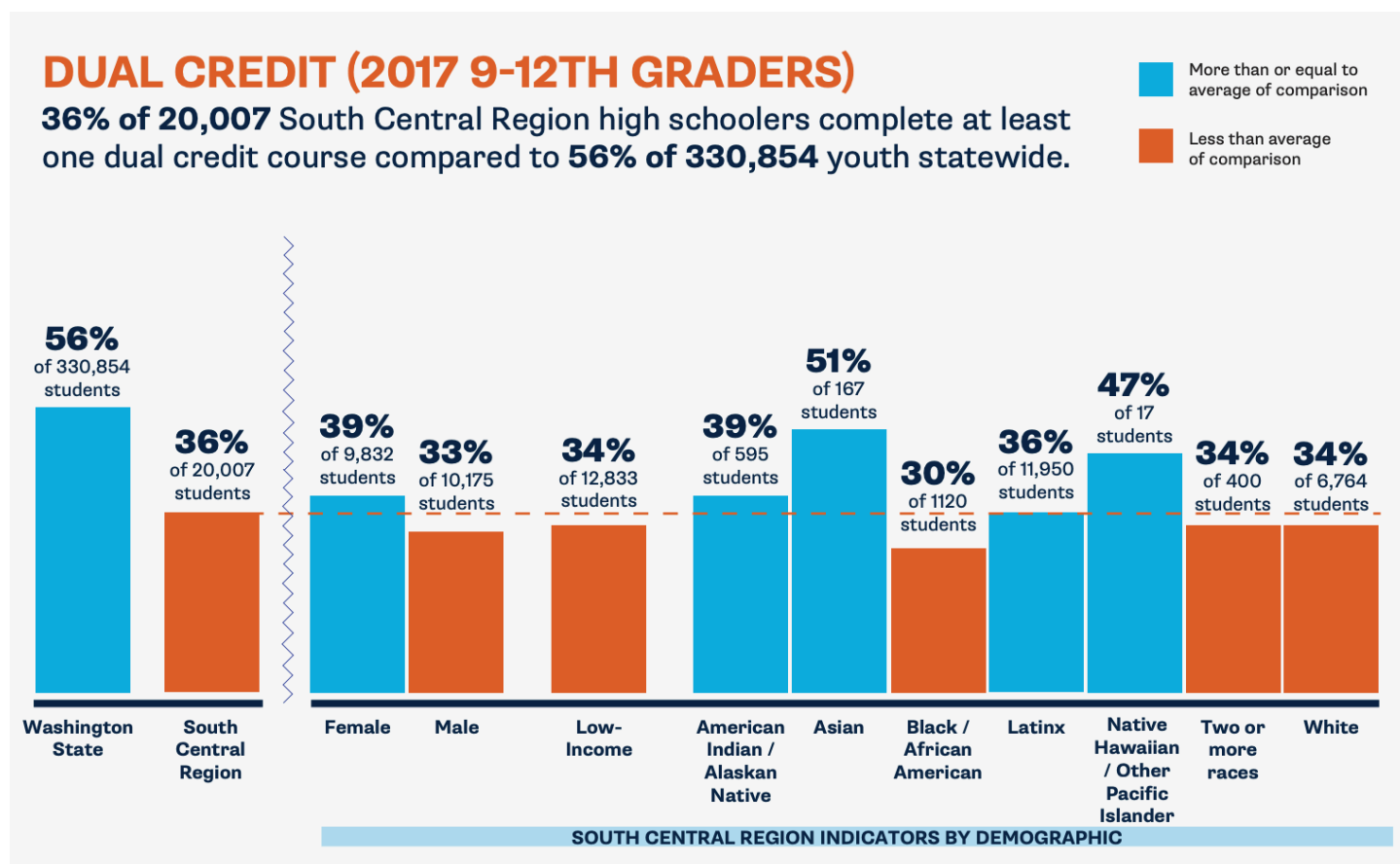


¹³⁰ Office of the Superintendent of Public Instruction, Washington State Report Card - Summary
<http://reportcard.ospi.k12.wa.us/summary.aspx?groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18>

Dual Credit

Next, we look at completion of dual credit courses by high school students. Completing dual credit¹³¹ courses allows high school students to earn college credit while still enrolled in high school, giving them a leg up on enrolling and competing college credentials. The South Central Region as a whole shows a dual credit enrollment rate well below the state average. In the region, only 36 percent of high school students complete at least one dual credit course at any point in high school, compared to 56 percent of youth statewide.

Figure 86: South Central High School Students' (9th through 12th grade) Completion of at Least One Dual Credit Course as of 2017

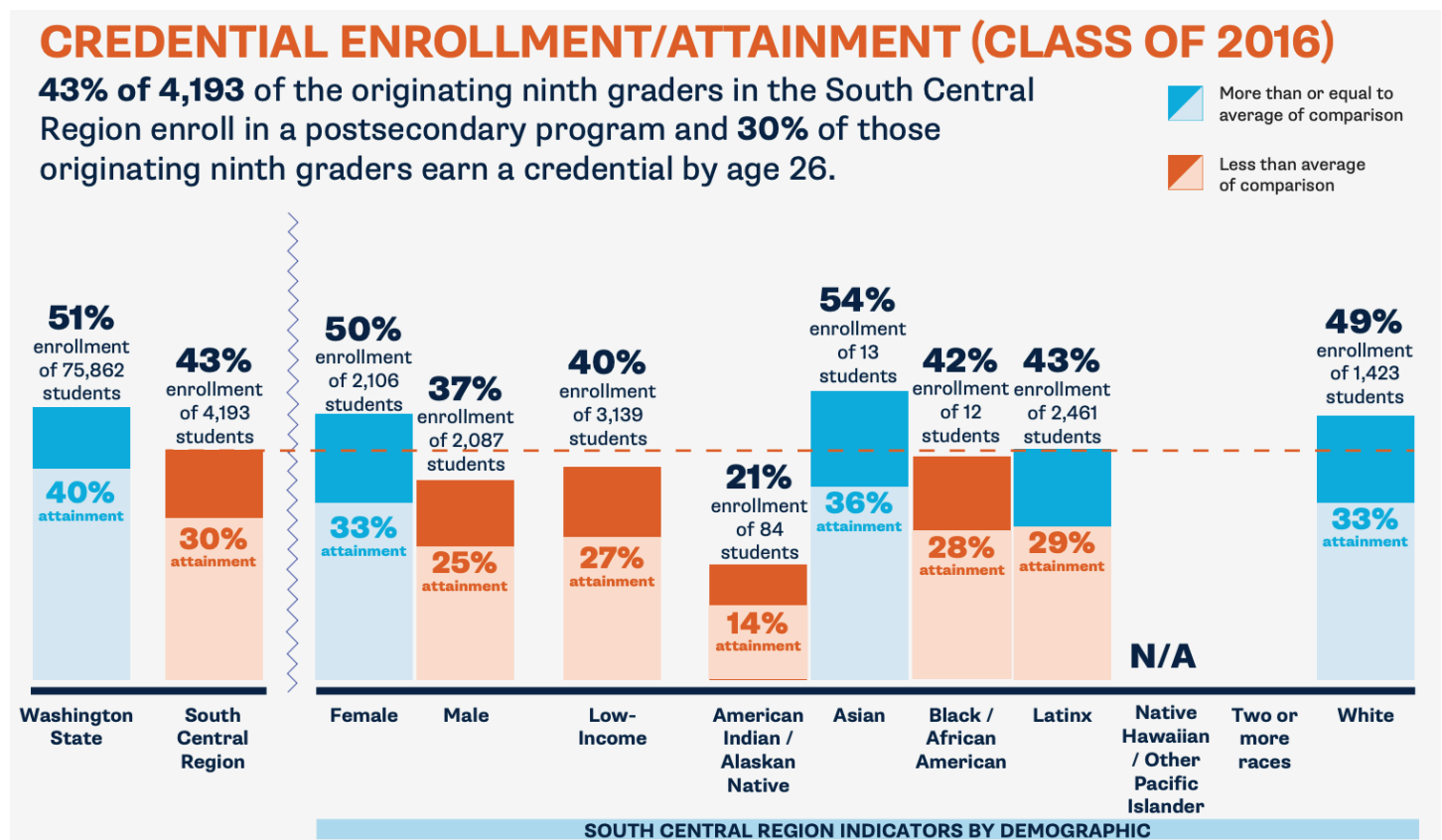


¹³¹Office of the Superintendent of Public Instruction, Washington State Report Card - HS Dual Credit
http://reportcard.ospi.k12.wa.us/DualCredit_2.aspx?domain=DualCredit&groupLevel=District&schoolId=1&reportLevel=State&yrs=2016-17&year=2016-17

Less than half (43 percent) of the South Central Region 2016 ninth-grade cohort enroll in a postsecondary program but only 30 percent earn any credential by age 26, far short of the 57 percent goal. Like other indicators, this one too demonstrates serious subgroup disparities in terms of enrollment and attainment. While female students and white students overall attain postsecondary credentials at higher rates than the statewide average, all other groups lag behind.

Postsecondary Enrollment & Completion

Figure 87: South Central Credential Enrollment and Projected Completion for the High School Class of 2016



Students in the South Central Region enroll in one local community college most often. A total of 33 percent of the students who enroll after high school attend Yakima Valley College. The next most popular college for enrollment is Central Washington University where 12 percent of students enroll. Given this high rate of enrollment in community colleges, it is essential that transfer students are able to successfully transfer to a four-year degree option. The most recent data available shows overall community colleges in the state have high associate degree completion rates but low transfer rates as compared to other states.¹³²

Figure 88: Enrollment by Institution for the Graduates of Class of 2016 for the South Central Region

| South Central Region | | | |
|---|---------------------------|---|---------------------------|
| Top Postsecondary Institution | HS Cohort Enrollment Rate | Top Postsecondary Institution In-Region | HS Cohort Enrollment Rate |
| Yakima Valley College | 33% | Yakima Valley College | 33% |
| Central Washington University | 12% | Central Washington University | 12% |
| Four Year Private or Out-of-State | 11% | | |
| Washington State University | 9% | | |
| Two Year Community or Technical College | 7% | | |

In addition to postsecondary institutions’ credential offerings, a large number of apprenticeship programs exist in the region but they are often sparsely enrolled. In 2018, just 32 of the region’s residents (not necessarily locally originating high school graduates since available data do not differentiate) completed apprenticeship training.

2018 South Central Region Apprenticeships

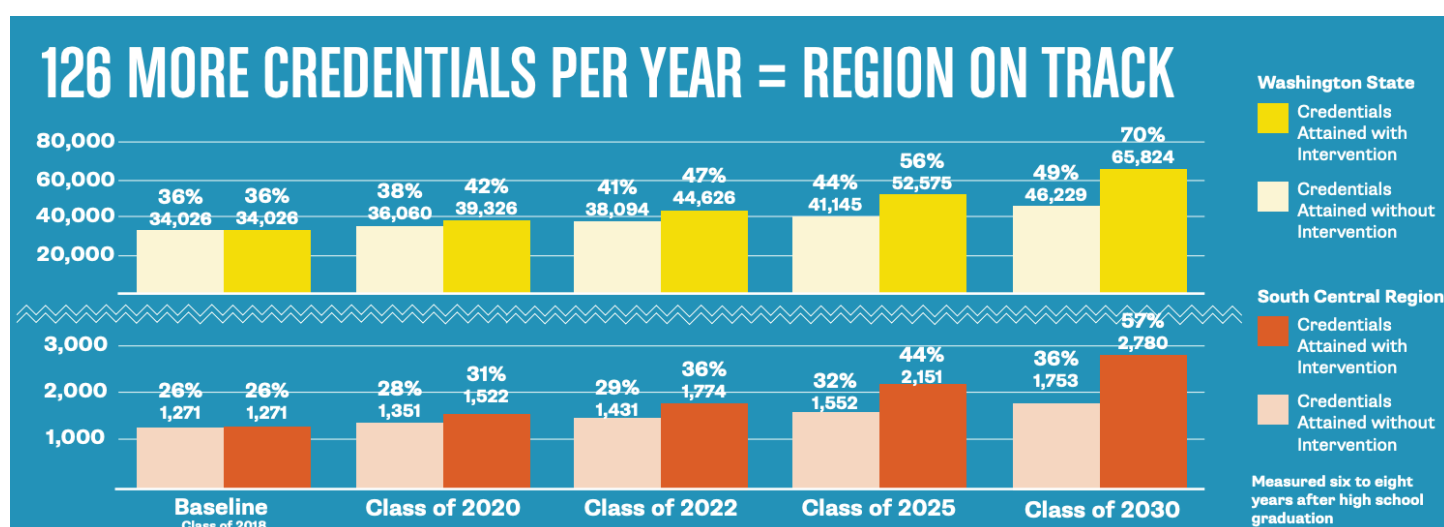
| | |
|---|-----|
| Apprenticeship programs operating in the region | 69 |
| 2018 active apprentices living in the region | 309 |
| 2018 apprenticeship completions by region residents | 32 |

¹³² Jenkins, D., & Fink, J. (2016). Tracking Transfer: New Measures of Institutional and State Effectiveness in Helping Community College Students Attain Bachelor's Degrees. *Community College Research Center, Teachers College, Columbia University*.

More can and should be done to direct more of the region's high school graduates into these alternative postsecondary training opportunities.

Our analysis concludes that the region will need to **support 126 more South Central Region-originating students in earning a postsecondary or apprenticeship credential each year** (i.e., 126 more each year than the prior year) from now until 2030 for the region to be on track for attaining the region-specific 56.8 percent goal by 2030. To achieve this goal, the region¹³³ will need to specifically focus on systems changes that can close the significant outcomes gaps that currently exist for underrepresented students of color as well as students from low-income families.

Figure 89: South Central Region's Trajectory for Increased Number of Locally-Originating High School Students Earning Postsecondary Credentials to Obtain Locally Family-Sustaining Wage Jobs



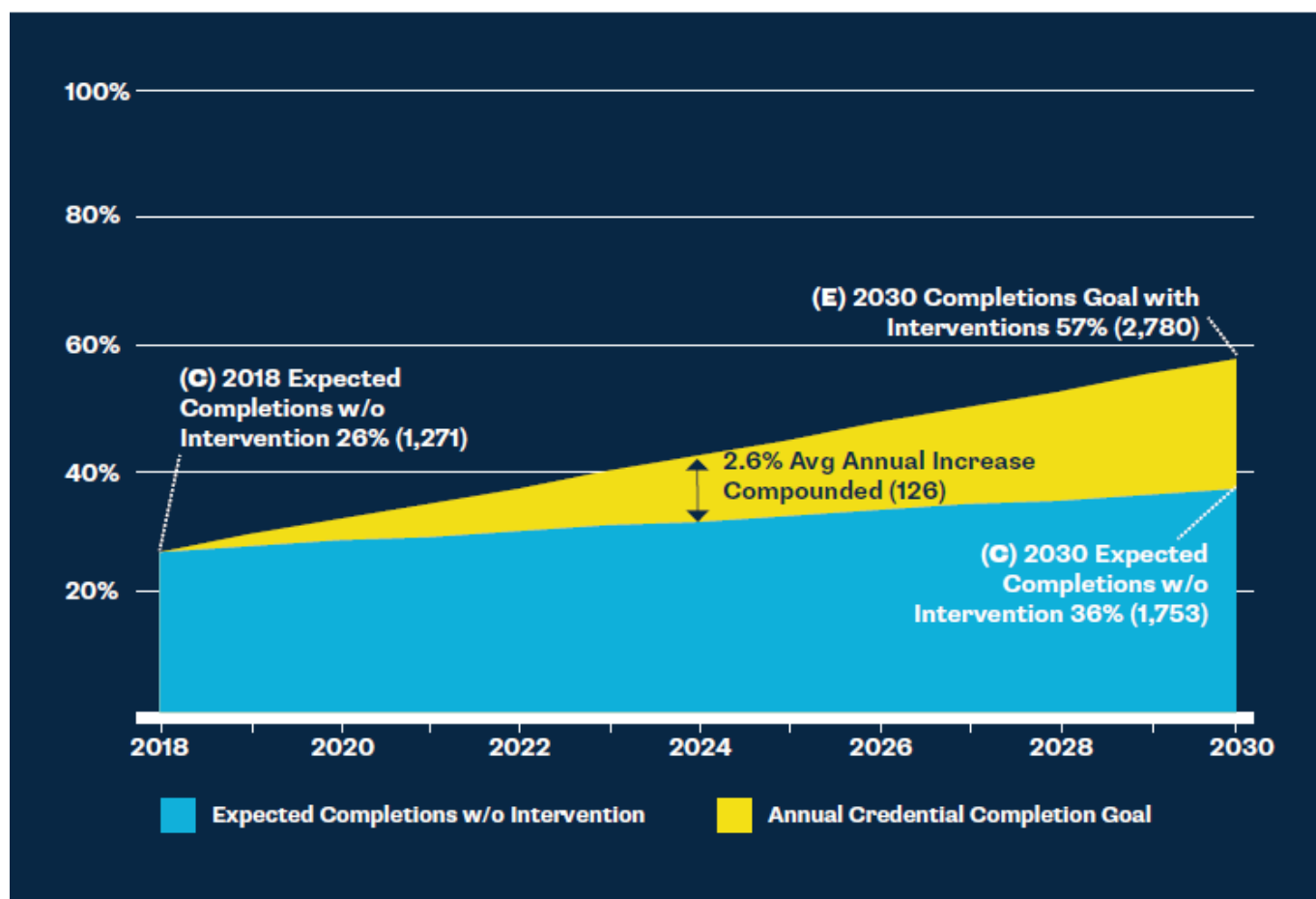
While 126 is an annual average, it is meant to set a benchmark number of what each region should aim to accomplish each year to meet the 2030 target. Below we break down yearly actual annual increases based on increasing cohort sizes and expected completion percentages.

¹³³ Washington STEM has produced a similar estimate for each region in the state. Taken together these regional estimates will allow the state to reach its goal.

Figure 90: Projections of Current Expected Credentials Earned by Each South Central High School Cohort and Year-Over-Year Increases Needed to Meet Goals

| A. High School Class | B. 9th Grade Cohort Size | C. Expected Credential Completions without intervention | D. Annual Completion % Needed to meet goal | E. Annual Completions Goals | F. Increase needed to meet goal (E - C = F) | G. YoY difference in increase needed to meet goal |
|----------------------|--------------------------|---|--|---------------------------------|--|---|
| 2018 | 4,313 | 1,271 | 29% | 1,271 | | |
| 2019 | 4,338 | 1,278 | 32% | 1,377 | 99 | 99 |
| 2020 | 4,274 | 1,259 | 34% | 1,454 | 195 | 96 |
| 2021 | 4,332 | 1,276 | 36% | 1,572 | 296 | 101 |
| 2022 | 4,385 | 1,292 | 39% | 1,691 | 400 | 104 |
| 2023 | 4,433 | 1,306 | 41% | 1,811 | 505 | 105 |
| 2024 | 4,556 | 1,342 | 43% | 1,965 | 623 | 118 |
| 2025 | 4,760 | 1,402 | 45% | 2,161 | 759 | 136 |
| 2026 | 4,842 | 1,426 | 48% | 2,309 | 883 | 123 |
| 2027 | 4,808 | 1,416 | 50% | 2,402 | 986 | 103 |
| 2028 | 4,813 | 1,418 | 52% | 2,515 | 1,097 | 111 |
| 2029 | 4,806 | 1,416 | 55% | 2,620 | 1,205 | 108 |
| 2030 | 4,895 | 1,442 | 57% | 2,780 | 1,338 | 134 |
| Region | | 2018 Cohort Estimated Credential Attainment | 2030 Cohort Estimated Student Headcount | 2030 Credential Attainment Goal | Average Annual Increase Needed to meet 2030 Goal | Annual Increase to Meet 2030 Goal |
| South Central | | 4,313 | 4,895 | 2,780 | 126 | 2.30% |

Figure 91: Area Graph of Projections of Current Expected Credentials and Year-Over-Year Increases Needed to Meet Goals (Letters Associate with Figure 90)



THE CREDENTIAL OPPORTUNITY BY REGION AND INDUSTRY (CORI) CROSSWALK

Washington STEM created The Credential Opportunity by Region and Industry (CORI) Crosswalk to analyze postsecondary credential attainment gaps that exist in each Washington state region for family-sustaining occupations. The CORI Crosswalk allows employers, industries, elected officials, and education sectors to make informed decisions regarding employment and postsecondary credential opportunities. The CORI analysis enables us to answer the research question:

Are there sufficient training programs and production capacity in this region that lead to local, high-demand, family-sustaining jobs? Where do training program gaps exist?

The CORI Crosswalk identifies gaps between high-demand, family-sustaining occupations and the supply of appropriately credentialed graduates in each region. The Crosswalk uses a color system to identify the areas where gaps exist. The red category highlights occupations that have a supply shortage and have NO available credential program for that occupation in that given region. The yellow category highlights occupations that have supply shortages despite credential programs available, i.e., the program or programs available in the region are not graduating a sufficient number of students to meet the labor

market needs. Last, the green category outlines occupations that are in demand in the given region, and regional credential programs (Classification of Instructional Programs) that are producing an adequate number of graduates to meet the regional labor market need for that given occupation. Thereby the CORI crosswalk identifies available education programs for high demand, family-sustaining occupations.

Imbalances in South Central Region

The CORI Crosswalk begins with the identification of high-demand, family-sustaining occupations¹³⁴ in the South Central region for which postsecondary credential attainment gaps exist. In the South Central region, the CORI Crosswalk revealed the following occupations to be in high demand and facing a supply shortage, with potential insufficient production of qualified graduates in the region. Notable occupations in high demand with NO credential programs in the region include Foresters; Educational, Guidance, School, and Vocational Counselors; and Conservation Scientists. This means that no postsecondary credential programs exist in the South Central region for these in-demand, family-sustaining wage occupations. Noteworthy occupations where programs exist but with inadequate credentialed graduates being produced to meet demand include carpenters, elementary school teachers, and registered nurses.

More information regarding high demand occupations and supply shortages for postsecondary credential programs can be found at [Washington STEM, Credential Opportunity by Region and Industry Crosswalk](#).

Limitations and future improvements of CORI

The CORI analysis does have some limitations. Online degrees are not factored into regional “supply” of credentials awarded (CIP) in the region, such as Western Governor University, a nonprofit online university that offers teaching degrees to place-bound students without local access to such degrees.

Future editions of CORI could include a tiered approach working to pay special attention to the level of supply and demand, moving beyond the current red and yellow color scheme to include more nuance. In addition, while developing and testing the CORI Crosswalk, regional leaders identified some areas where they felt high regional demand was not reflected. Washington STEM is currently working with local Workforce Development Area economists to identify and better understand occupations where region specific improvements in data might be made to capture regional demand better as it is experienced “on the ground.”

DISCUSSION:

Too many local students find the education needed to obtain in-demand, family-sustaining careers to be an *opportunity mirage* that they are unable to successfully attain. Better preparing local students to compete in the new economy is an equity AND an economic imperative.

¹³⁴Figures for regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx) , 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018.

A regional approach is warranted as each of the regions in Washington have fundamentally different educational and economic contexts with differing problems and solutions in each. We believe local leaders are best able to create the smart, innovative, and potentially disruptive changes needed to substantially move the needle on educational opportunity that matches job market needs.

Region specific recommendations:

- Work to get more students, especially underserved students of color, ready for Kindergarten
- Attack success gaps between underserved students of color and white students the K-12 system
- Increase dual credit offerings in high schools and pay attention to equity gaps in dual credit enrollment and outcomes
- Increase the enrollment in high-demand apprenticeship enrollment and completion
- Increase successful transfer from local community colleges to four-year institutions for baccalaureate-seeking students
- Create instructional programs of adequate capacity in CORI shortage fields
- Work to make place-bound students more aware of public online options, such as Western Governors University, for high-demand credential options

PACIFIC MOUNTAIN REGION: EQUITY AND OPPORTUNITY BY THE NUMBERS

EXECUTIVE SUMMARY

The Pacific Mountain Region of Washington state faces a challenge in preparing students for the family-sustaining, in-demand jobs that exist in the region. Currently, 50 percent of locally-originating cohorts (defined at ninth grade entry) enroll in a postsecondary program, while only 34 percent earn any form of postsecondary credential by age 26, short of what is needed by the local labor market. Like other indicators, there are subgroup disparities in both enrollment and attainment. While female and white students overall in the region attain postsecondary credentials at higher rates than the statewide average, all other groups attain at lower rates than the state average, and some (e.g. low-income and American Indian/Alaska Native students) show troubling gaps. If the Pacific Mountain Region aims to close supply-demand gaps for in-demand, family-sustaining wage jobs, 166¹³⁵ more students in each year than the prior year need to obtain a credential between now and the high school graduating class of 2030.¹³⁶

Local postsecondary institutions have added numerous programs to meet demand in recent years, but opportunities exist to do more. For example, while the number of apprenticeship programs in the region is strong, enrollment in these programs is small. In addition, there are no postsecondary education preparation programs in the region for such in-demand fields as financial analyst, lawyers, and career and technical education teachers.

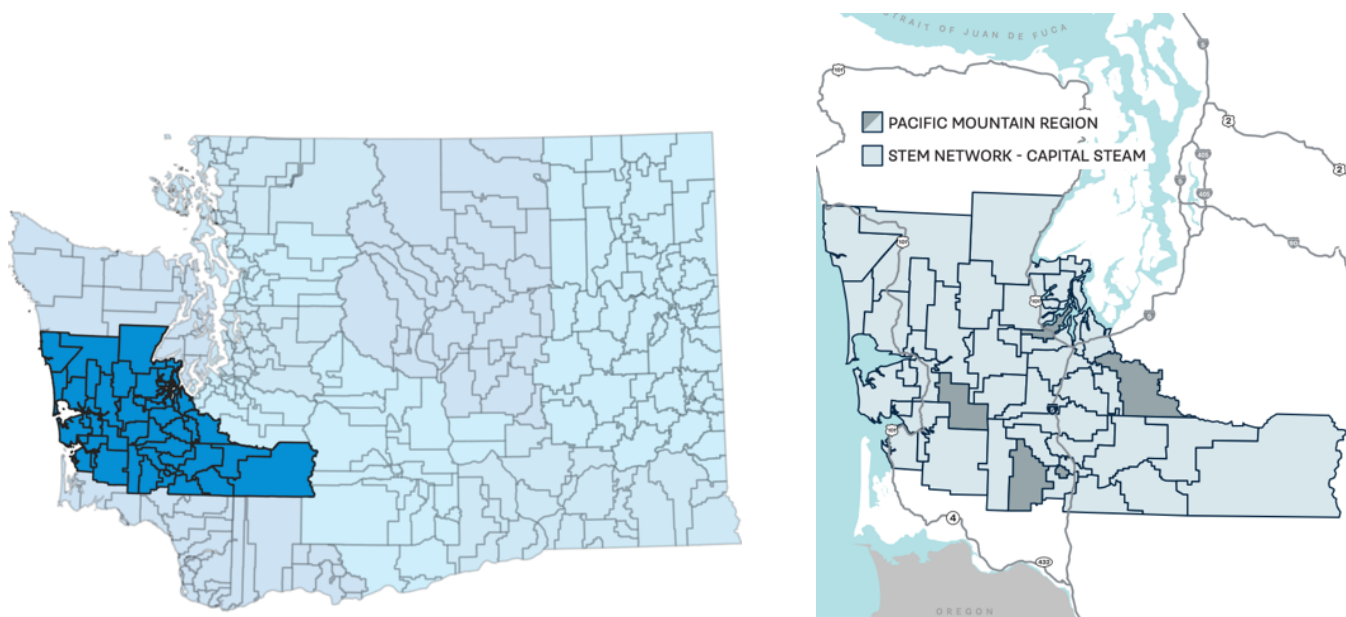
THE PACIFIC MOUNTAIN REGION

The Pacific Mountain Region's boundaries are based on those of Educational Service Districts (ESD) 113 and Pacific Mountain Workforce Development Area (WDA). The region does not include North Mason School District, which is an area associated with ESD 114, as well as Ocean Beach and Naselle-Grays River Valley School District which are associated with ESD 112. The Pacific Mountain Region is home to growing healthcare, wood products, education, and construction industries, spanning from Olympia to Westport. The region is made up of 44 school districts, 39 of which are members of the Capital STEAM Network. The Network's business, education, and community partners are working to close credential attainment gaps, especially for students of color and students from low-income families. They aim to increase the number of local students who become teachers, construction apprentices, and wood products sector and healthcare professionals, which have 2,001 annual projected openings combined over the next five years.

¹³⁵ Goal numbers were updated in January 2019 from previous Washington STEM reports based on new projections from the Education Research & Data Center.

¹³⁶ In this instance, the "high school class of 2030" does not refer to only those students who make it to high school graduation; rather, this refers to the entire class who are at any time intending on graduating in 2030. Above and in other sections, we refer to this as the five-year adjusted cohort.

Figure 91: Pacific Mountain Region and Capital STEAM Geographical Boundaries



The Pacific Mountain Region had a school-aged population of 68,227 in 2016 and approximately 4,458 students graduate from high school each year. This is about 86.8 percent of the ninth-grade cohort that was originally expected to graduate compared to the statewide rate of 82.4 percent (OSPI, ERDC).¹³⁷ The K-12 population growth rate is approximately 0.51 percent annually.

Jobs in high demand in the Pacific Mountain Region include those in healthcare, education, construction, and trades. These jobs pay family-sustaining wages, for example¹³⁸:

¹³⁷ OSPI “2014-2015 Graduation Rates by School 5Yr Cohort” <http://reportcard.ospi.k12.wa.us/DataDownload.aspx>; ERDC “2015 High School Feedback Report” <http://www.erdcddata.wa.gov/hsfb.asp>.

¹³⁸ Figures for regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx) , 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018.

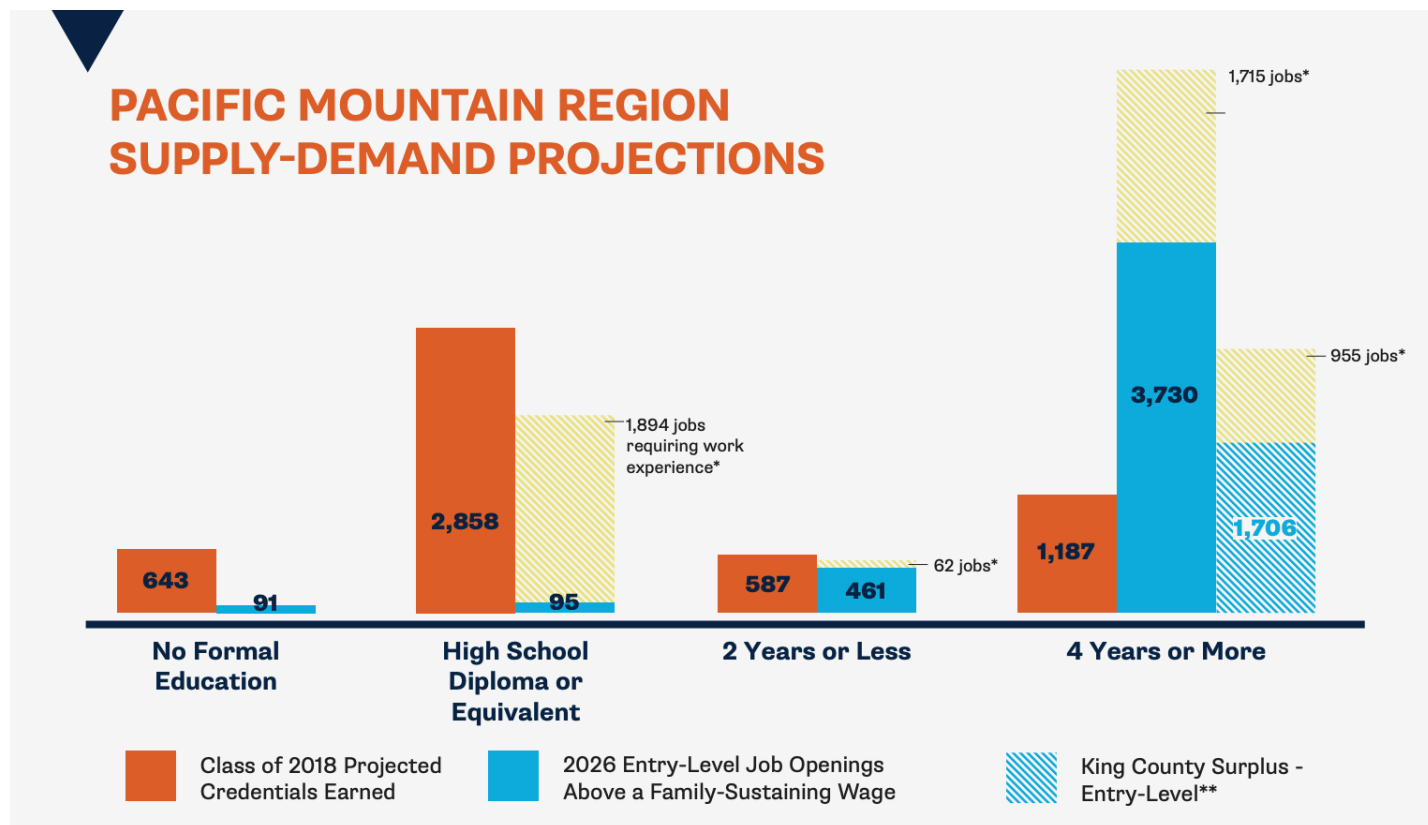
Figure 92: Examples of In-Demand, Family-Sustaining Wage Jobs in the Pacific Mountain Region



PACIFIC MOUNTAIN REGION FINDINGS

Moving more students from obtaining a high school diploma or equivalent as their highest education level to a postsecondary credential will ensure that they, and the region, can thrive economically. The Pacific Mountain Region, like others in the state, has a large gap between the number of projected jobs available that will require a degree calling for a credential or more to obtain a family-sustaining wage and the number of students currently projected to earn such education. On the other hand, the region has far too many young people with only a high school diploma or less compared to the number of family-wage jobs available to people with such preparation (see Figure 93).

Figure 93: Comparison of the Pacific Mountain Region’s Class of 2018 Projected Credential Completion to 2026 Projected Job Openings by Type of Credential Needed to Obtain Jobs



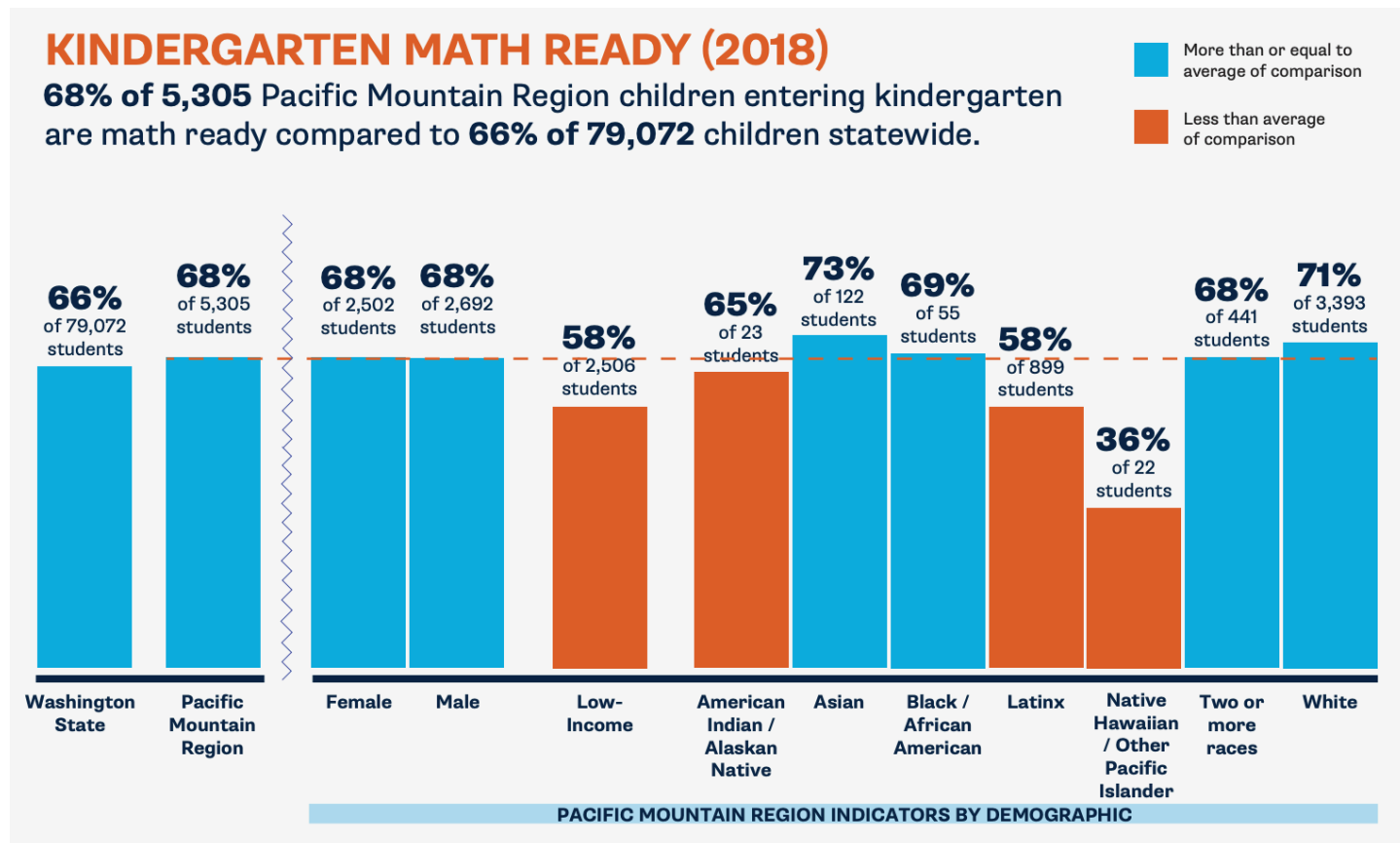
Increasingly, educators, policy makers, and local leaders are examining the entire Kindergarten-to-postsecondary education-to-careers pathway to determine where interventions are needed. Obtaining a family sustaining job does not begin with a job search or even in postsecondary education. The foundation for such careers begins in elementary school or even before. Washington STEM has worked to create early indicators of prospects for high school graduation and postsecondary study necessary to compete for STEM and other family-sustaining jobs. Examining these indicators and trends in them allows us to begin to answer the question:

Where are identifiable gaps that lead students in the Pacific Mountain Region to fall behind in their pursuit of needed credentials?

Kindergarten Math Ready

The first step in the formal education to career pathway is Kindergarten. More students in the Pacific Mountain Region enter Kindergarten math ready¹³⁹ than is true statewide. As the graphic below shows, 68 percent of Pacific Mountain Region students enter Kindergarten with the math skills that they need at that level. Of concern is the gap in the number and percentages of Latinx and low-income students who arrive ready for Kindergarten.

Figure 94: Pacific Mountain Region 2018 Kindergarten Math Readiness by Demographic

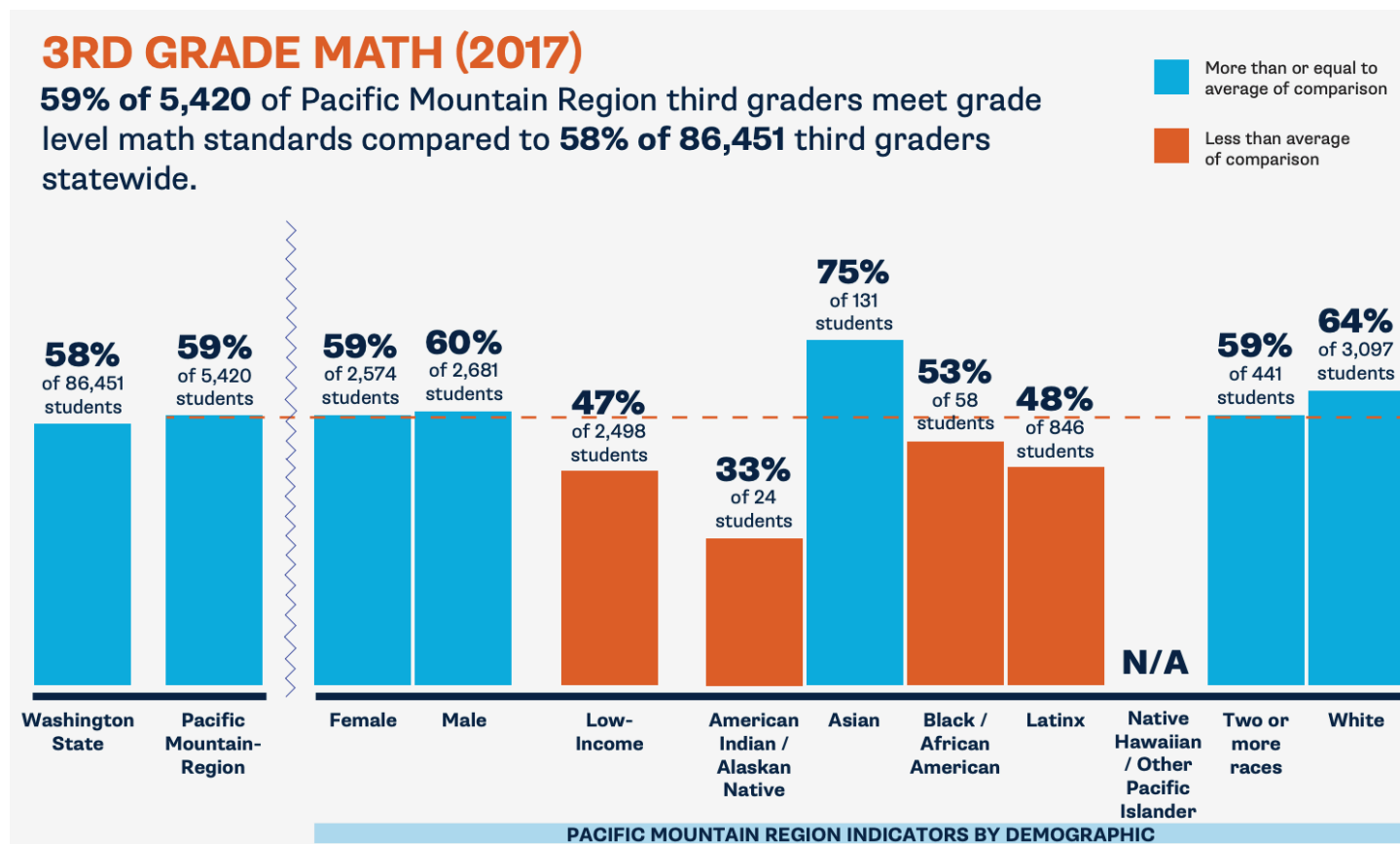


¹³⁹ OSPI defines math readiness for children beginning Kindergarten as: saying a sequence of numbers up to 20, counting objects up to 10, comparing objects' size, length, or weight, and identifying the position of objects by using words like beside, inside, next to, above, or below. Office of the Superintendent of Public Instruction, Washington State Report Card – WaKIDS. Retrieved from: <http://reportcard.ospi.k12.wa.us/WaKidsDetailPage.aspx?domain=WaKIDS&groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18&gradeLevelId=3&waslCategory=1&chartType=1>

Third Grade Math Achievement

The regional picture for third grade math achievement¹⁴⁰ shows concerning trends for underserved students of color. The region is performing just above statewide achievement (percentage achieving the state's proficiency benchmark) for all students in aggregate. However, underserved students of color and low-income students are not having their needs met and have fallen below state and regional averages.

Figure 95: Pacific Mountain Region 2017 Third Grade Math Assessment Outcomes by Demographic

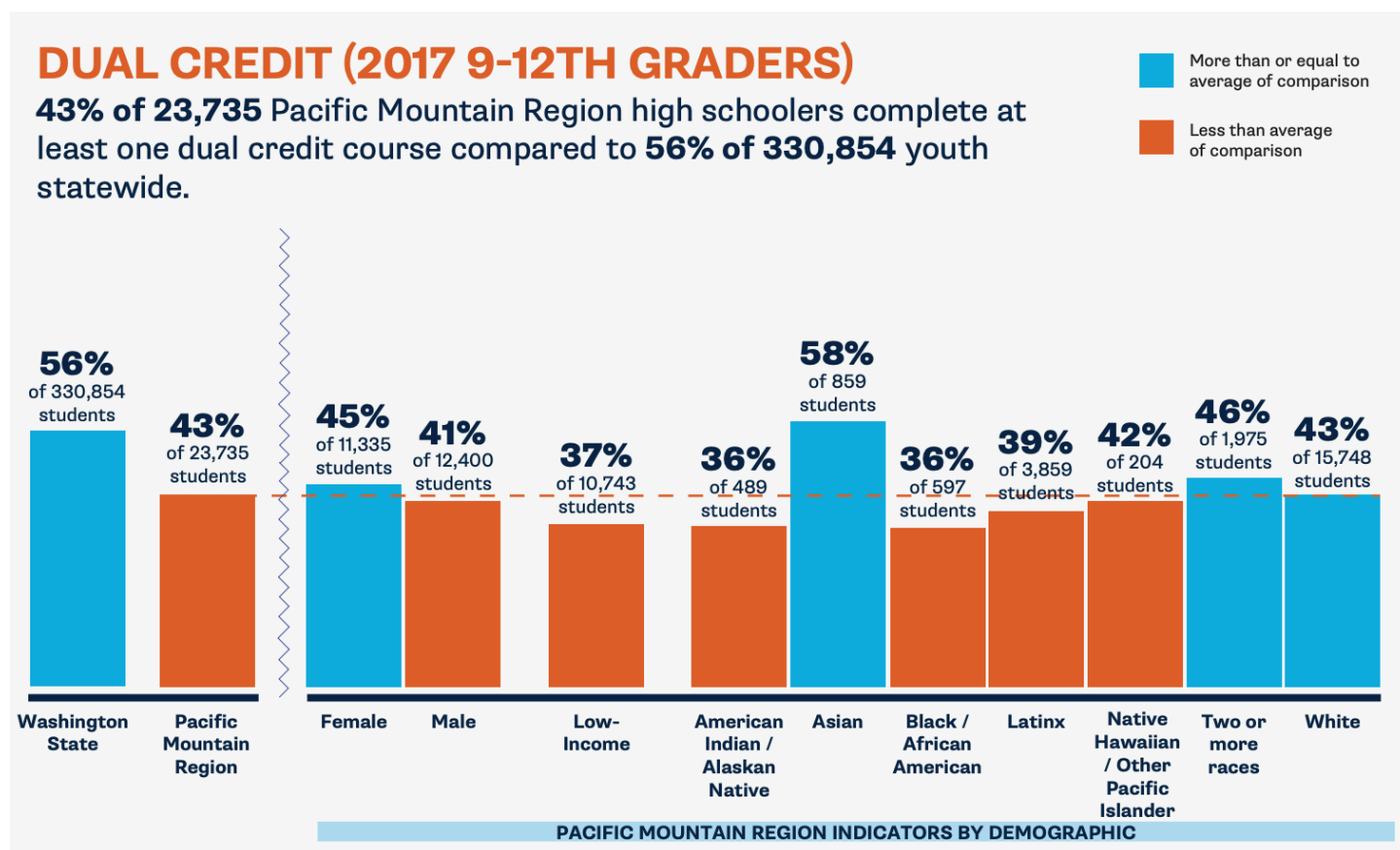


¹⁴⁰ Office of the Superintendent of Public Instruction, Washington State Report Card – Summary, retrieved from: <http://reportcard.ospi.k12.wa.us/summary.aspx?groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18>

Dual Credit

Next, we look at completion of dual credit courses by high school students. Completing dual credit¹⁴¹ courses allows high school students to earn college credit while still enrolled in high school, giving them a leg up on enrolling and competing college credentials. The Pacific Mountain Region as a whole shows a dual credit enrollment rate well below the state average. In the region, 43 percent of high school students complete at least one dual credit course at any point in high school, compared to 56 percent of youth statewide. Once again, underserved students of color lag behind, as do low-income students. Overall Asian students complete these courses at rates above the state and regional averages.

Figure 96: Pacific Mountain Region High School Students' (9th through 12th grade) Completion of at Least One Dual Credit Course as of 2017

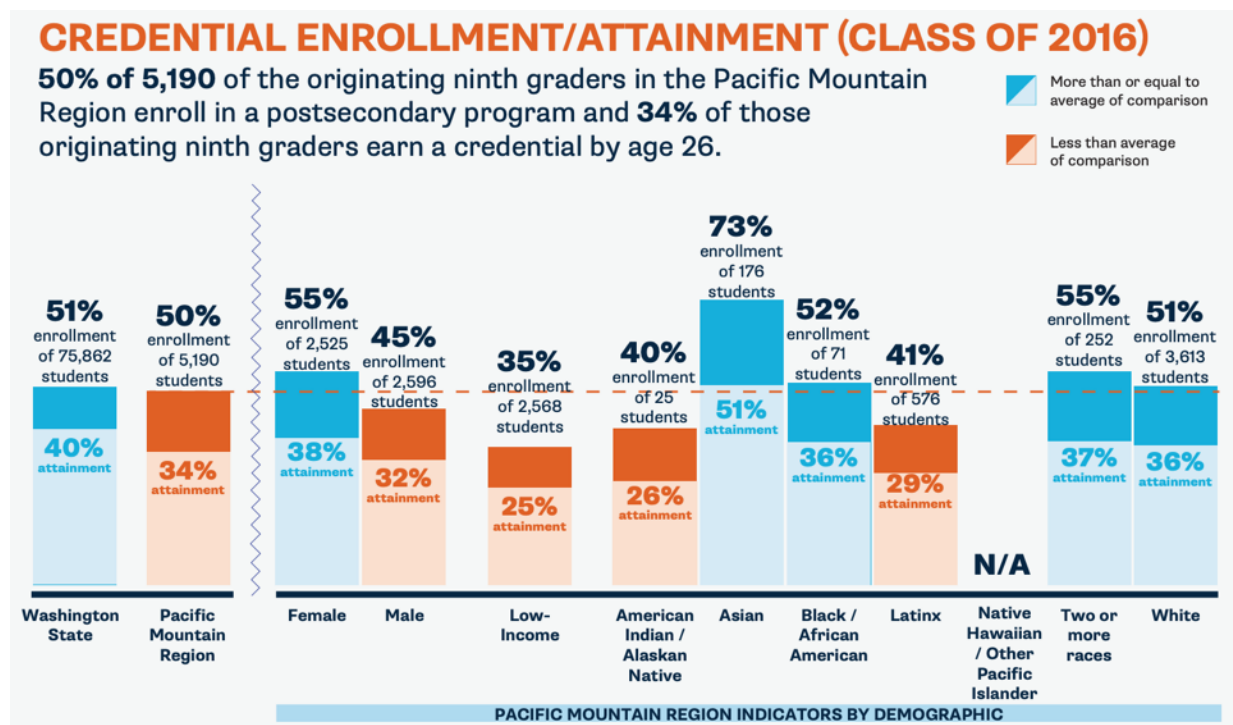


Postsecondary Enrollment & Completion

¹⁴¹ Office of the Superintendent of Public Instruction, Washington State Report Card - HS Dual Credit, retrieved from: http://reportcard.ospi.k12.wa.us/DualCredit_2.aspx?domain=DualCredit&groupLevel=District&schoolId=1&reportLevel=State&yrs=2016-17&year=2016-17

Half of the Pacific Mountain Region 2016 ninth-grade cohort enroll in a postsecondary program but only 34 percent earn any credential by age 26, far short 63 percent goal. Like other indicators, this one too demonstrates serious subgroup disparities in terms of enrollment and attainment. While female students and white and Asian students overall attain postsecondary credentials at higher rates than the statewide average, all other groups lag behind. Ensuring that more students obtain postsecondary credentials needed for family-sustaining wage jobs is a regional equity and economic imperative.

Figure 97: Pacific Mountain Region Credential Enrollment and Projected Completion for the High School Class of 2016



The most popular local colleges for students in the region to enroll after high school are three community colleges (South Puget Sound, Centralia, and Grays Harbor), where 42 percent of the region's residents enroll. Given these high rates of enrollment in community colleges, it is essential that transfer students are able to successfully transfer to a four-year degree option or stay on campus to complete in-demand credentials. The most recent data available shows overall community colleges in the state have high associate degree completion rates but low transfer rates as compared to other states.¹⁴²

¹⁴² Jenkins, D., & Fink, J. (2016). Tracking Transfer: New Measures of Institutional and State Effectiveness in Helping Community College Students Attain Bachelor's Degrees. *Community College Research Center, Teachers College, Columbia University*.

Figure 98: Enrollment by Institution for the Graduates of the Class of 2016 for Pacific Mountain Region

| Pacific Mountain Region | | | |
|---|---------------------------|---|---------------------------|
| Top Postsecondary Institution | HS Cohort Enrollment Rate | Top Postsecondary Institution In-Region | HS Cohort Enrollment Rate |
| South Puget Sound College | 21% | South Puget Sound College | 21% |
| Four Year Private or Out-of-State | 17% | Centralia College | 13% |
| Centralia College | 13% | Grays Harbor College | 8% |
| Grays Harbor College | 8% | The Evergreen State College | 1% |
| Two Year Community or Technical College | 7% | | |

In addition to postsecondary institutions' credential offerings, a large number of apprenticeship programs exist in the region. There were 123 programs operating in 2018; however, only 1,157 of the region's residents (not necessarily locally originating high school graduates since available data do not differentiate) were enrolled in apprenticeship programs and 169 students completed apprenticeship training in the region.

2018 Pacific Mountain Region Apprenticeships

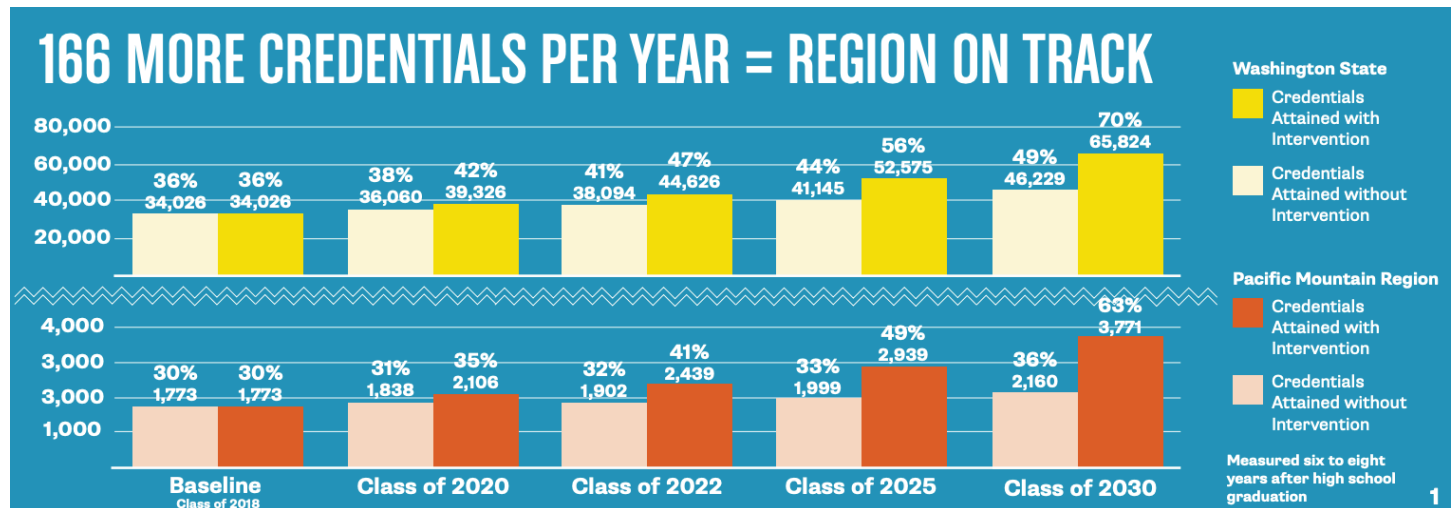
| | |
|---|-------|
| Apprenticeship programs operating in the region | 123 |
| 2018 active apprentices living in the region | 1,157 |
| 2018 apprenticeship completions by region residents | 169 |

More can and should be done to direct more of the region's high school graduates into these alternative postsecondary training opportunities, especially given the availability of family-sustaining jobs for students with apprenticeship training in the region.

Our analysis concludes that the region will need to **support 166 more Pacific Mountain Region-originating students in earning a postsecondary or apprenticeship credential each year** (i.e., 166 more each year than the prior year) from now until 2030 for the region to be on track for attaining the

region-specific 63 percent goal by 2030. To achieve this goal, the region¹⁴³ will need to specifically focus on systems changes that can close the significant outcomes gaps that currently exist for underrepresented students of color as well as students from low-income families.

Figure 99: Pacific Mountain Region Trajectory for Increased Number of Locally-Originating High School Students Earning Postsecondary Credentials to Obtain Locally Family-Sustaining Wage Jobs



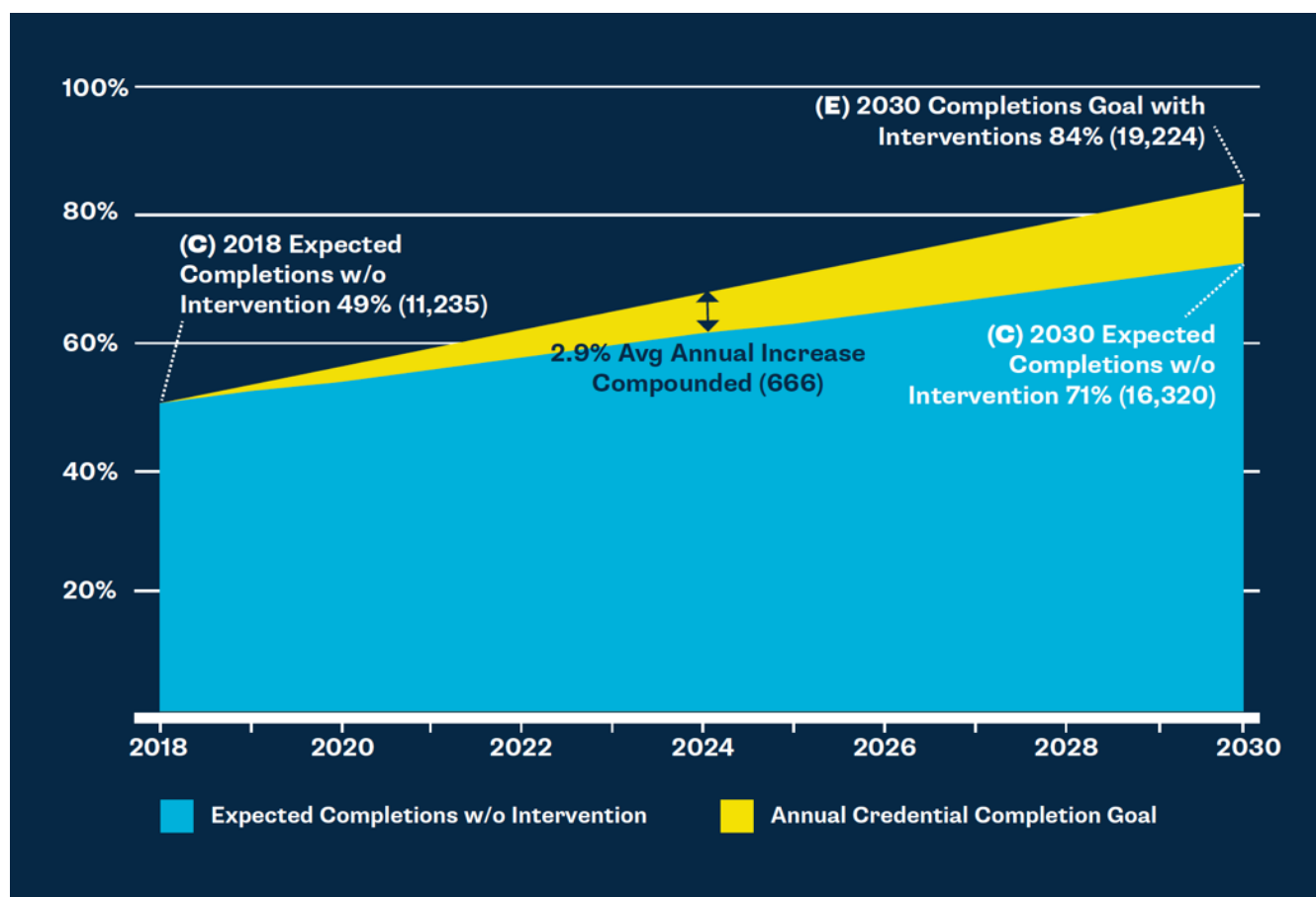
While 166 is an annual average, it is meant to set a benchmark number of what each region should aim to accomplish each year to meet the 2030 target. Below we break down yearly actual annual increases based on increasing cohort sizes and expected completion percentages.

¹⁴³ Washington STEM has produced a similar estimate for each region in the state. Taken together these regional estimates will allow the state to reach its goal.

Figure 100: Projections of Current Expected Credentials Earned by Each Pacific Mountain Region High School Cohort and Year-Over-Year Increases Needed to Meet Goals

| A. High School Class | B. 9th Grade Cohort Size | C. Expected Credential Completions without intervention | D. Annual Completion % Needed to meet goal | E. Annual Completions Goals | F. Increase needed to meet goal (E - C = F) | G. YoY difference in increase needed to meet goal |
|----------------------|--------------------------|---|--|---------------------------------|--|---|
| 2018 | 5,274 | 1,773 | 34% | 1,773 | | |
| 2019 | 5,304 | 1,783 | 36% | 1,913 | 130 | 130 |
| 2020 | 5,225 | 1,757 | 39% | 2,013 | 256 | 126 |
| 2021 | 5,296 | 1,781 | 41% | 2,170 | 389 | 133 |
| 2022 | 5,361 | 1,803 | 43% | 2,328 | 525 | 136 |
| 2023 | 5,421 | 1,823 | 46% | 2,486 | 663 | 139 |
| 2024 | 5,571 | 1,873 | 48% | 2,691 | 818 | 155 |
| 2025 | 5,820 | 1,957 | 51% | 2,954 | 997 | 179 |
| 2026 | 5,921 | 1,991 | 53% | 3,150 | 1,159 | 162 |
| 2027 | 5,879 | 1,977 | 56% | 3,272 | 1,295 | 136 |
| 2028 | 5,885 | 1,979 | 58% | 3,419 | 1,441 | 145 |
| 2029 | 5,876 | 1,976 | 61% | 3,558 | 1,582 | 142 |
| 2030 | 5,985 | 2,013 | 63% | 3,771 | 1,758 | 176 |
| Region | | 2018 Cohort Estimated Credential Attainment | 2030 Cohort Estimated Student Headcount | 2030 Credential Attainment Goal | Average Annual Increase Needed to meet 2030 Goal | Annual Increase to Meet 2030 Goal |
| Pacific Mountain | | 5,274 | 5,985 | 3,771 | 166 | 2.40% |

Figure 101: Area Graph of Projections of Current Expected Credentials and Year-Over-Year Increases Needed to Meet Goals (Letters Associate with Figure 100)



THE CREDENTIAL OPPORTUNITY BY REGION AND INDUSTRY (CORI) CROSSWALK

Washington STEM created The Credential Opportunity by Region and Industry (CORI) Crosswalk to analyze postsecondary credential attainment gaps that exist in each Washington state region for family-sustaining occupations. The CORI Crosswalk allows employers, industries, elected officials, and education sectors to make informed decisions regarding employment and postsecondary credential opportunities. The CORI analysis enables us to answer the research question:

Are there sufficient training programs and production capacity in this region that lead to local, high-demand, family-sustaining jobs? Where do training program gaps exist?

The CORI Crosswalk identifies gaps between high-demand, family-sustaining occupations and the supply of appropriately-credentialed graduates in each region. The Crosswalk uses a color system to identify the areas where gaps exist. The red category highlights occupations that have a supply shortage and have NO available credential program for that occupation in that given region. The yellow category highlights occupations that have supply shortages despite credential programs available, i.e., the

program or programs available in the region are not graduating a sufficient number of students to meet the labor market needs. Last, the green category outlines occupations that are in demand in the given region, and regional credential programs (Classification of Instructional Programs) that are producing an adequate number of graduates to meet the regional labor market need for that given occupation. Thereby the CORI crosswalk identifies available education programs for high demand, family-sustaining occupations.

Imbalances in Pacific Mountain Region

The CORI Crosswalk begins with the identification of high-demand, family-sustaining occupations¹⁴⁴ in the Pacific Mountain region for which postsecondary credential attainment gaps exist. In the Pacific Mountain region, the CORI Crosswalk revealed the following occupations to be in high demand and facing a supply shortage, with potential insufficient production of qualified graduates in the region. Notable occupations in high demand with NO credential programs in the region include financial managers, financial analysts, lawyers, and zoologists. This means that no postsecondary credential programs exist in the Pacific Mountain region for these in-demand, family-sustaining wage occupations. Noteworthy occupations where programs exist but with inadequate credentialed graduates being produced to meet demand include general and operations managers, carpenters, registered nurses, and management analysts.

More information regarding high demand occupations and supply shortages for postsecondary credential programs can be found at [Washington STEM, Credential Opportunity by Region and Industry Crosswalk](#).

Limitations and future improvements of CORI

The CORI analysis does have some limitations. Online degrees are not factored into regional “supply” of credentials awarded (CIP) in the region, such as Western Governor University, a nonprofit online university that offers teaching degrees to place-bound students without local access to such degrees.

Future editions of CORI could include a tiered approach working to pay special attention to the level of supply and demand, moving beyond the current red and yellow color scheme to add nuances. In addition, while developing and testing the CORI Crosswalk, regional leaders identified some areas where they felt high regional demand was not reflected. Washington STEM is currently working with local Workforce Development Area economists to identify and better understand occupations where region-specific improvements in data might be made to capture regional demand better as it is experienced “on the ground.”

DISCUSSION:

¹⁴⁴Figures for regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx) , 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018.

Too many local students, especially the growing population of underserved students of color, find the education needed to obtain in-demand, family-sustaining careers to be an *opportunity mirage* that they are unable to successfully attain. Better preparing local students to compete in the new economy is an equity AND an economic imperative.

A regional approach is warranted as each of the regions in Washington have fundamentally different educational and economic contexts with differing problems and solutions in each. We believe local leaders are best able to create the smart, innovative, and potentially disruptive changes needed to substantially move the needle on educational opportunity that matches job market needs.

Region Specific Recommendations:

- Work to get more students, especially underserved students of color, ready for Kindergarten
- Attack success gaps between underserved students of color and white and Asian students in the K-12 system
- Increase dual credit offerings in high schools and pay attention to equity gaps in dual credit enrollment and outcomes
- Increase high school graduation rates
- Increase the enrollment in high-demand apprenticeship enrollment and completion
- Establish metrics and strategies to increase successful transfer from local community colleges to four-year institutions for baccalaureate-seeking students
- Create instructional programs of adequate capacity in CORI shortage fields
- Create opportunities for high-demand credentials so students do not need to attend out-of-state institutions to meet their educational needs

SOUTHEAST REGION: EQUITY AND OPPORTUNITY BY THE NUMBERS

EXECUTIVE SUMMARY

Not nearly enough local students in this region obtain the levels of education they need to secure family-sustaining wage jobs. This gap is especially pronounced between the large population of Latinx and white students in the region. Beginning in Kindergarten in every measure of K-12 readiness and educational outcomes, students, especially Latinx students and low-income students, in this region fall behind. Currently, 45 percent of locally-originating cohorts (defined at ninth grade entry) enroll in a postsecondary program, while only 31 percent earn any form of postsecondary credential by age 26, far short of what is needed by the local labor market. Like other indicators, these demonstrate subgroup disparities in both enrollment and attainment. While female students and white students overall in the region attain postsecondary credentials at higher rates than the statewide average, all other groups attain at lower rates than the state average. If the Southeast Region aims to close supply-demand gaps for in-demand, family-sustaining wage jobs, an annual average of 202¹⁴⁵ *more students in each year than the prior year* need to obtain a credential between now and the high school graduating class of 2030.¹⁴⁶

Local postsecondary institutions have added numerous programs to meet demand in recent years, but opportunities exist to do more. For example, while the number of apprenticeship programs in the region is strong, enrollment in these programs is small. In the region, there are no postsecondary education preparation programs in such in-demand fields as accountants and auditors, teachers, general office workers, and computer/information technology support workers.

THE SOUTHEAST REGION

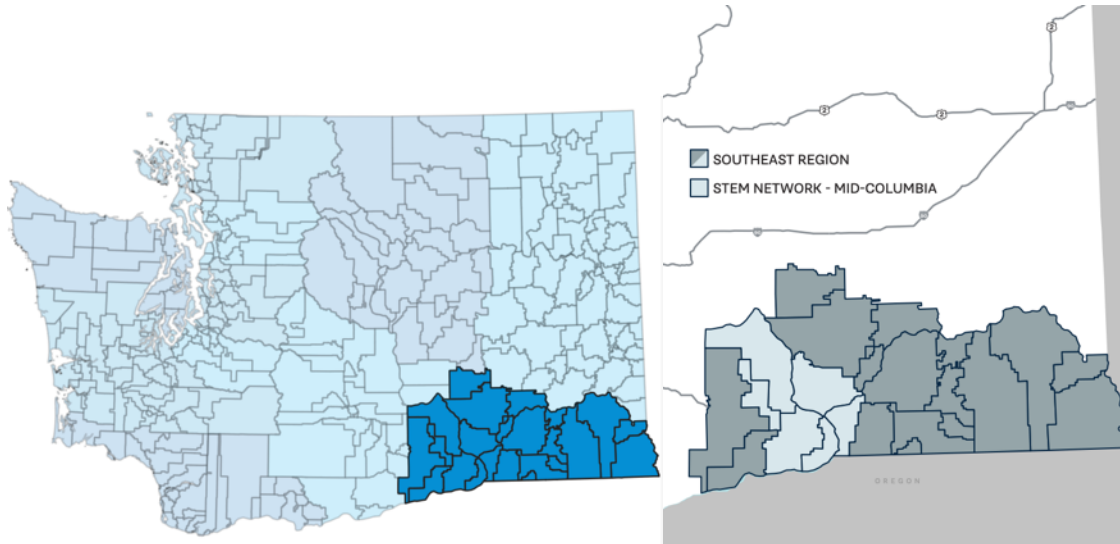
The Southeast Region's boundaries are based on those included in Educational Service District (ESD) 123 and the Benton-Franklin Workforce Development Areas (WDA). The region includes Prosser School District, which is associated with the South Central Washington WDA, as well as school districts located in Asotin, Columbia, Garfield and Walla Walla counties associated with the Eastern Washington WDA. The Southeast Region is home to growing information and technology, education, healthcare, engineering, and construction industries, spanning from the Tri-Cities to Clarkston. The region is made up of 23 school districts, six of which are members of the Mid-Columbia STEM Network. The Network's business, education, and community partners are working to close credential attainment gaps, especially for students of color and students from low-income families. They aim to increase the number of local students who become computer and IT professionals, construction and trades professionals, teachers,

¹⁴⁵ Goal numbers have been updated in January 2019 from previous reports based on new projections from Education Research & Data Center

¹⁴⁶ For a full explanation of this estimate see Figure 2 and Figure 3.

engineers, and healthcare professionals, which have 1,248 annual projected openings combined over the next five years. The 2016 ninth grade adjusted cohort high school graduation rate for this region is 82.4 percent, compared to the statewide rate of 82.4 percent (OSPI, ERDC).¹⁴⁷

Figure 102: Southeast Region and Mid-Columbia STEM Network Geographical Boundaries



The Network and its business, education, and community partners are working to close credential attainment gaps, especially for students of color and students from rural and low-income families. They aim to increase the number of local students who become healthcare, business and IT professionals, construction apprentices, engineers, and teachers, which combined have 3,877 annual projected openings over the next five years. This is far more openings than current production trends of appropriately credentialed graduates is on target to match.

The Southeast Region had a school-aged population of 67,167 in 2016 and approximately 4,384 students graduate from high school each year. This is about 82.4 percent of the ninth-grade cohort that was originally expected to graduate. The K-12 population growth rate is approximately 0.78 percent annually. The region has, proportionally, a large white population and a large Latinx population (WA Office of Financial Management¹⁴⁸, WA Caseload Forecast Council¹⁴⁹).

¹⁴⁷ OSPI “2014-2015 Graduation Rates by School 5Yr Cohort” <http://reportcard.ospi.k12.wa.us/DataDownload.aspx>; ERDC “2015 High School Feedback Report” <http://www.erdcddata.wa.gov/hsfb.asp>.

¹⁴⁸ 2017 Projections of the Population by Age and Sex for Growth Management - Ages 5-19. Retrieved from <https://www.ofm.wa.gov/washington-data-research/population-demographics/population-forecasts-and-projections>

¹⁴⁹ Common Schools Education Long Range Projections - Headcounts. Retrieved from https://www.cfc.wa.gov/Education_Common_Schools_Enrollment.htm

Jobs in high demand in the Southeast Region include those in healthcare, education, and construction and trades. These jobs pay family sustaining wages, for example¹⁵⁰:

Figure 103: Examples of In-Demand, Family-Sustaining Wage Jobs in the Southeast Region

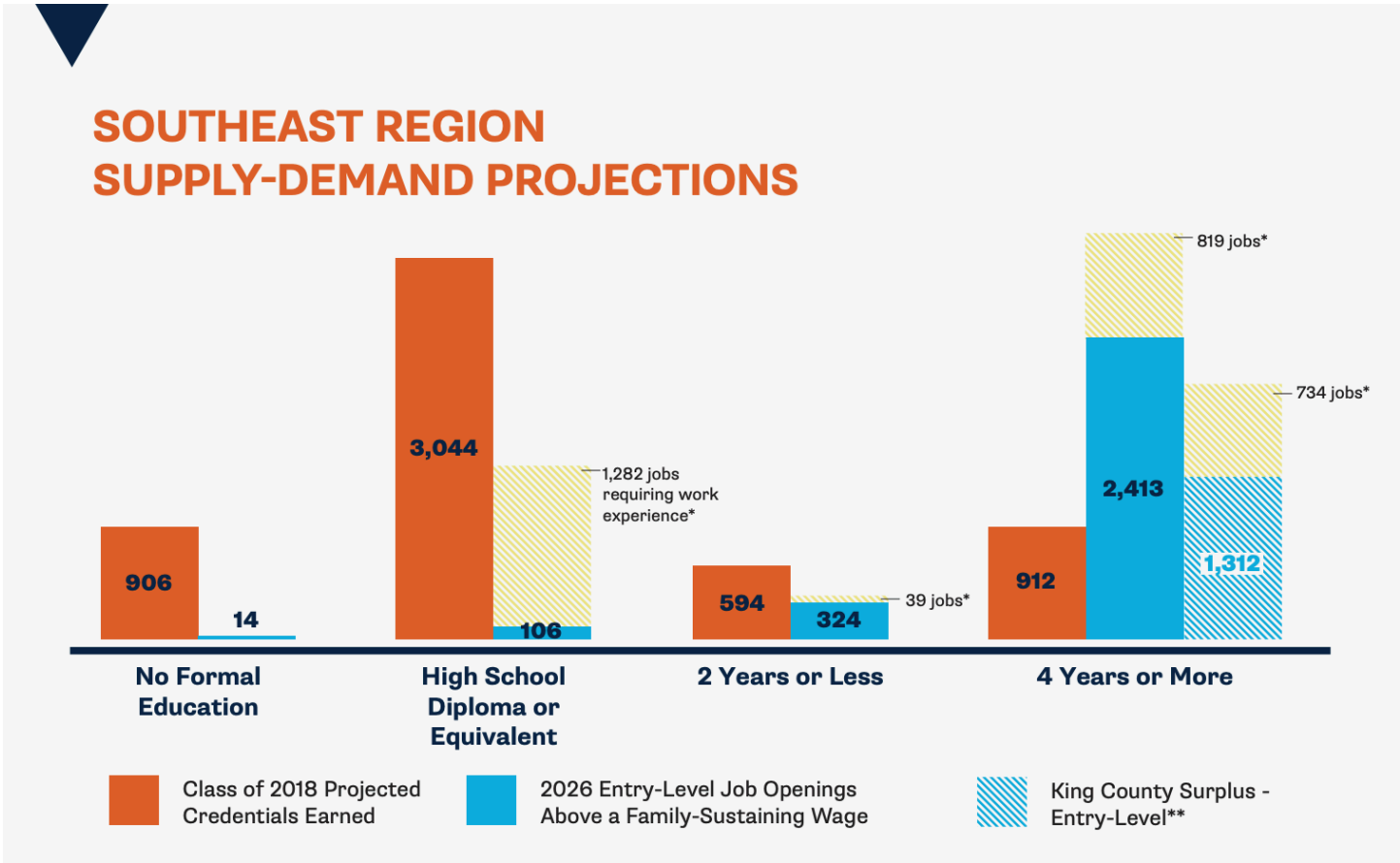


SOUTHEAST REGION FINDINGS

Moving more students from obtaining a high school diploma or equivalent as their highest education level to a four-year degree will ensure that they, and the region, can thrive economically. The Southeast Region, like others in the state, has a large gap between the number of projected jobs calling for four-years' study or more to obtain a family-sustaining wage and the number of students currently projected to earn such a degree. On the other hand, the region has far too many young people with only a high school diploma or less compared to the number of family-wage jobs available to people with such preparation (see Figure 104).

¹⁵⁰ Regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx), 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018.

Figure 104: Comparison of Southeast Region’s Class of 2018 Projected Credential Completion to 2026 Projected Job Openings by Type of Credential Needed to Obtain Jobs



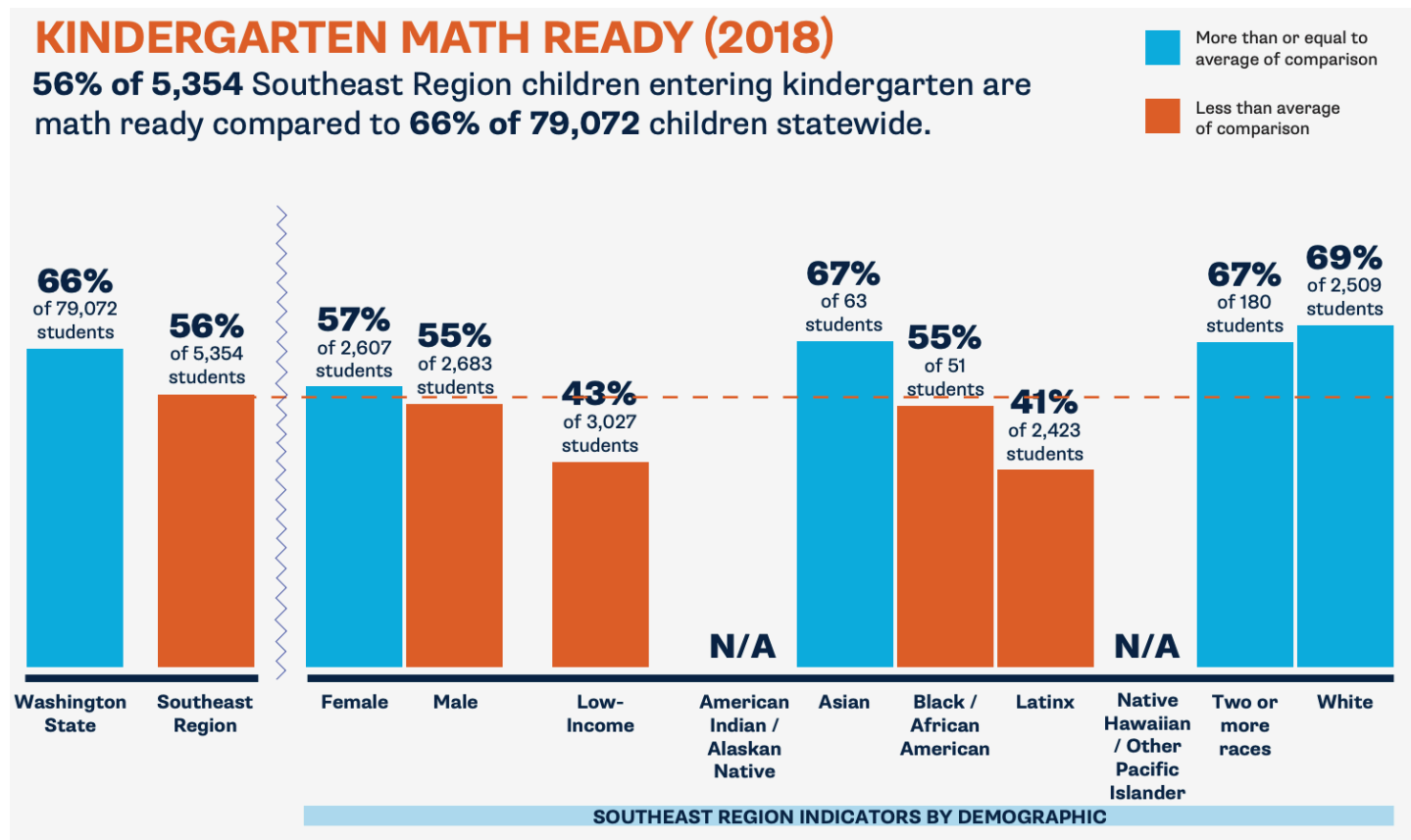
Increasingly, educators, policy makers, and local leaders are examining the entire Kindergarten-to-postsecondary education-to-careers pathway to determine where interventions are needed. Obtaining a family-sustaining job does not begin with a job search or even in postsecondary education. The foundation for such careers begins in elementary school or even before. Washington STEM has worked to create early indicators of prospects for high school graduation and postsecondary study necessary to compete for STEM and other family sustaining jobs. Examining these indicators and trends in them allows us to begin to answer the question:

Where are identifiable gaps that lead students in the Southeast Region to fall behind in their pursuit of needed credentials?

Kindergarten Math Ready

The first step in the formal education-to-career pathway is Kindergarten. Fewer students in the Southeast Region enter Kindergarten math ready¹⁵¹ than is true statewide. As the graphic below shows, only 56 percent of Southeast Region students enter Kindergarten with the math skills that they need at that level. While white students are, at 69 percent, above the statewide average of 66 percent math ready, other racial and ethnic groups lag well behind.

Figure 105: Southeast Region 2018 Kindergarten Math Readiness by Demographic



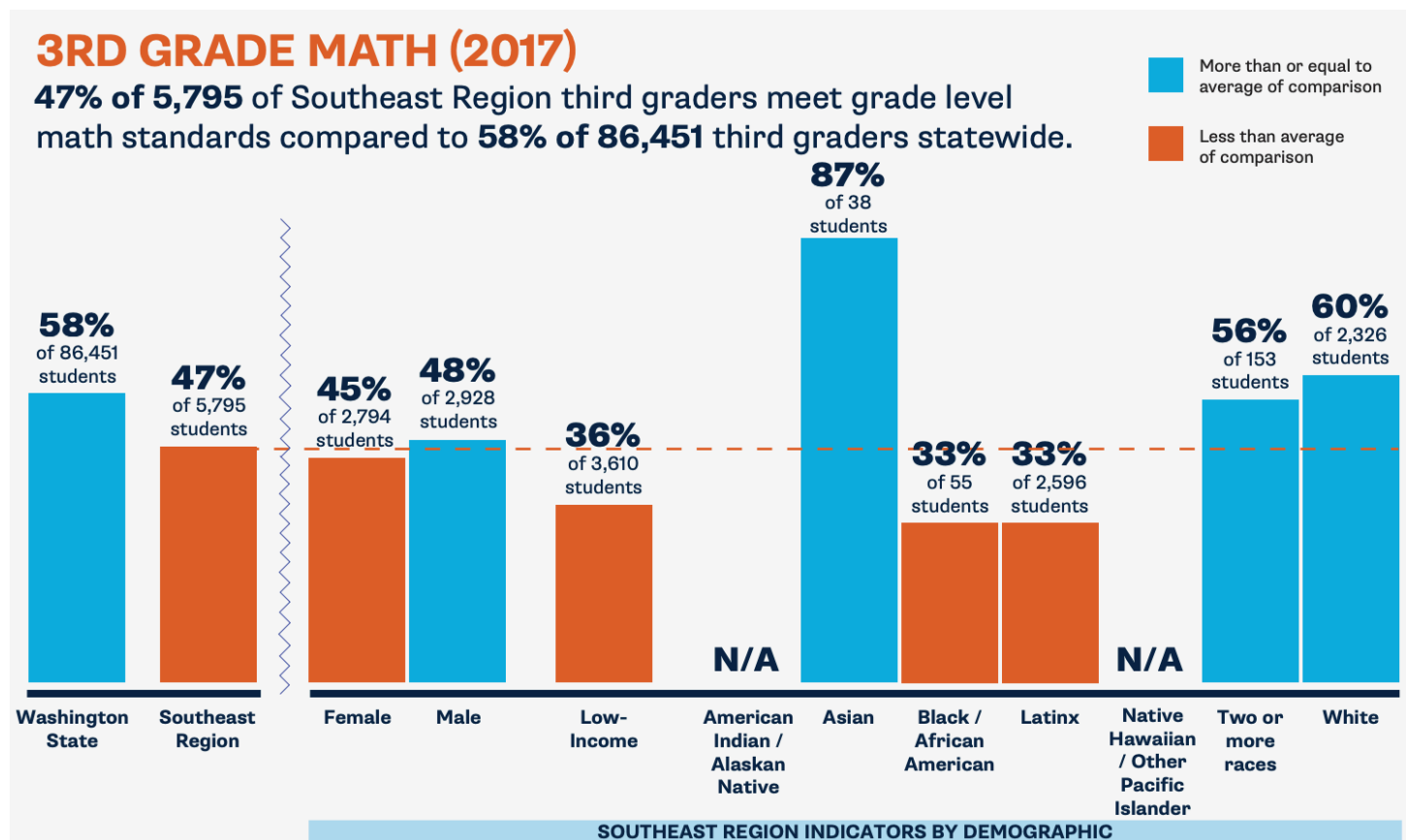
¹⁵¹OSPI defines math readiness for children beginning Kindergarten as: saying a sequence of numbers up to 20; counting objects up to 10; comparing objects' size, length, or weight; and identifying the position of objects by using words like beside, inside, next to, above, or below (Office of the Superintendent of Public Instruction, Washington State Report Card – WaKIDS:

<http://reportcard.ospi.k12.wa.us/WaKidsDetailPage.aspx?domain=WaKIDS&groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18&gradeLevelId=3&waslCategory=1&chartType=1>

Third Grade Math Achievement

The regional picture for third grade math achievement¹⁵² shows concerning trends for underserved students of color and low-income students. While white and Asian students continue to perform above the state average, underserved students of color are not having their needs met and the trend is moving in the opposite direction. In fact, the percentage of underserved students of color and low-income students meeting benchmarks has dropped since Kindergarten.

Figure 106: Southeast Region 2017 Third Grade Math Assessment Outcomes by Demographic

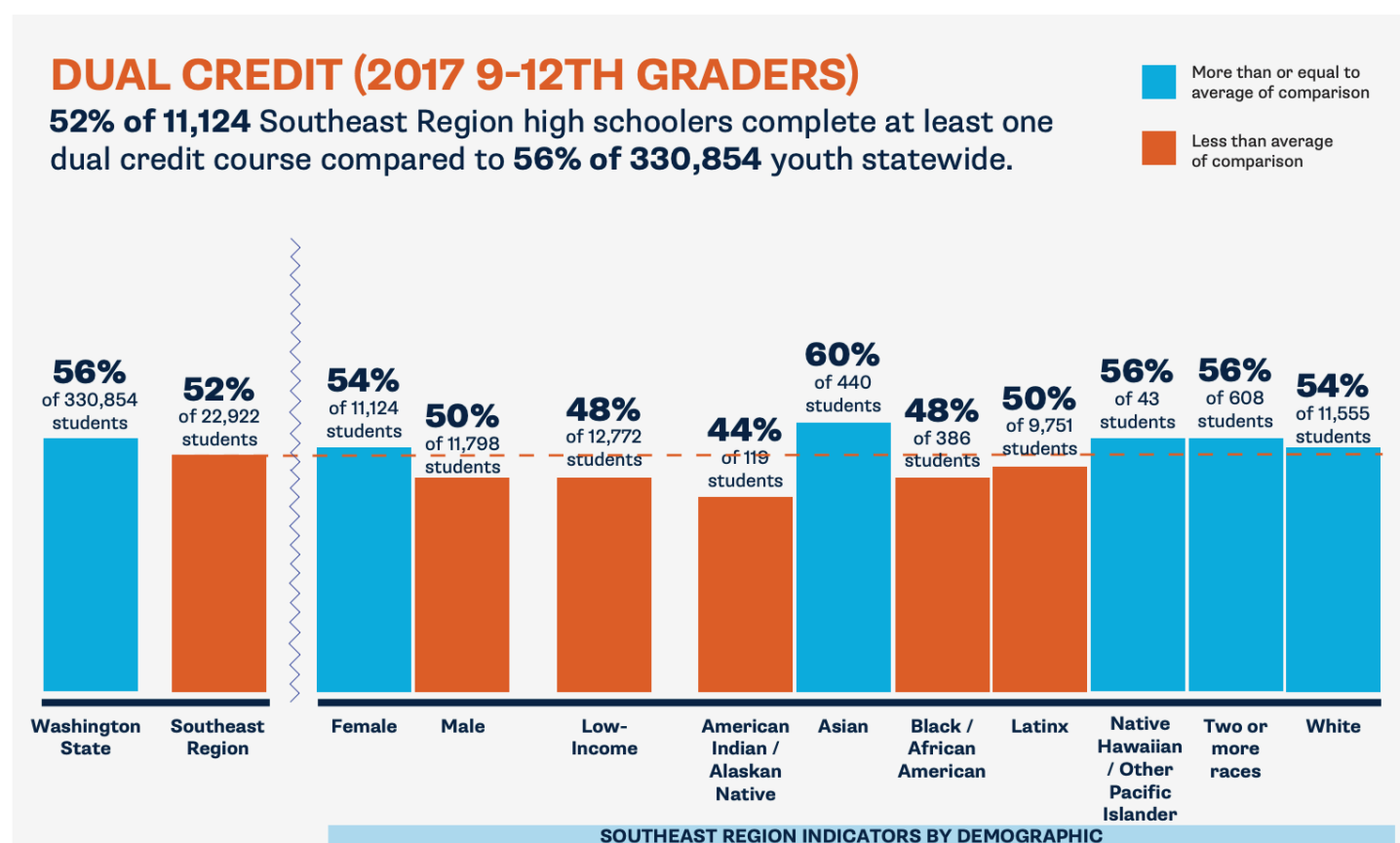


Dual Credit

¹⁵² Office of the Superintendent of Public Instruction, Washington State Report Card - Summary
<http://reportcard.ospi.k12.wa.us/summary.aspx?groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18>

Next, we look at completion of dual credit courses by high school students. Completing dual credit¹⁵³ courses allows high school students to earn college credit while still enrolled in high school, giving them a leg up on enrolling and completing college credentials. The Southeast Region as a whole shows a dual credit enrollment rate below the state average. In the region, 52 percent of high school students complete at least one dual credit course at any point in high school, compared to 56 percent of youth statewide. However, once again, underserved students of color and low-income students are not at parity. Below average rates are seen for Latinx, Black/African American, and Native American students as well as male students overall in the region while overall white and Asian students, as well as female students, complete these courses at rates above the state and regional averages.

Figure 107: Southeast Region High School Students' (9th through 12th grade) Completion of at Least One Dual Credit course as of 2017

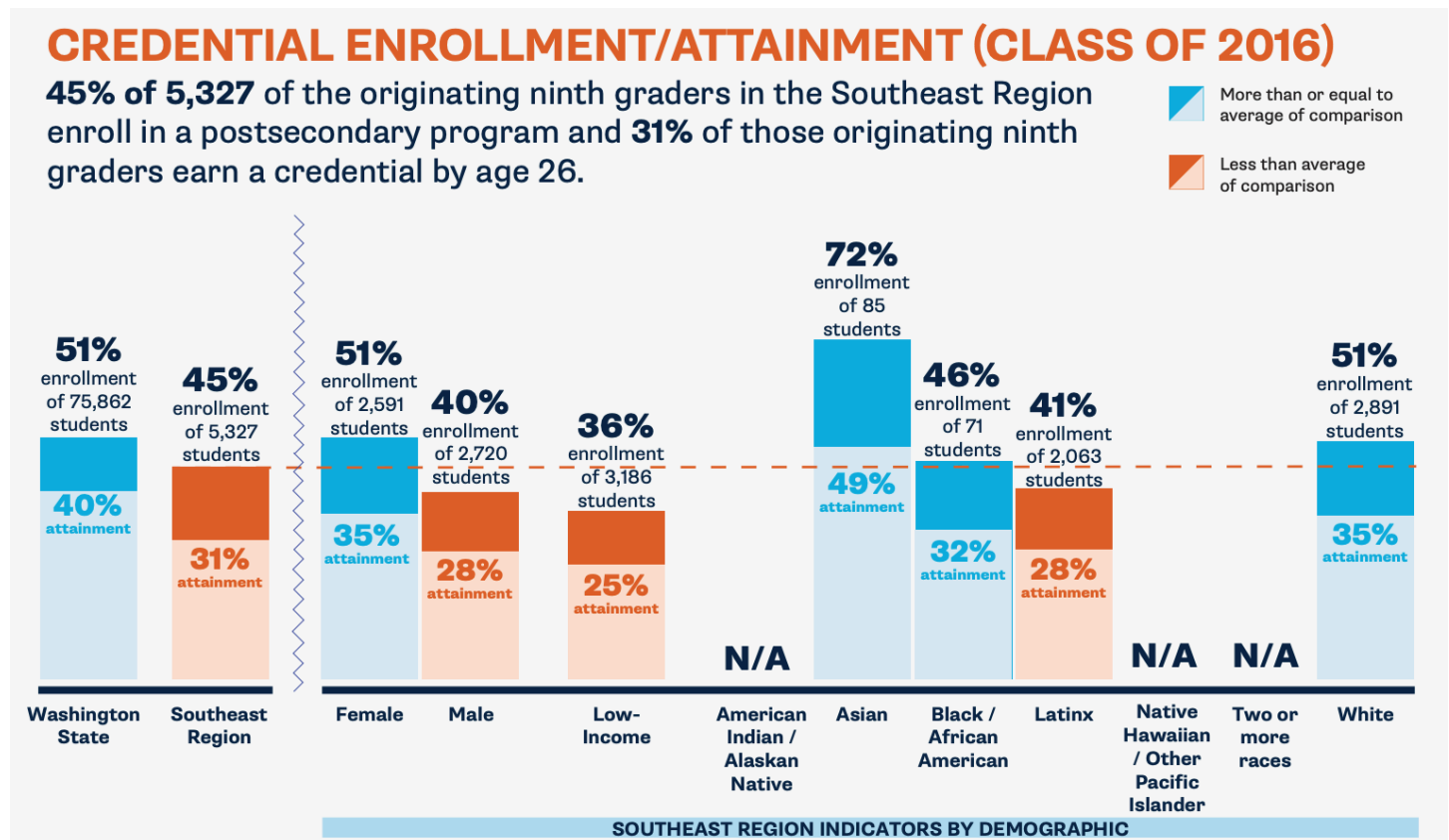


Postsecondary Enrollment & Completion

¹⁵³ Office of the Superintendent of Public Instruction, Washington State Report Card - HS Dual Credit
http://reportcard.ospi.k12.wa.us/DualCredit_2.aspx?domain=DualCredit&groupLevel=District&schoolId=1&reportLevel=State&yrs=2016-17&year=2016-17

Less than half (45 percent) of the Southeast Region 2016 ninth-grade cohort enroll in a postsecondary program but only 31 percent earn any credential by age 26, far short of the 63 percent goal. Like other indicators, this one too demonstrates serious subgroup disparities in terms of enrollment and attainment. While female students and white students overall attain postsecondary credentials at higher rates than the statewide average, all other groups lag behind.

Figure 108: Southeast Region Credential Enrollment and Projected Completion for the High School Class of 2016



Students in the Southeast Region enroll in local community colleges most often. A total of 39 percent of the students who enroll directly in a postsecondary institution after high school attend Columbia Basin College. The next most popular choice is Washington State University (12 percent). Given high rates of enrollment in community colleges it is essential that students are able to successfully transfer to a four-year degree option. The most recent data available shows overall community colleges in the state have high associate degree completion rates but low transfer rates as compared to other states.¹⁵⁴

¹⁵⁴ Jenkins, D., & Fink, J. (2016). Tracking Transfer: New Measures of Institutional and State Effectiveness in Helping Community College Students Attain Bachelor's Degrees. *Community College Research Center, Teachers College, Columbia University*.

Figure 109: Enrollment by Institution for the Graduates of the Class of 2016 for the Southeast Region

| Southeast Region | | | |
|--|---------------------------|---|---------------------------|
| Top Postsecondary Institution | HS Cohort Enrollment Rate | Top Postsecondary Institution In-Region | HS Cohort Enrollment Rate |
| Columbia Basin College | 39% | Columbia Basin College | 39% |
| Four Year Private or Out-of-State | 15% | Walla Walla College | 9% |
| Washington State University | 12% | | |
| Walla Walla College | 9% | | |
| Other Two-Year Community or Technical Colleges | 5% | | |

In addition to postsecondary institutions' credential offerings, apprenticeship programs exist in the region, but they are often sparsely enrolled. In 2018, just 143 of the region's residents (not necessarily locally-originating high school graduates since available data do not differentiate) completed apprenticeship training.

2018 Southeast Region Apprenticeships

| | |
|---|-------|
| Apprenticeship programs operating in the region | 69 |
| 2018 active apprentices living in the region | 1,153 |
| 2018 apprenticeship completions by region residents | 143 |

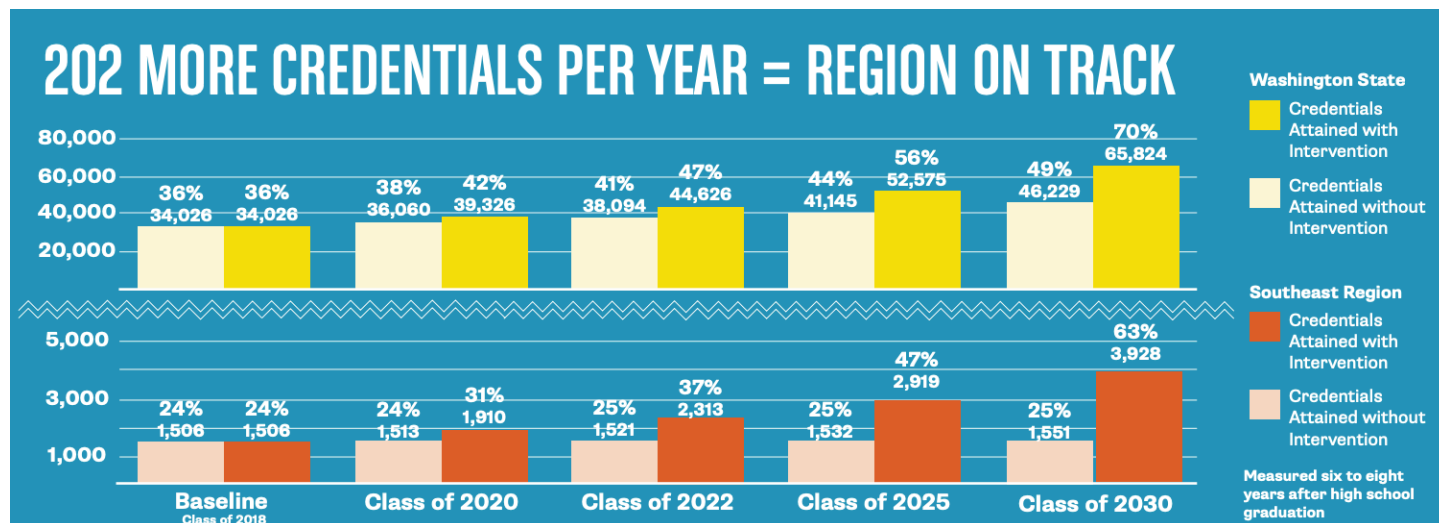
More can and should be done to direct more of the region's high school graduates into these alternative postsecondary training opportunities.

Our analysis concludes that the region will need to **support 202 more Southeast Region-originating students in earning a postsecondary or apprenticeship credential each year** (i.e., 202 more each year than the prior year) from now until 2030 for the region to be on track for attaining the region-specific 63.4 percent goal by 2030. To achieve this goal, the region¹⁵⁵ will need to specifically focus on

¹⁵⁵ Washington STEM has produced a similar estimate for each region in the state. Taken together these regional estimates will allow the state to reach its goal.

systems changes that can close the significant outcomes gaps that currently exist for underrepresented students of color as well as students from low-income families.

Figure 110: Southeast Region’s Trajectory for Increased Number of Locally-Originating High School Students Earning Postsecondary Credentials to Obtain Locally Family-Sustaining Wage Jobs

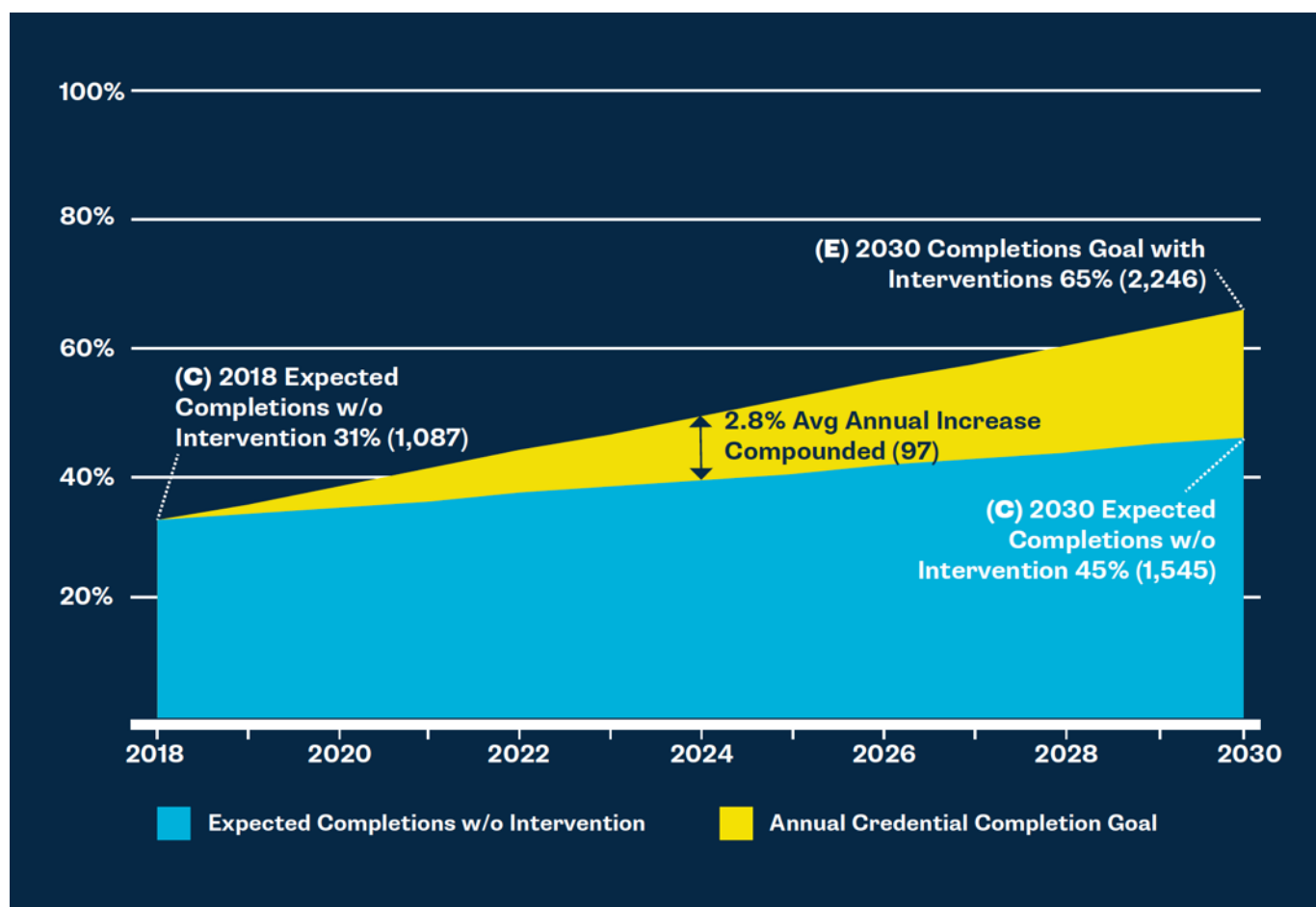


While 202 is an annual average, it is meant to set a benchmark number of what each region should aim to accomplish each year to meet the 2030 target. Below we break down yearly actual annual increases based on increasing cohort sizes and expected completion percentages.

Figure 111: Projections of Current Expected Credentials Earned by Each Southeast Region High School Cohort and Year-Over-Year Increases Needed to Meet Goals

| A. High School Class | B. 9th Grade Cohort Size | C. Expected Credential Completions without intervention | D. Annual Completion % Needed to meet goal | E. Annual Completions Goals | F. Increase needed to meet goal (E - C = F) | G. YoY difference in increase needed to meet goal |
|----------------------|--------------------------|---|--|---------------------------------|--|---|
| 2018 | 5,456 | 1,506 | 28% | 1,506 | | |
| 2019 | 5,487 | 1,515 | 31% | 1,678 | 164 | 164 |
| 2020 | 5,406 | 1,492 | 34% | 1,815 | 323 | 159 |
| 2021 | 5,479 | 1,512 | 37% | 2,003 | 491 | 168 |
| 2022 | 5,546 | 1,531 | 40% | 2,194 | 663 | 172 |
| 2023 | 5,607 | 1,548 | 43% | 2,385 | 837 | 175 |
| 2024 | 5,763 | 1,591 | 46% | 2,623 | 1,033 | 195 |
| 2025 | 6,020 | 1,662 | 49% | 2,921 | 1,259 | 226 |
| 2026 | 6,125 | 1,691 | 51% | 3,154 | 1,463 | 205 |
| 2027 | 6,081 | 1,679 | 54% | 3,313 | 1,635 | 171 |
| 2028 | 6,088 | 1,680 | 57% | 3,499 | 1,818 | 184 |
| 2029 | 6,079 | 1,678 | 60% | 3,675 | 1,997 | 179 |
| 2030 | 6,192 | 1,709 | 63% | 3,928 | 2,219 | 222 |
| Region | | 2018 Cohort Estimated Credential Attainment | 2030 Cohort Estimated Student Headcount | 2030 Credential Attainment Goal | Average Annual Increase Needed to meet 2030 Goal | Annual Increase to Meet 2030 Goal |
| Southeast | | 5,456 | 6,192 | 3,928 | 202 | 3.00% |

Figure 112: Area Graph of Projections of Current Expected Credentials and Year-Over-Year Increases Needed to Meet Goals (Letters Associate with Figure 111)



THE CREDENTIAL OPPORTUNITY BY REGION AND INDUSTRY (CORI) CROSSWALK

Washington STEM created The Credential Opportunity by Region and Industry (CORI) Crosswalk to analyze postsecondary credential attainment gaps that exist in each Washington state region for family-sustaining occupations. The CORI Crosswalk allows employers, industries, elected officials, and education sectors to make informed decisions regarding employment and postsecondary credential opportunities. The CORI analysis enables us to answer the research question:

Are there sufficient training programs and production capacity in this region that lead to local, high-demand, family-sustaining jobs? Where do training program gaps exist?

The CORI Crosswalk identifies gaps between high-demand, family-sustaining occupations and the supply of appropriately-credentialed graduates in each region. The Crosswalk uses a color system to identify the areas where gaps exist. The red category highlights occupations that have a supply shortage and have NO available credential program for that occupation in that given region. The yellow category highlights occupations that have supply shortages despite credential programs available, i.e., the

program or programs available in the region are not graduating a sufficient number of students to meet the labor market needs. Last, the green category outlines occupations that are in demand in the given region, and regional credential programs (Classification of Instructional Programs) that are producing an adequate number of graduates to meet the regional labor market need for that given occupation. Thereby the CORI crosswalk identifies available education programs for high demand, family-sustaining occupations.

Imbalances in the Southeast Region

The CORI Crosswalk begins with the identification of high-demand, family-sustaining occupations¹⁵⁶ in the Southeast region for which postsecondary credential attainment gaps exist. In the Southeast Region, the CORI Crosswalk revealed the following occupations to be in high demand and facing a supply shortage, with potential insufficient production of qualified graduates in the region. Notable occupations in high demand with NO credential programs in the region include accountants and auditors, civil engineers, and environmental engineers. This means that no postsecondary credential programs exist in the Southeast Region for these in-demand, family-sustaining wage occupations. Noteworthy occupations where programs exist but with inadequate credentialed graduates produced to meet demand include general and operations managers, elementary school teachers, and electricians.

More information regarding high demand occupations and supply shortages for postsecondary credential programs can be found at [Washington STEM, Credential Opportunity by Region and Industry Crosswalk](#).

Limitations and future improvements of CORI

The CORI analysis does have some limitations. Online degrees are not factored into regional “supply” of credentials awarded (CIP) in the region, such as Western Governors University, a nonprofit online university that offers teaching degrees to place-bound students without local access to such degrees.

Future editions of CORI could include a tiered approach working to pay special attention to the level of supply and demand, moving beyond the current red and yellow color scheme to include more nuance. In addition, while developing and testing the CORI Crosswalk, regional leaders identified some areas where they felt high regional demand was not reflected. Washington STEM is currently working with local Workforce Development Area economists to identify and better understand occupations where region-specific improvements in data might be made to capture regional demand better as it is experienced “on the ground.”

DISCUSSION:

¹⁵⁶Figures for regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx) , 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018.

Too many local students find the education needed to obtain in-demand, family-sustaining careers to be an *opportunity mirage* that they are unable to successfully attain. Better preparing local students to compete in the new economy is an equity AND an economic imperative.

A regional approach is warranted as each of the regions in Washington have fundamentally different educational and economic contexts with differing problems and solutions in each. We believe local leaders are best able to create the smart, innovative, and potentially disruptive changes needed to substantially move the needle on educational opportunity that matches job market needs.

Region specific recommendations:

- Work to get more students, especially underserved students of color, ready for Kindergarten
- Attack success gaps between underserved students of color and white and Asian students in the K-12 system
- Increase dual credit offerings in high schools and pay attention to equity gaps in dual credit enrollment and outcomes
- Increase high school graduation rates
- Increase the enrollment in high-demand apprenticeship enrollment and completion
- Increase successful transfer from local community colleges to four-year institutions for baccalaureate-seeking students
- Create instructional programs of adequate capacity in CORI shortage fields
- Work to make place-bound students more aware of public online options, such as Western Governors University, for high-demand credential options

SOUTHWEST REGION: EQUITY AND OPPORTUNITY BY THE NUMBERS

EXECUTIVE SUMMARY

The Southwest Region of Washington state faces a challenge in preparing students for the family-sustaining, in-demand jobs that exist in the region. Currently, 47 percent of locally originating cohorts (defined at ninth grade entry) enroll in a postsecondary program, while only 31 percent earn any form of postsecondary credential by age 26, far short of what is needed by the local labor market. Like other indicators, there are subgroup disparities in both enrollment and attainment. While female and Asian students overall in the region attain postsecondary credentials at higher rates than the statewide average, all other groups attain at lower rates than the state average, and some (e.g. Black/African American and low-income students) show troubling gaps. If the Southwest Region aims to close supply-demand gaps for in-demand, family-sustaining wage jobs, an annual average of 295¹⁵⁷ *more students in each year than the prior year* need to obtain a credential between now and the high school graduating class of 2030.¹⁵⁸

Local postsecondary institutions have added numerous programs to meet demand in recent years, but opportunities exist to do more. For example, while the number of apprenticeship programs in the region is strong, enrollment in these programs is small. In the region, there are no postsecondary education preparation programs in such in-demand fields as elementary school teachers, nurse practitioners, market research analysts, marketing specialists, and civil engineers.

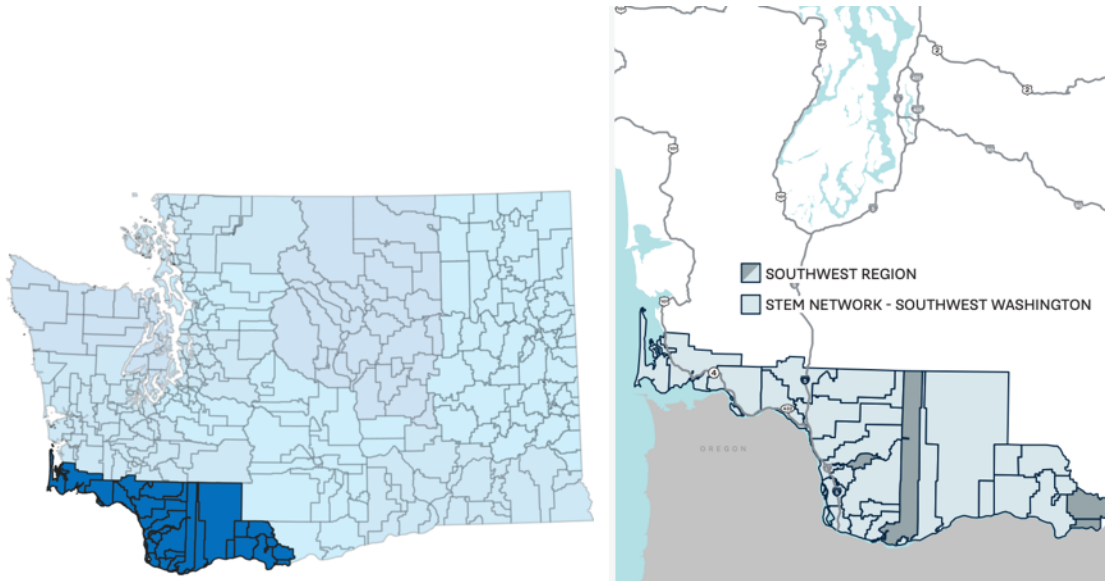
THE SOUTHWEST REGION

The Southwest Region's boundaries are based on those included in Education Service District (ESD) 112 and the Southwest Washington Workforce Development Area (WDA). The region includes all school districts located in Skamania County and eight school districts located in Klickitat County associated with the South Central Washington WDA, as well as Ocean Beach and Naselle-Grays River Valley School Districts associated with the Pacific Mountain WDA. The Southwest Region is home to growing healthcare, information technology, engineering, and advanced manufacturing industries, spanning from Long Beach to Vancouver. The region is made up of 31 school districts, 25 of which are members of the Southwest STEM Network. The Network's business, education, and community partners are working to close credential attainment gaps, especially for students of color and students from low-income families. They aim to increase the number of local students who become computer and electronic engineers, healthcare professionals, and manufacturing professionals, which have 1,527 annual projected openings combined over the next five years.

¹⁵⁷ Goal numbers have been updated in January 2019 from previous reports based on new projections from the Education Research & Data Center.

¹⁵⁸ For a full explanation of this estimate see Figure 2 and Figure 3.

Figure 113: Southwest Region and Southwest STEM Network Geographical Boundaries



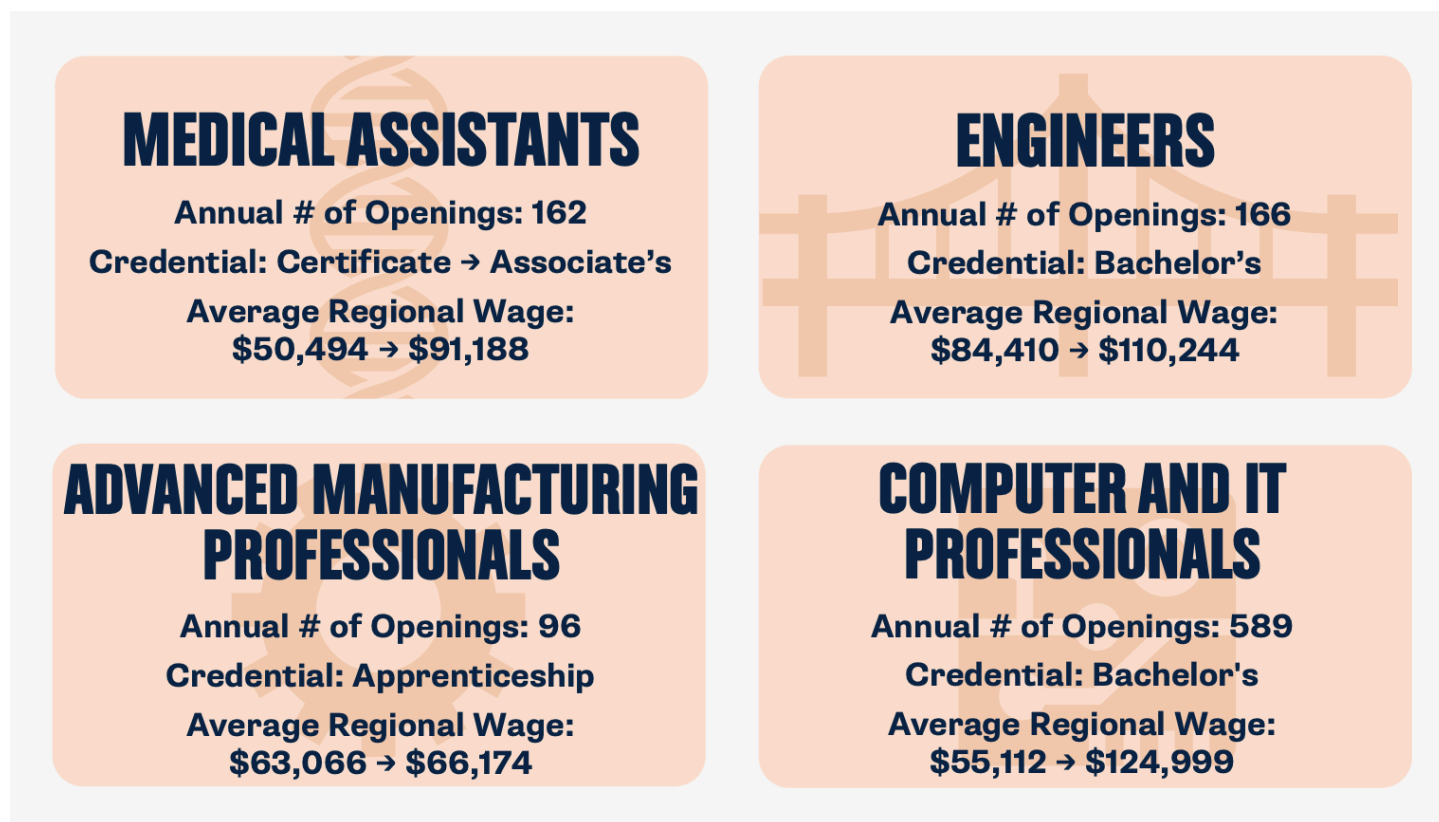
The Southwest Region had a school-aged population of 100,176 in 2016 and approximately 6,546 students graduate from high school each year. This is about 85.2 percent of the ninth-grade cohort that was originally expected to graduate compared to the statewide rate of 82.4 percent (OSPI, ERDC).¹⁵⁹ The K-12 population growth rate is approximately 0.09 percent annually.

Jobs in high demand in the Southwest Region include those in healthcare, technology, education, and construction and trades. These jobs pay family sustaining wages, for example¹⁶⁰:

¹⁵⁹OSPI “2014-2015 Graduation Rates by School 5Yr Cohort” <http://reportcard.ospi.k12.wa.us/DataDownload.aspx>; ERDC “2015 High School Feedback Report” <http://www.erdcddata.wa.gov/hsfb.asp>.

¹⁶⁰ Figures for regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx) , 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018.

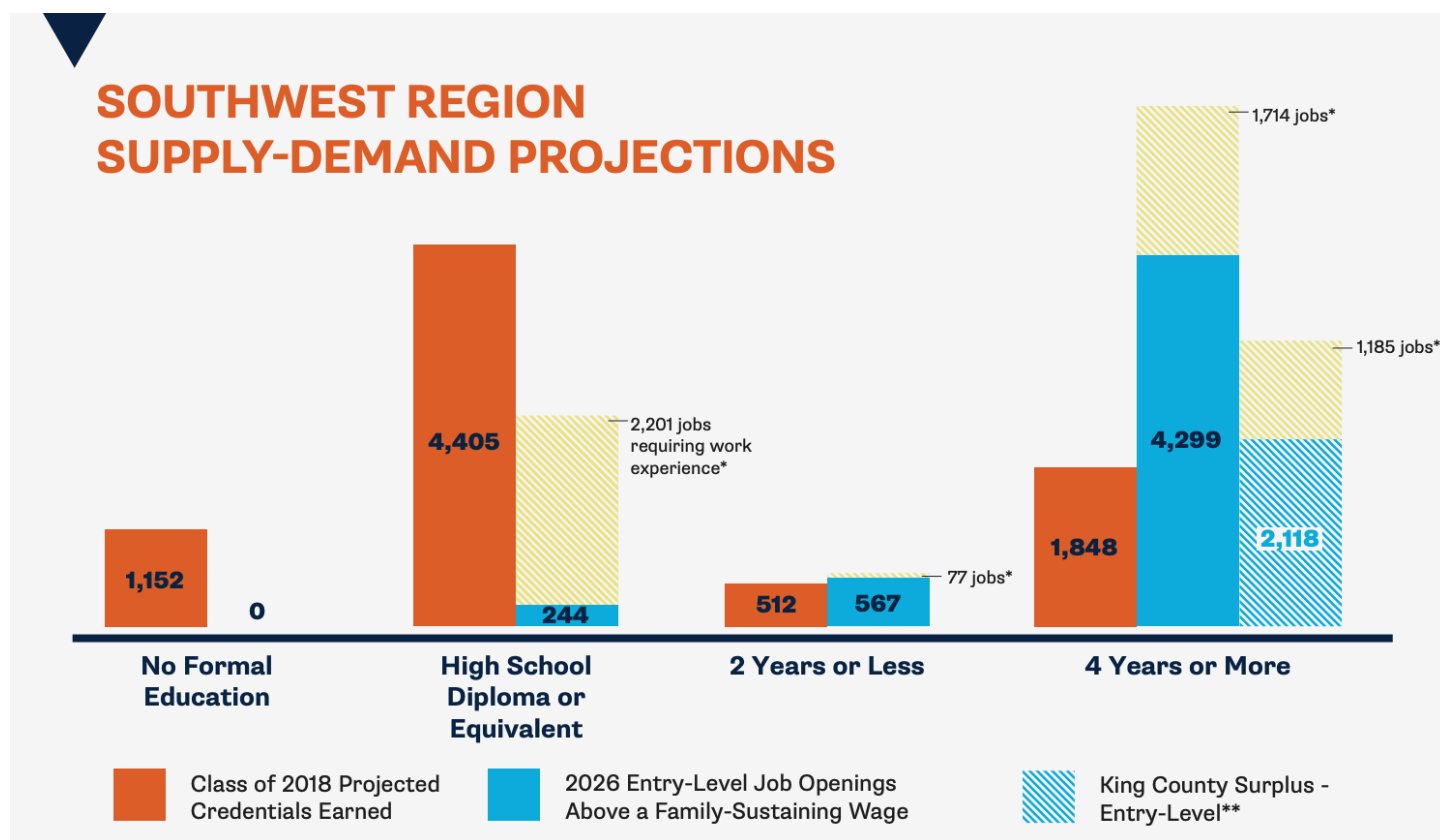
Figure 114: Examples of In-Demand, Family-Sustaining Wage Jobs in the Southwest Region



SOUTHWEST REGION FINDINGS

Moving more students from obtaining a high school diploma or equivalent as their highest education level to a four-year degree will ensure that they, and the region, can thrive economically. The Southwest Region, like others in the state, has a large gap between the number of projected jobs available that will require a degree calling for a postsecondary credential to obtain a family sustaining wage and the number of students currently projected to earn such a degree. On the other hand, the region has far too many young people with only a high school diploma or less compared to the number of family-wage jobs available to people with such preparation (see Figure 115).

Figure 115: Comparison of Southwest Region Class of 2018 Projected Credential Completion to 2026 Projected Job Openings by Type of Credential Needed to Obtain Jobs



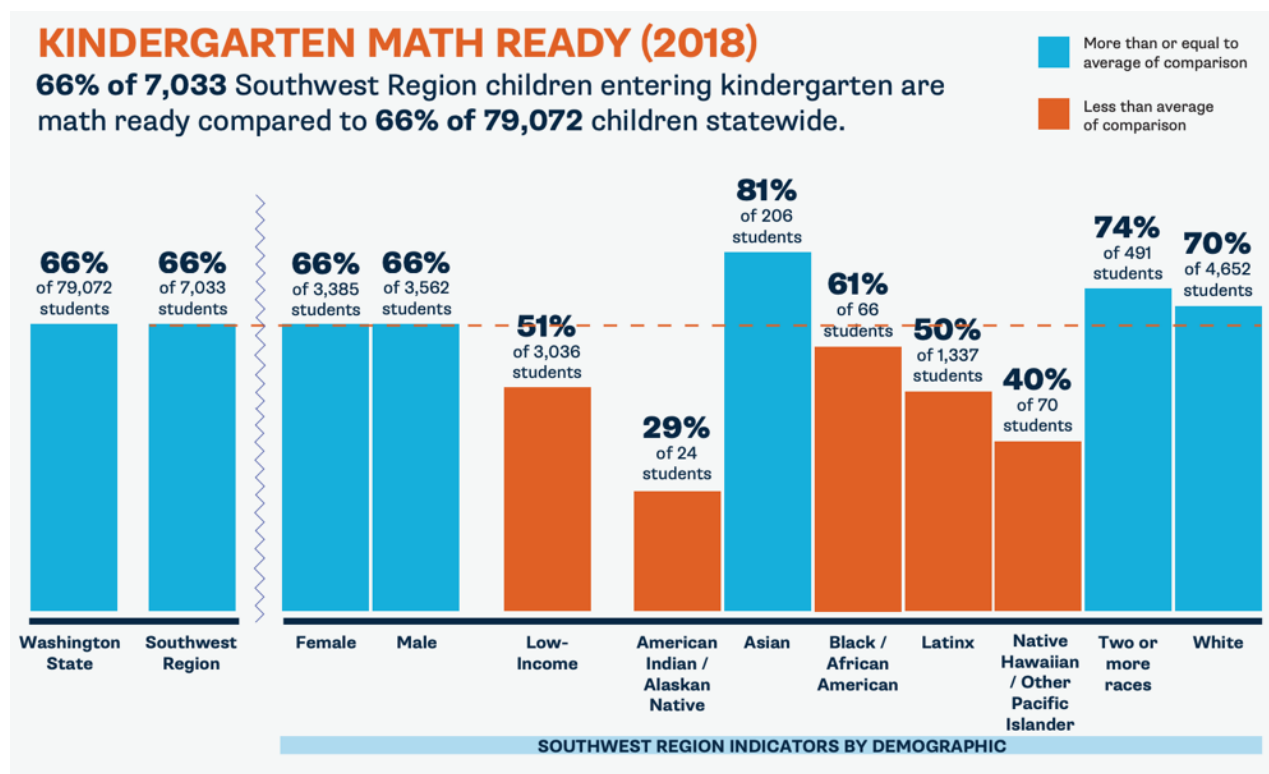
Increasingly, educators, policy makers, and local leaders are examining the entire Kindergarten-to postsecondary education-to careers pathway to determine where interventions are needed. Obtaining a family sustaining job does not begin with a job search, or even in postsecondary education. The foundation for such careers begins in elementary school or even before. Washington STEM has worked to create early indicators of prospects for high school graduation and postsecondary study necessary to compete for STEM and other family sustaining jobs. Examining these indicators and trends in them allows us to begin to answer the question:

Where are identifiable gaps that lead students in the Southwest Region to fall behind in their pursuit of needed credentials?

Kindergarten Math Ready

The first step in the formal education-to-career pathway is Kindergarten. Students in the Southwest Region enter Kindergarten math ready¹⁶¹ at the same rates as students statewide. As the graphic below shows, 66 percent of Southwest Region students enter Kindergarten with the math skills that they need at that level. Of concern is the gap in the number and percentages of low-income, American Indian/Alaskan Native, Black/African American, Latinx, and Native Hawaiian/Pacific Islander students who arrive ready for Kindergarten.

Figure 116: Southwest Region 2018 Kindergarten Math Readiness by Demographic



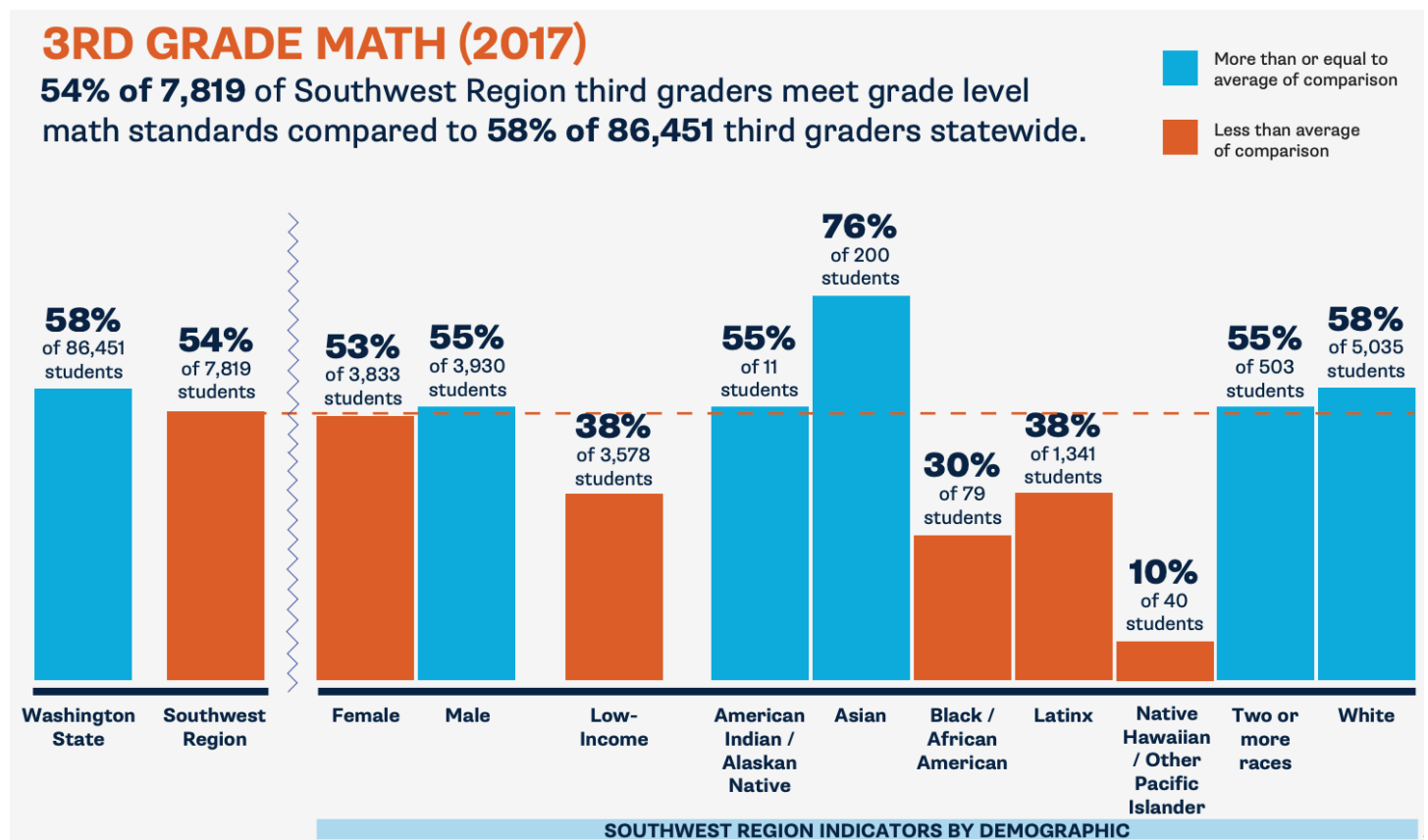
¹⁶¹ OSPI defines math readiness for children beginning Kindergarten as: saying a sequence of numbers up to 20; counting objects up to 10; comparing objects' size, length, or weight; and identifying the position of objects by using words like beside, inside, next to, above, or below (Office of the Superintendent of Public Instruction, Washington State Report Card – WaKIDS:

<http://reportcard.ospi.k12.wa.us/WaKidsDetailPage.aspx?domain=WaKIDS&groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18&gradeLevelId=3&waslCategory=1&chartType=1>

Third Grade Math Achievement

The region is performing below statewide achievement (percentage achieving the state's proficiency benchmark) for third grade math achievement¹⁶² in aggregate. While white and Asian students are performing at or above statewide average scores, the region shows concerning trends for underserved students of color. In fact, the percentages of underserved students of color meeting benchmarks are well below the statewide average.

Figure 117: Southwest Region 2017 Third Grade Math Assessment Outcomes by Demographic

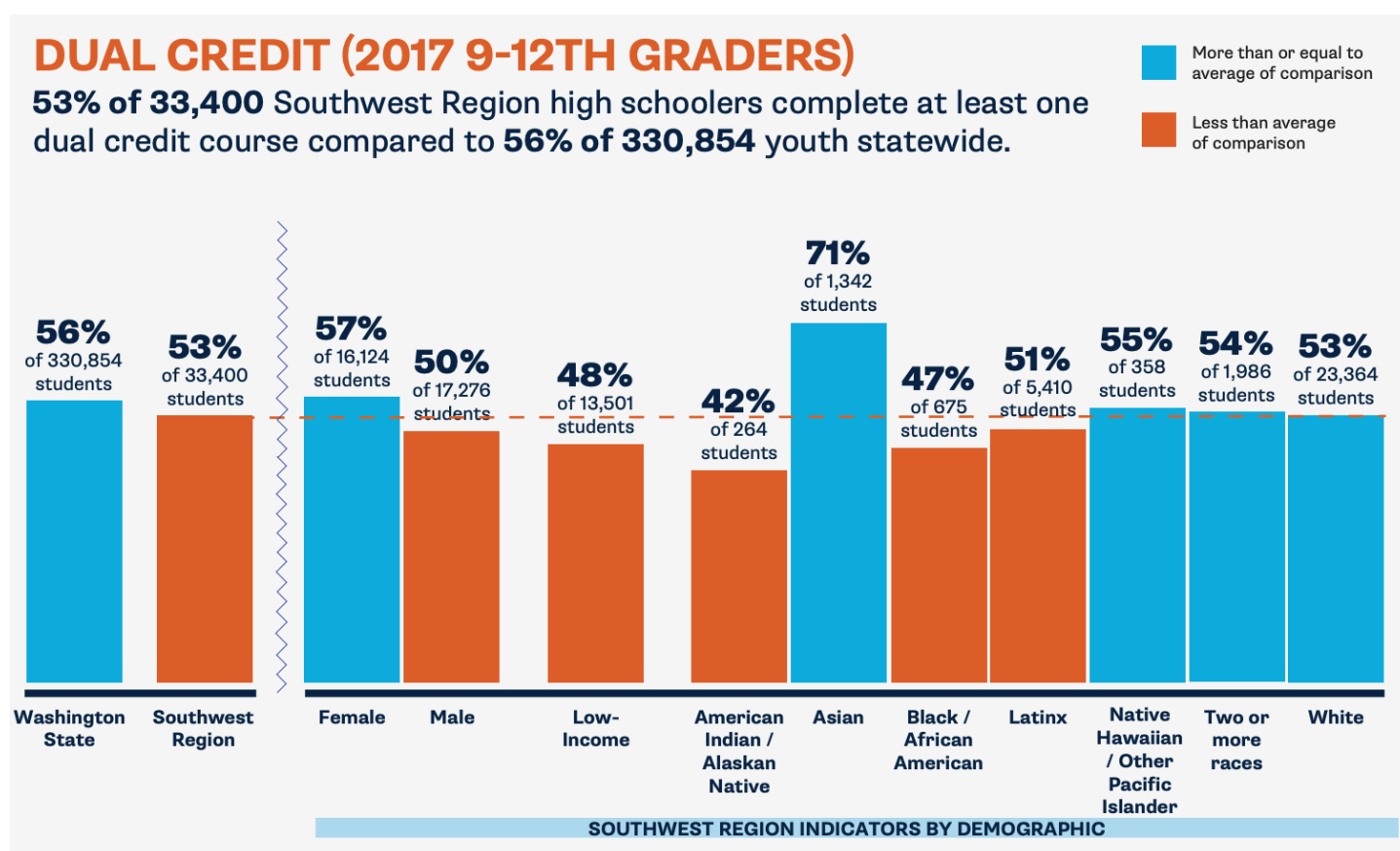


¹⁶² Office of the Superintendent of Public Instruction, Washington State Report Card - Summary
<http://reportcard.ospi.k12.wa.us/summary.aspx?groupLevel=District&schoolId=1&reportLevel=State&yrs=2017-18&year=2017-18>

Dual Credit

Next, we look at completion of dual credit courses by high school students. Completing dual credit¹⁶³ courses allows high school students to earn college credit while still enrolled in high school, giving them a leg up on enrolling and competing college credentials. The Southwest Region as a whole shows a dual credit enrollment rate slightly below the state average. In the region, 53 percent of high school students complete at least one dual credit course at any point in high school, compared to 56 percent of youth statewide. However, once again underserved students of color lag behind, as do low-income students. Overall, Asian students complete these courses at rates above the state and regional averages.

Figure 118: Southwest Region High School Students' (9th through 12th grade) Completion of at Least One Dual Credit Course as of 2017

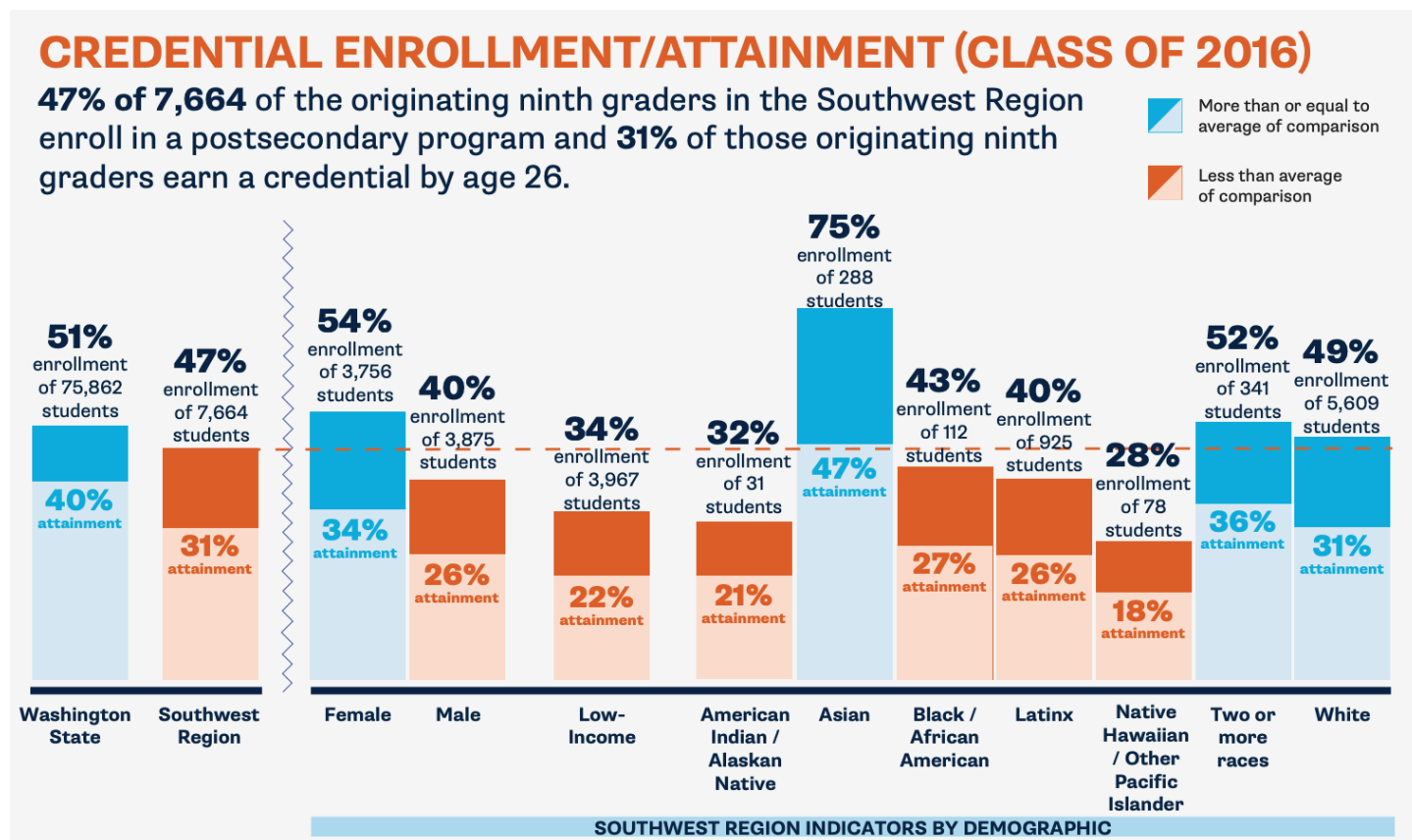


¹⁶³ Office of the Superintendent of Public Instruction, Washington State Report Card - HS Dual Credit
http://reportcard.ospi.k12.wa.us/DualCredit_2.aspx?domain=DualCredit&groupLevel=District&schoolId=1&reportLevel=State&yrs=2016-17&year=2016-17

Less than half (47 percent) of the Southwest Region 2016 ninth-grade cohort enroll in a postsecondary program but only 31 percent earn any credential by age 26, far short of the 66 percent goal. Like other indicators, this too demonstrates serious subgroup disparities in terms of enrollment and attainment. While female, white, and Asian students overall attain postsecondary credentials at higher rates than the statewide average, all other groups lag behind.

Postsecondary Enrollment & Completion

Figure 119: Southwest Region Credential Enrollment and Projected Completion for the High School Class of 2016



The most popular college for students in the Southwest Region to attend after high school is Clark College, where 33 percent of the region's residents enroll. A large percentage of students also go to public or private institutions out of state. Given this high rate of enrollment in community college it is essential that transfer students are able to successfully transfer to a four-year degree option. The most

recent data available shows overall community colleges in the state have high associate degree completion rates but low transfer rates as compared to other states.¹⁶⁴

Figure 120: Enrollment by Institution for the Graduates of Class of 2016 for the Southwest Region

| Southwest Region | | | |
|---|---------------------------|---|---------------------------|
| Top Postsecondary Institution | HS Cohort Enrollment Rate | Top Postsecondary Institution In-Region | HS Cohort Enrollment Rate |
| Clark College | 35% | Clark College | 35% |
| Four Year Private or Out-of-State | 19% | Lower Columbia College | 7% |
| Washington State University | 12% | | |
| Lower Columbia College | 7% | | |
| Two-Year Community or Technical College | 7% | | |

In addition to postsecondary institutions' credential offerings, a large number of apprenticeship programs exist in the region. There were 70 programs operating in 2018; however, only 592 of the region's residents (not necessarily locally-originating high school graduates since available data do not differentiate) were enrolled in apprenticeship programs and 233 students completed apprenticeship training in the region.

2018 Southwest Region Apprenticeships

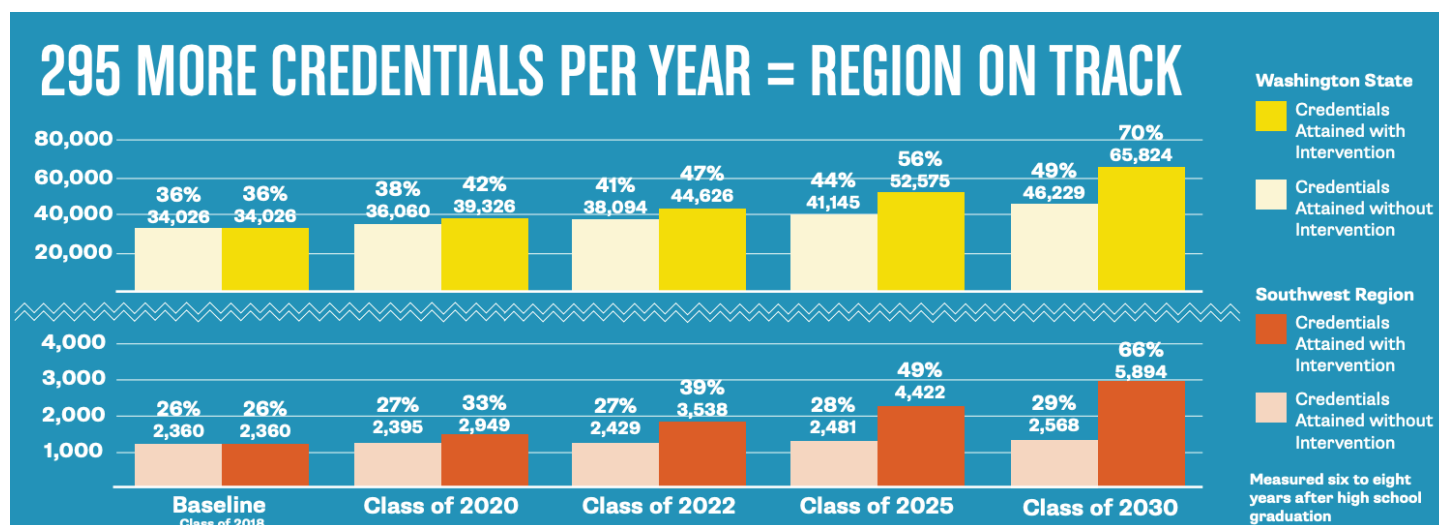
| | |
|---|-----|
| Apprenticeship programs operating in the region | 70 |
| 2018 active apprentices living in the region | 592 |
| 2018 apprenticeship completions by region residents | 233 |

¹⁶⁴ Jenkins, D., & Fink, J. (2016). Tracking Transfer: New Measures of Institutional and State Effectiveness in Helping Community College Students Attain Bachelor's Degrees. *Community College Research Center, Teachers College, Columbia University*.

More can and should be done to direct more of the region’s high school graduates into these alternative postsecondary training opportunities, particularly those that train students for in-demand, family-sustaining jobs.

Our analysis concludes that the region will need to **support 295 more Southwest Region-originating students in earning a postsecondary or apprenticeship credential each year** (i.e., 295 more each year than the prior year) from now until 2030 for the region to be on track for attaining the region-specific 65.6 percent goal by 2030. To achieve this goal, the region¹⁶⁵ will need to specifically focus on systems changes that can close the significant outcomes gaps that currently exist for underrepresented students of color as well as students from low-income families.

Figure 121: Southwest Region’s Trajectory for Increased Number of Locally-Originating High School Students Earning Postsecondary Credentials to Obtain Locally Family-Sustaining Wage Jobs



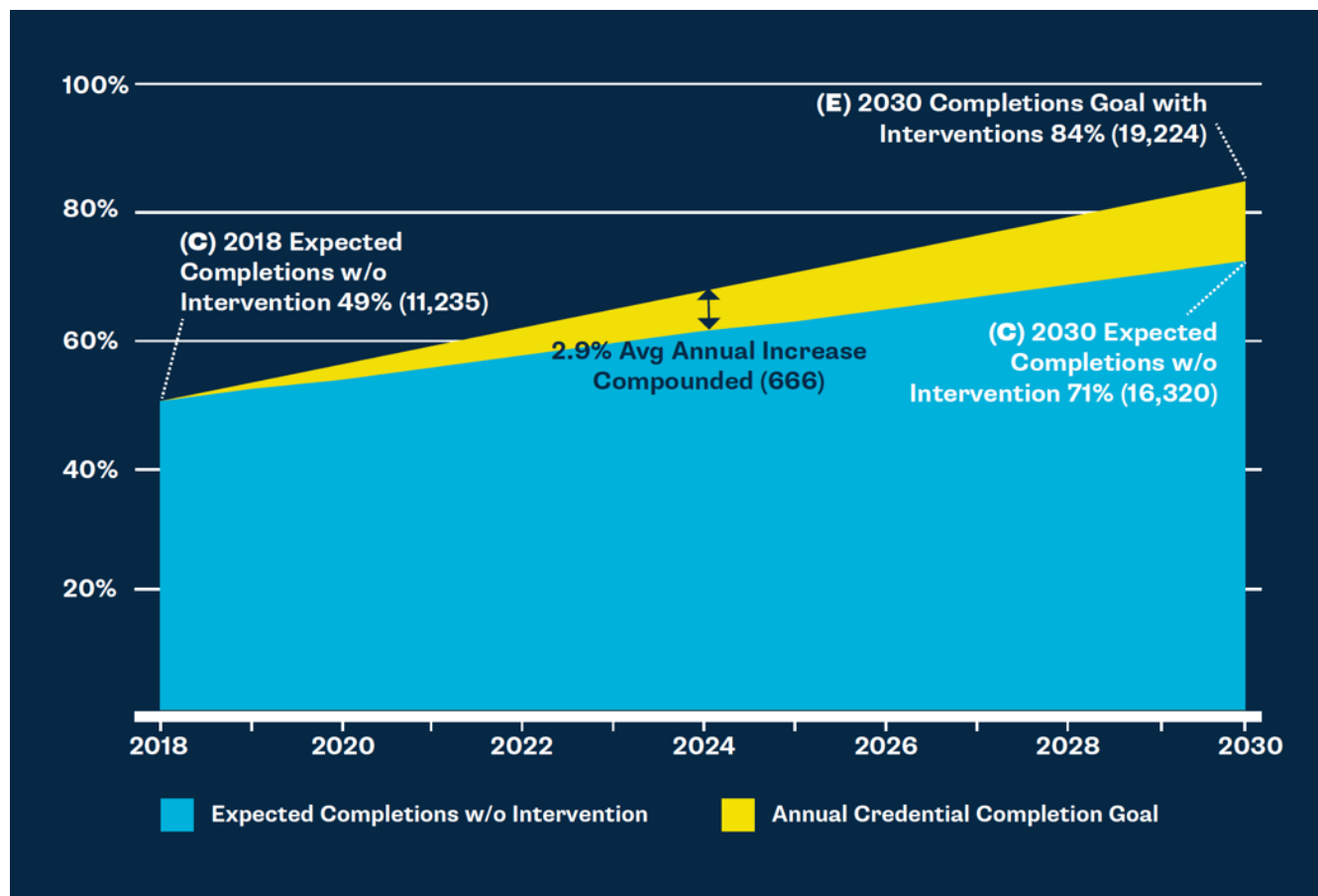
While 295 is an annual average, it is meant to set a benchmark number of what each region should aim to accomplish each year to meet the 2030 target. Below we break down yearly actual annual increases based on increasing cohort sizes and expected completion percentages.

¹⁶⁵ Washington STEM has produced a similar estimate for each region in the state. Taken together these regional estimates will allow the state to reach its goal.

Figure 122: Projections of Current Expected Credentials Earned by Each Southwest Region High School Cohort and Year-Over-Year Increases Needed to Meet Goals

| A. High School Class | B. 9th Grade Cohort Size | C. Expected Credential Completions without intervention | D. Annual Completion % Needed to meet goal | E. Annual Completions Goals | F. Increase needed to meet goal (E - C = F) | G. YoY difference in increase needed to meet goal |
|----------------------|--------------------------|---|--|---------------------------------|--|---|
| 2018 | 7,917 | 2,360 | 30% | 2,360 | | |
| 2019 | 7,962 | 2,374 | 33% | 2,611 | 237 | 237 |
| 2020 | 7,844 | 2,338 | 36% | 2,806 | 468 | 230 |
| 2021 | 7,951 | 2,370 | 39% | 3,081 | 711 | 243 |
| 2022 | 8,048 | 2,399 | 42% | 3,359 | 960 | 249 |
| 2023 | 8,137 | 2,426 | 45% | 3,639 | 1,213 | 253 |
| 2024 | 8,362 | 2,493 | 48% | 3,989 | 1,496 | 283 |
| 2025 | 8,736 | 2,604 | 51% | 4,428 | 1,824 | 327 |
| 2026 | 8,888 | 2,649 | 54% | 4,770 | 2,121 | 297 |
| 2027 | 8,825 | 2,631 | 57% | 4,999 | 2,369 | 248 |
| 2028 | 8,834 | 2,634 | 60% | 5,268 | 2,635 | 266 |
| 2029 | 8,821 | 2,630 | 63% | 5,524 | 2,894 | 259 |
| 2030 | 8,985 | 2,678 | 66% | 5,894 | 3,216 | 322 |
| Region | | 2018 Cohort Estimated Credential Attainment | 2030 Cohort Estimated Student Headcount | 2030 Credential Attainment Goal | Average Annual Increase Needed to meet 2030 Goal | Annual Increase to Meet 2030 Goal |
| Southwest | | 7,917 | 8,985 | 5,894 | 295 | 3.00% |

Figure 123: Area Graph of Projections of Current Expected Credentials and Year-Over-Year Increases Needed to Meet Goals (Letters Associate with Figure 122)



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adequate number of graduates to meet the regional labor market need for that given occupation. Thereby the CORI crosswalk identifies available education programs for high demand, family-sustaining occupations.

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The CORI Crosswalk begins with the identification of high-demand, family-sustaining occupations¹⁶⁶ in the Southwest region for which postsecondary credential attainment gaps exist. In the Southwest Region, the CORI Crosswalk revealed the following occupations to be in high demand and facing a supply shortage, with potential insufficient production of qualified graduates in the region. Notable occupations in high demand with NO credential programs in the region include elementary market research analysts, marketing specialists, civil engineers, and loan officers. This means that no postsecondary credential programs exist in the Southwest Region for these in-demand, family-sustaining wage occupations. Noteworthy occupations where programs exist but with inadequate credentialed graduates being produced to meet demand include general and operations managers, registered nurses, accountants, and auditors.

More information regarding high-demand occupations and supply shortages for postsecondary credential programs can be found at Washington STEM, Credential Opportunity by Region and Industry Crosswalk: https://washingtonstem.org/focus_area/career-pathways/#CORI.

Limitations and future improvements of CORI

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Too many local students, especially the growing population of underserved students of color, find the education needed to obtain in-demand, family-sustaining careers to be an *opportunity mirage* that they

¹⁶⁶Figures for regional in-demand and family sustaining jobs, credentials required, and average annual openings and wages were developed from: 2018 WA ESD Separations: [https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018 projections/all_occup_proj_sep.xlsx](https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Employment-projections/2018%20projections/all_occup_proj_sep.xlsx) , 2018 WA ESD Occupational Employment and Wage Estimates: <https://fortress.wa.gov/esd/employmentdata/reports-publications/occupational-reports/occupational-employment-and-wage-estimates>, MIT Living Wage Calculator: <http://livingwage.mit.edu/>, retrieved December 2018.

are unable to successfully attain. Better preparing local students to compete in the new economy is an equity AND an economic imperative.

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- Increase high school graduation rates
- Increase the enrollment in high-demand apprenticeship enrollment and completion
- Establish metrics and strategies to increase successful transfer from local community colleges to four-year institutions for baccalaureate seeking students
- Create instructional programs of adequate capacity in CORI shortage fields
- Create opportunities for high-demand credentials so students do not need to attend out-of-state institutions to meet their educational needs

DISCUSSION OF FINDINGS & SUGGESTIONS

While the challenge to support more young people to earn postsecondary credentials may seem daunting, it is encouraging to note that there are a number of available, family-sustaining jobs in the state; but the majority of these jobs *will require* a postsecondary credential. Currently, credential production is generally well below labor market demand and projected demand. While credential production rates have been gradually improving, the rate of increase is not nearly sufficient to meet job demand for available family-sustaining wage jobs. This chronic shortfall will continue to significantly hinder local economic development and incomes.

Access to and Use of Regionally-Specific Data to Identify Opportunities

Both our method of working with local leaders to verify our analyses as well as the regionally-specific conclusions we make regarding supply-demand gaps and credential opportunities suggest that the ongoing use of these data to examine regional opportunities would support regional efforts to improve systems, programs, and practices. The resulting changes would ensure that local students, especially underserved students, are prepared for, are able to access, and are able to complete credentials in fields that show strong employer demand and family sustaining jobs. Because of Washington STEM's relationship with local leaders through its regional STEM Networks, we plan to continue to engage in a serious discussion of what leaders at every level can do to increase equity and cultural responsiveness and to deconstruct structural barriers in our educational system and society.

Specifically, by using data to uncover regional gaps in educational attainment and workforce outcomes, we aim to support local leaders in identifying concrete strategies for system changes aimed at substantially increasing the number of underserved students of color and low-income students receiving credentials, with particular emphasis on credentials that lead to high-demand jobs in the region. To access high-quality data that is available at more geographically-specific levels (region-, district-, school-, and student-level), we suggest continued engagement of local leaders in advocacy and policy change efforts. These efforts aim to support state agencies like the ERDC to curate and make available the level of data needed by local leaders to guide change and improvement efforts.

While ERDC's January 2019 updated dashboard provides aggregate credential completion information and general wage outcomes for students down to the school and district level, it remains difficult for schools to access data on two key indicators: 1) student- and demographic-level data on program completion (like major); and 2) similarly disaggregated information on entry into the workforce, wage, and industry of employment for students cross-tabulated with credential completion and type of degree. A similar analysis of regional-level credential opportunities and supply-demand gaps in Texas concluded that further support of regional leaders and practitioners to use the data and to continue to verify the findings of the data was necessary to ensure that the data and analyses were relevant and being used to drive change.

Further Data Analyses and Research

The research questions for this inquiry focused on producing regional-level and relevant data analyses that identified local credential completion gaps and associated local job openings projections along with the relevant local opportunities to earn credentials. Outside of the CORI analysis approach, this research did not assess other systems-level indicators that are correlated with or directly linked to student outcomes indicators. For example, a next step in the evolution of this research and work with local leaders would be to identify the supply-demand gaps in accessible, high-quality early learning programming for children under five (correlated with Kindergarten and third grade math and reading student outcomes) and the availability of dual credit courses in high school (directly affecting the number of students who could complete dual credit courses and correlated with likelihood of credential enrollment and completion). We aim to provide these kinds of systems indicator analyses to local leaders in the next iteration of this research effort.

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