

CONNECTING EDUCATION AND THE WORKFORCE

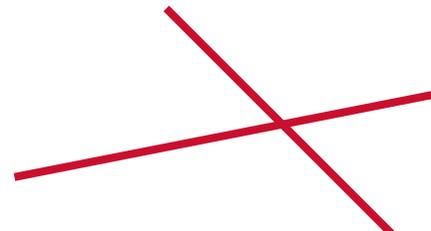
**A report prepared for
Workforce Solutions for
the Heart of Texas**

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Section 1: Introduction

Education plays a key role in economic success within the workforce as the level of education attained and the skills learned in K–12 and higher education are used to generate earnings (Araki, 2020). In the United States, where education is a provision of the state, strong state economies are supported by the constant production of a well-prepared workforce specifically skilled to meet the demands of the economic sector (Berger & Fisher, 2013). In Texas, the state legislature has encouraged connections between the workforce and education sectors in many ways. The state’s higher education plans have historically focused on preparing students for the Texas workforce, and the most recent plan, Building a Talent Strong Texas, carries forward that goal (Texas Higher Education Coordinating Board, 2022). At the K–12 level, the legislature has intentionally designed K–12 curricula, course offerings, and graduation plans to support workforce development for the Texas economy.

With the passage of House Bill 5 in 2013, the legislature focused high school coursework on careers through the Foundation High School Program. Under the program, graduation plans for students are designed to engage them in career-focused pathways even before they enter high school so that key knowledge and skills for their desired field can be attained and they can exit high school well-prepared for the next step (Texas Education Agency, 2020). Within the five different career-focused pathways—STEM (science, technology, engineering, and mathematics); public service; business and industry; arts and humanities; and multidisciplinary studies—school districts can choose from a wide array of course offerings to support many different career pathways. Ideally, school districts can align their career-focused course offerings to the demands of their local workforce so students are well-prepared to fill jobs in the surrounding community either directly out of high school with an industry-specific certification or after attaining a two-year or four-year higher education credential.

In order to support alignment between education and the workforce, the Heart of Texas Workforce Development Board commissioned this report. The board, doing business as Workforce Solutions for the Heart of Texas, is a public workforce system that serves a six-county Heart of Texas region: Bosque, Falls, Freestone, Hill, Limestone, and McLennan counties. It provides solutions that help employers address workforce needs and help people build careers with the goal of ensuring economic growth for the Heart of Texas region and the state of Texas. By linking Heart of Texas-area high school graduates to higher education and workforce employment and earnings, this report is intended to assist school districts and higher education institutions in understanding the pathways of successful employment in the local workforce and identify areas of development opportunity.

The report is organized into five sections. Following this introduction, Section 2 provides a description of the data and methods used to create this report and defines key terms. Section 3 details the education and workforce outcomes for the state. Section 4 shows the education and workforce outcomes for the region served by the Heart of Texas Workforce Development Board. And Section 5 concludes the report with a discussion of the data presented.

Section 2: Data, Methods, and Key Terms

This section is provided as a reference for readers. The data and methods used throughout the report are explained in detail, and key terms frequently used are defined.

Data

The data for this report were accessed through the University of Houston Education Research Center (UH ERC), one of three legislatively authorized statewide data repositories in the state that combine data from the Texas Education Agency, Texas Higher Education Coordinating Board, and Texas Workforce Commission. The data repository allows the research team to follow individual students from their entry into K–12 through higher education and into the workforce.

Methods

The dataset for this report was constructed with ninth-grade cohorts of students. Students who entered the ninth grade for the first time between 2007 (the 2006–07 school year) and 2018 (the 2017–18 school year) were identified and associated with their high school of enrollment. The 2007 through 2018 cohorts were selected for this report to encompass students graduating under a similar high school graduation policy; the report stops with the 2018 cohort so that students included in the report had time to graduate high school and enroll in and complete higher education. (Note: Data for higher education attainment among the most recent cohorts are limited by the higher education data available at the time of this report. For example, the 2018 ninth-grade cohort would ostensibly graduate high school in 2021 and then have two years to enroll in higher education and receive a credential as of 2023, the most recent year of higher education data available at the time of this report.)

Texas Education Agency graduation records for all Texas public high schools were incorporated into the dataset and used to create variables for high school graduation.

Texas Higher Education Coordinating Board enrollment records from fall 2007 through spring 2023 were then incorporated into the dataset, and variables identifying higher education enrollment were created. Higher education graduation records for two-year and four-year public and private institutions in the state were also incorporated, and variables signaling the highest level of education attained as of 2023 were created. Additionally, data from the National Student Clearinghouse were incorporated into the dataset and used to create variables signaling higher education enrollment and attainment in institutions outside of the state.

Once the high school and higher education data were complete, earnings and industry of employment from Texas Workforce Commission unemployment insurance data were incorporated into the dataset. After each student's highest level of attainment was achieved, quarterly wages and industry of employment were incorporated and variables for total annual earnings and industry were created. The dataset was then analyzed to create the descriptive statistics presented in this report for the state of Texas and for Heart of Texas region.

Key Terms

Ninth-Grade Cohort: A group of students who enrolled in the ninth grade for the first time in the same school year. For this report, ninth-grade cohorts are reported for 2007 (the 2006–07 school year) through 2018 (the 2017–18 school year).

Annual Wage: For this report, data from the Texas Workforce Commission unemployment insurance data collection provided quarterly wages. The quarterly wages for each year are summed to create an

annual wage for an individual whose wages were reported to the Texas Workforce Commission. Wages reported are those paid during the quarter, and no element of time worked is provided. Wages are reported in constant 2023 dollars using the Consumer Price Index from the Bureau of Labor Statistics. Independent contractors are not included in the wage data.

Highest Level of Education Attained: For this report, the highest level of education attained refers to credentials attained and reported by the UH ERC as of 2023 for students who began the ninth grade for the first time between 2007 and 2018. Specifically, the categories of highest level of education attained are:

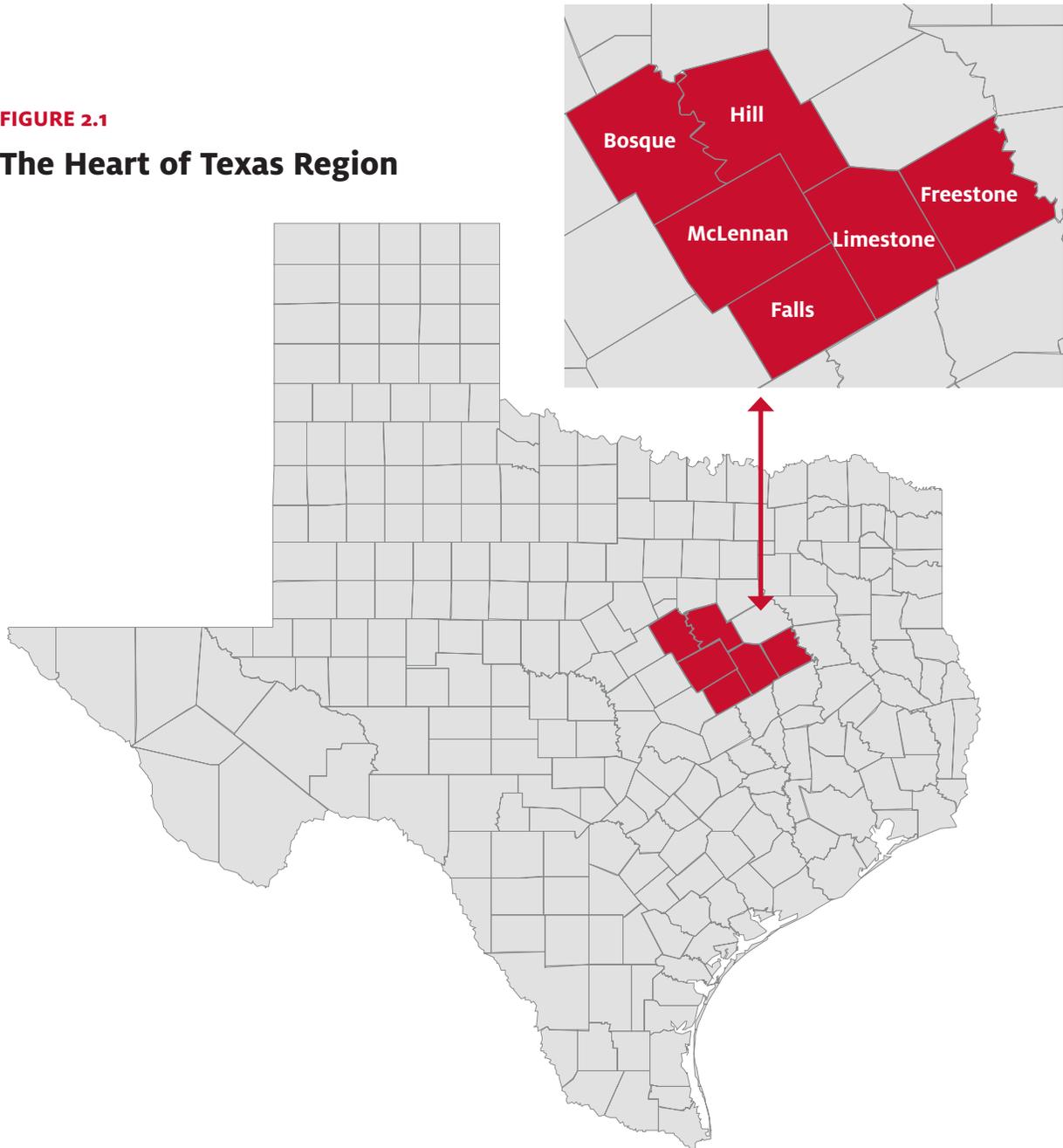
- **No High School Diploma:** Students who have no record of high school graduation from Texas public high schools, nor any record of higher education enrollment or higher education credential attainment from a two-year or four-year public or private institution in the state of Texas or higher education institution outside of Texas reporting to the National Student Clearinghouse.
- **High School Diploma:** Students who were reported as a high school graduate by the Texas Education Agency and had no record of higher education enrollment or attainment in a two-year or four-year public or private institution in the state of Texas or higher education institution outside of Texas reporting to the National Student Clearinghouse. Higher education enrollment within the state of Texas does include dual enrollment while enrolled in high school, meaning that high school graduates who enrolled in dual enrollment courses during high school would be reported as having “some college” as their highest level of education attained.
- **Some College:** Students who were reported as enrolled in higher education in a two-year or four-year public or private institution in the state of Texas or higher education institution outside of Texas reporting to the National Student Clearinghouse and had no higher education credential reported as of 2023. Higher education enrollment within the state of Texas does include dual enrollment while enrolled in high school, meaning that high school graduates who enrolled in dual enrollment courses during high school would be reported as having “some college” as their highest level of education attained.
- **Certificate:** Students who were reported as earning a certificate from a two-year or four-year public or private institution in the state of Texas or higher education institution outside of Texas reporting to the National Student Clearinghouse. Students who were reported as earning an industry-based credential during high school were also included in this category if they did not earn an associate degree or bachelor’s degree from a two-year or four-year public or private institution in the state of Texas or higher education institution outside of Texas reporting to the National Student Clearinghouse.
- **Associate Degree:** Students who were reported as earning an associate degree from a two-year or four-year public or private institution in the state of Texas or higher education institution outside of Texas reporting to the National Student Clearinghouse. Students were included in this category if they did not earn a bachelor’s degree or higher credential from a two-year or four-year public or private institution in the state of Texas or higher education institution outside of Texas reporting to the National Student Clearinghouse.
- **Bachelor’s Degree +:** Students who were reported as earning a bachelor’s degree or higher credential from a two-year or four-year public or private institution in the state of Texas or higher education institution outside of Texas reporting to the National Student Clearinghouse.

Industry of Employment: For this report, data from the Texas Workforce Commission unemployment insurance data collection provided industry of employment. The industry of employment is provided via the North American Industry Classification System (NAICS) code, which is a federal classification of business establishments. The industry is reported for individuals paid wages and reported to the Texas Workforce Commission. Notably, NAICS codes are not provided for independent contractors and do not provide a role or position within the industry.

Heart of Texas Region: The Heart of Texas region refers to the six-county area served by the Heart of Texas Workforce Development Board. Shaded red in Figure 2.1 below, the counties are Bosque, Falls, Freestone, Hill, Limestone, and McLennan.

FIGURE 2.1

The Heart of Texas Region



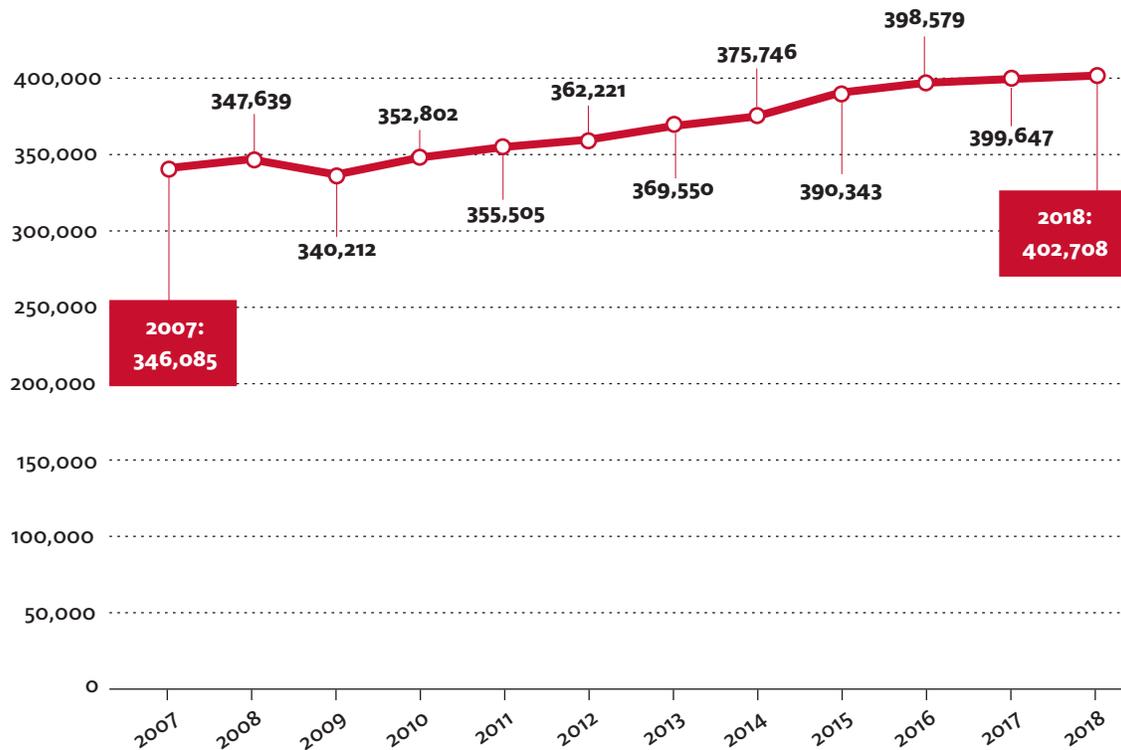
Section 3: Statewide Data

This section of the report displays demographics and outcomes for ninth-grade cohorts—students who began ninth grade in all Texas public high schools for the first time from 2007 to 2018. Throughout this section, education and workforce outcomes are displayed in figures and tables. Accompanying each figure and table, a section titled **What the Data Show** highlights key trends and features, and a section titled **Why This Matters** provides relevant connections to academic research and policy to achieve the statewide goal of supporting a high quality of life and robust economy with a strong education system.

What the Data Show: Figure 3.1 shows the number of students in Texas public school ninth-grade cohorts between 2007 and 2018. These cohorts represent students who enrolled in ninth grade for the first time in Texas public high schools between 2007 and 2018. The number of Texas public school ninth-grade cohort students increased from 346,085 in 2007 to 402,708 in 2018.

FIGURE 3.1

Texas Public School Ninth-Grade Cohorts, 2007–18



Source. University of Houston Education Research Center.

Note. The cohort is determined by students' first time enrolling in ninth grade. The total number of ninth-grade students in Texas public school cohorts from 2007 to 2018 was 4,441,037.

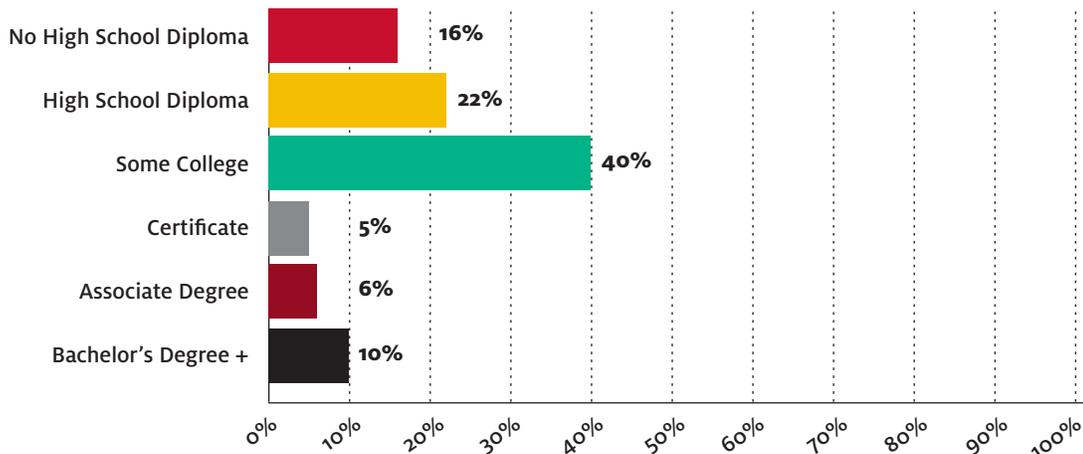
Why This Matters: The Texas public school system is a major driver of the quality of life for Texans and a strong state economy. By encouraging student enrollment and investment in the public education system, Texas ensures a robust population of individuals well-prepared to supply the state economy with the future workforce.

What the Data Show: The highest level of education attained as of 2023 for the 2007 through 2018 Texas public school ninth-grade cohort students is displayed in Figure 3.2. The figure shows that 16% of ninth-graders in Texas public schools between 2007 and 2018 did not receive a high school diploma as of 2023. Twenty-two percent received a high school diploma as of 2023, and 40% enrolled in higher education but had not received a credential as

of 2023. The remainder of students attained a higher education credential as of 2023: 5% earned a certificate, 6% earned an associate degree, and 10% achieved a bachelor’s degree or higher. Note that only the highest level of education attained is reported for each student. For example, a student who graduated high school and then continued into higher education to attain an associate degree would only be reported as an associate degree holder.

FIGURE 3.2

Highest Level of Education Attained as of 2023 for Texas Public School Ninth-Grade Cohorts, 2007–18



Source. University of Houston Education Research Center.

Note. The cohort is determined by Texas public school students’ first time enrolling in ninth grade. The highest level of education attained is as of 2023. “No high school diploma” refers to students who did not graduate from high school as of 2023; “high school diploma” refers to students who graduated high school but did not enroll in higher education institutions as of 2023; “some college” refers to students who enrolled in higher education but did not earn a credential as of 2023; “certificate,” “associate degree,” and “bachelor’s degree+” refer to students who earned the respective credential as of 2023 as their highest level of education attained. “Bachelor’s degree+” refers to students earning a bachelor’s degree or higher as of 2023. The percentages are calculated as a fraction of the total Texas public school students in the 2007 through 2018 cohorts (n=4,441,037).

Why this Matters: While state policy efforts have recently provided more opportunities for high schools to prepare students for the workforce directly, 70% of jobs within the Texas economy will require a higher education credential by 2036 (George W. Bush Institute, 2023). The statewide data presented in Figure 3.2 show that only 21% of ninth-grade cohort students attained a higher education

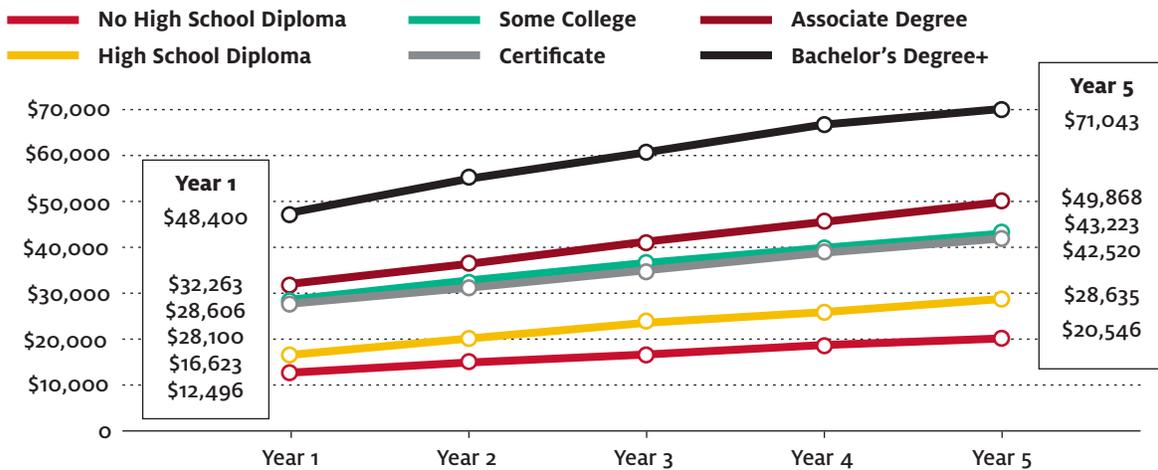
credential as of 2023. This mismatch between the requirements of the workforce and credentials of Texas public school students highlights two areas for growth: 1) develop pathways that provide opportunity for students to go directly from high school into jobs that pay living wages and 2) improve higher education enrollment and success rates among Texas public school students.

What the Data Show: Figure 3.3 shows the average annual wages earned in the first five years in the workforce for Texas public school ninth-grade cohort students by the highest level of education attained as of 2023. Students who attained a bachelor’s degree or higher earned an average annual wage of \$48,400 in their first year in the workforce and \$71,043 in their fifth year. This is in contrast to students with no high school diploma: They earned an average annual wage of \$12,496 in their first year and \$20,546 in their fifth year. Students whose highest level of education was a high

school diploma earned an average annual wage of \$16,623 in their first year and \$28,635 in their fifth year. Students with some college experience earned an average annual wage of \$28,606 in their first year and \$43,223 in their fifth year. Students whose highest level of education attained was a certificate earned an average annual wage of \$28,100 in their first year and \$42,520 in their fifth year. Students whose highest level of education attained was an associate degree earned an average annual wage of \$32,263 in their first year and \$49,868 in their fifth year.

FIGURE 3.3

Average Annual Wages Earned in First Five Years in Workforce by Highest Level of Education Attained, Texas Public School Ninth-Grade Cohorts, 2007–18



Source. University of Houston Education Research Center.

Note. The cohort is determined by Texas public school students’ first time enrolling in ninth grade. The highest level of education attained is as of 2023. “No high school diploma” refers to students who did not graduate from high school as of 2023; “high school diploma” refers to students who graduated high school but did not enroll in higher education institutions as of 2023; “some college” refers to students who enrolled in higher education but did not earn a credential as of 2023; “certificate,” “associate degree,” and “bachelor’s degree+” refer to students who earned the respective credential as of 2023 as their highest level of education attained. “Bachelor’s degree+” refers to students earning a bachelor’s degree or higher as of 2023. Average wages were compiled from wages submitted to the Texas Workforce Commission as constant 2023 dollars.

Why This Matters: In 2024, the cost of living in Texas was \$26,268 for a single adult and \$78,012 for a family of four (ALICE, 2024). On average, the pathways from education to the workforce for the 2007 through 2018 ninth-grade cohorts that provided wages to support

living in Texas involved a higher education credential. As the state expands pathways directly from high school into the workforce, these pathways must align with jobs that pay at least a wage that can support the cost of living in the state.

Wages Earned by Highest Level of Education Attained and Industry

What the Data Show: Table 3.1 (next page) shows the average fifth-year annual wages by highest level of education and industry for Texas Public School ninth-grade cohort students.

Students whose highest level of education as of 2023 was a high school diploma were most often employed in the retail trade industry (n=70,079) and accommodation and food service industry (n=52,397) and earned average fifth-year annual wages of \$24,002 and \$17,686, respectively. Students whose highest level of education was a high school diploma earned the highest average fifth-year annual wages in the utilities industry (\$61,081; n=1,533); mining, quarrying, and oil and gas extraction industry (\$55,470; n=7,418) and construction industry (\$41,308; n=36,523).

Across all industries, students with some college experience earned more on average than their peers with a high school diploma as their highest level of education. Students with some college experience earned average fifth-year annual wages more than \$25,000 higher than peers with a high school diploma as their highest level of education in the information industry (\$57,016; n=9,144), management industry (\$52,710; n=4,388), and professional, scientific, and technical services industry (\$62,939; n=34,230).

For students whose highest level of education as of 2023 was a certificate, the data show many industries where certifications can lead to substantially higher workforce earnings. In the public administration industry, for example, there was a more than \$10,000 difference in average fifth-year annual wages between those whose highest level of education was some college and those who earned a certificate (\$63,028; n=4,999).

Students whose highest level of education attained as of 2023 was an associate degree were most often employed in the health care and social assistance industry (n=12,315) and earned an average fifth-year annual wage of \$52,226. A substantial number of associate degree holders were employed in the education industry (n=10,171) and earned an average fifth-year annual wage of \$43,746.

Students whose highest level of education as of 2023 was a bachelor's degree or higher were most often employed in the health care and social assistance industry (n=7,407) and earned an average fifth-year annual wage of \$76,177. Other industries commonly employing students whose highest level of education as of 2023 was a bachelor's degree or higher were the education industry (\$54,405; n=6,337) and the professional, scientific, and technical services industry (\$88,391; n=3,925).

See full table on next page.

Why this Matters: To support the economic independence of Texas public school students, workforce pathway development should be prioritized in the industries that pay living wages. For each level of education, industries emerge for potential pathway development across the state. High schools interested in developing pathways for students to enter the workforce immediately after high school should consider the construction and manufacturing industries, as these industries employ substantial numbers of students and also pay living wages.

TABLE 3.1

Average Fifth-Year Annual Wages and Industry of Employment by Highest Level of Education Attained, Texas Public School Ninth-Grade Cohorts, 2007–18

Industry	High School Diploma		Some College		Certificate		Associate Degree		Bachelor's Degree+	
	Average Wage	Number in Workforce	Average Wage	Number in Workforce	Average Wage	Number in Workforce	Average Wage	Number in Workforce	Average Wage	Number in Workforce
Accommodation and Food Service	\$17,686	52,397	\$23,036	49,620	\$24,609	4,736	\$29,175	3,819	\$38,557	687
Administrative Support, Waste Management	\$23,349	45,215	\$34,511	55,357	\$35,035	8,014	\$43,846	5,737	\$68,310	2,375
Agriculture, Forestry, Fishing, and Hunting	\$26,392	1,695	\$36,455	1,594	\$34,533	258	\$42,750	167	\$57,582	35
Arts, Entertainment, and Recreation	\$20,211	3,468	\$30,653	5,583	\$25,753	704	\$31,389	745	\$40,302	426
Construction	\$41,308	36,523	\$51,774	34,248	\$53,967	4,708	\$59,414	2,975	\$74,549	706
Education	\$22,560	5,871	\$46,693	27,775	\$40,693	7,620	\$43,746	10,171	\$54,405	6,337
Finance and Insurance	\$32,597	8,731	\$54,047	26,714	\$45,861	4,181	\$51,712	3,877	\$85,056	1,955
Health Care and Social Assistance	\$21,345	29,177	\$34,933	43,871	\$37,309	17,918	\$52,226	12,315	\$76,177	7,407
Information	\$31,176	3,435	\$57,016	9,144	\$45,314	1,145	\$53,275	1,108	\$83,984	659
Management	\$25,943	2,735	\$52,710	4,388	\$42,171	651	\$52,111	626	\$87,920	267
Manufacturing	\$39,094	24,634	\$55,989	26,804	\$62,531	3,873	\$79,755	3,934	\$83,566	985
Mining, Quarrying, Oil and Gas Extraction	\$55,470	7,418	\$78,542	8,379	\$72,462	1,240	\$89,229	937	\$106,599	236
Other Services	\$28,844	13,447	\$35,146	14,450	\$36,337	2,317	\$41,221	1,585	\$49,371	502
Professional, Scientific, and Technical Services	\$34,148	11,300	\$62,939	34,230	\$47,014	4,749	\$51,665	5,850	\$88,391	3,925
Public Administration	\$39,276	8,296	\$49,799	15,756	\$63,028	4,999	\$53,081	3,358	\$59,284	1,126
Real Estate	\$35,465	6,054	\$50,909	9,677	\$47,863	1,235	\$51,987	1,073	\$74,586	547
Retail Trade	\$24,002	70,079	\$33,338	70,821	\$33,028	9,680	\$36,336	7,844	\$58,189	1,626
Transportation and Warehousing	\$32,055	15,532	\$41,592	20,222	\$45,942	2,512	\$52,840	1,987	\$66,634	449
Utilities	\$61,081	1,533	\$78,545	2,854	\$82,532	508	\$95,795	685	\$83,885	115
Wholesale Trade	\$39,332	16,000	\$58,863	23,431	\$53,402	2,725	\$60,494	2,636	\$92,759	1,040

Source. University of Houston Education Research Center.

Notes. The cohort is determined by students' first time enrolling in ninth grade. Industry categories are from the North American Industry Classification System. Average annual wages are compiled from wages submitted to the Texas Workforce Commission as constant 2023 dollars.

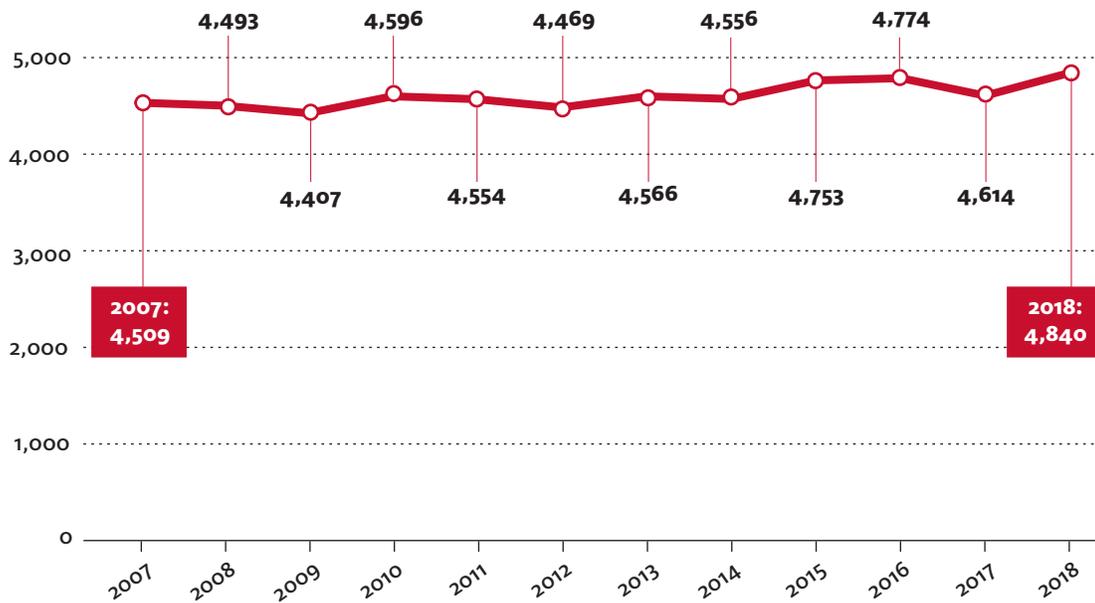
Section 4: Heart of Texas Region Data

This section displays demographics and outcomes for ninth-grade cohorts in public high schools in the Heart of Texas region. Education and workforce outcomes are displayed in figures and tables, and each are accompanied by a section titled **What the Data Show**, highlighting key trends and features, and a section titled **Why This Matters**, providing relevant connections to academic research and policy to achieve the statewide goal of supporting a high quality of life and robust economy with a strong education system.

What the Data Show: Figure 4.1 shows the number of ninth-grade students enrolled in Heart of Texas region public high schools for the first time between 2007 and 2018. The number of ninth-grade cohort students in the Heart of Texas region increased from 4,509 in 2007 to 4,840 students in 2018.

FIGURE 4.1

Heart of Texas Region Public School Ninth-Grade Cohorts, 2007–18



Source. University of Houston Education Research Center.

Note. The cohort is determined by Heart of Texas region students' first time enrolling in ninth grade. The total number of ninth-grade students in Heart of Texas region public school cohorts from 2007 to 2018 was 55,131.

Why This Matters: The public schools in the Heart of Texas region are major drivers of quality of life and the economy in the region. By encouraging student enrollment and investment in public education, the Heart of Texas region ensures a robust population of individuals well-prepared to supply the region's economy with the future workforce.

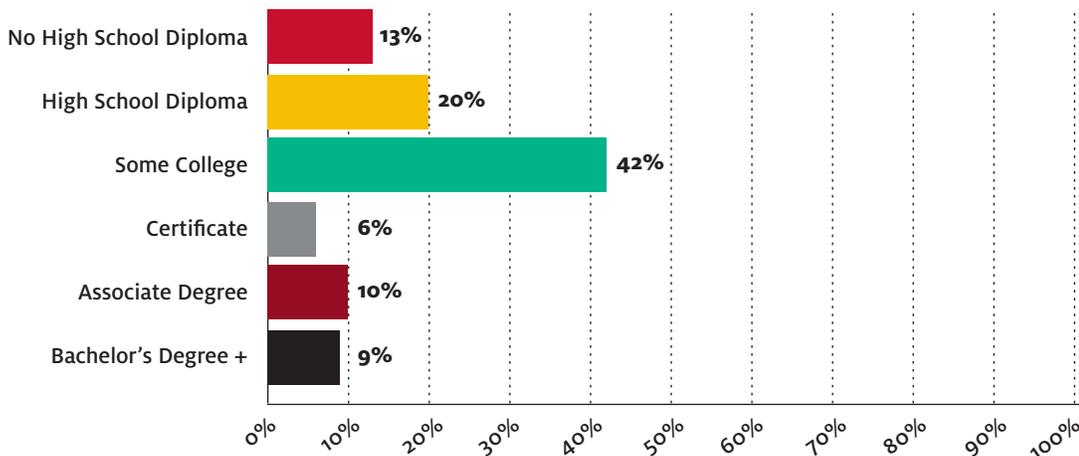
Heart of Texas Region Ninth-Grade Cohorts, 2007 through 2018

What the Data Show: The highest level of education attained as of 2023 for the 2007 through 2018 ninth-grade cohort students in the Heart of Texas region are displayed in Figure 4.2. The figure shows that 13% of ninth-graders in public schools in the Heart of Texas region from 2007 to 2018 did not receive a high school diploma as of 2023. Twenty percent of all ninth-grade cohort students received a high school diploma as of 2023, and 42% enrolled in higher education

but had not received a credential as of 2023. The remainder of students attained a higher education credential as of 2023: 6% earned a certificate, 10% earned an associate degree, and 9% achieved a bachelor’s degree or higher. Note that only the highest level of education attained is reported for each student. For example, a student who graduated high school and then continued into higher education to attain an associate degree would only be reported as an associate degree holder.

FIGURE 4.2

Highest Level of Education Attained as of 2023 for Heart of Texas Region Public School Ninth-Grade Cohorts, 2007–18



Source. University of Houston Education Research Center.

Note. The cohort is determined by Heart of Texas region public school students’ first time enrolling in ninth grade. The highest level of education attained is as of 2023. “No high school diploma” refers to students who did not graduate from high school as of 2023; “high school diploma” refers to students who graduated high school but did not enroll in higher education institutions as of 2023; “some college” refers to students who enrolled in higher education but did not earn a credential as of 2023; “certificate,” “associate degree,” and “bachelor’s degree+” refer to students who earned the respective credential as of 2023 as their highest level of education attained. “Bachelor’s degree+” refers to students earning a bachelor’s degree or higher as of 2023. The percentages are calculated as a fraction of the total public school students in the Heart of Texas region in the 2007 through 2018 cohorts (n=55,131).

Why This Matters: While state policy efforts have recently provided more opportunities for high schools to prepare students for the workforce directly, 70% of jobs within the Texas economy will require a higher education credential by 2036 (George W. Bush Institute, 2023). The Heart of Texas region data presented in Figure 4.2 show that only 25% of ninth-grade cohort students attained a higher education credential

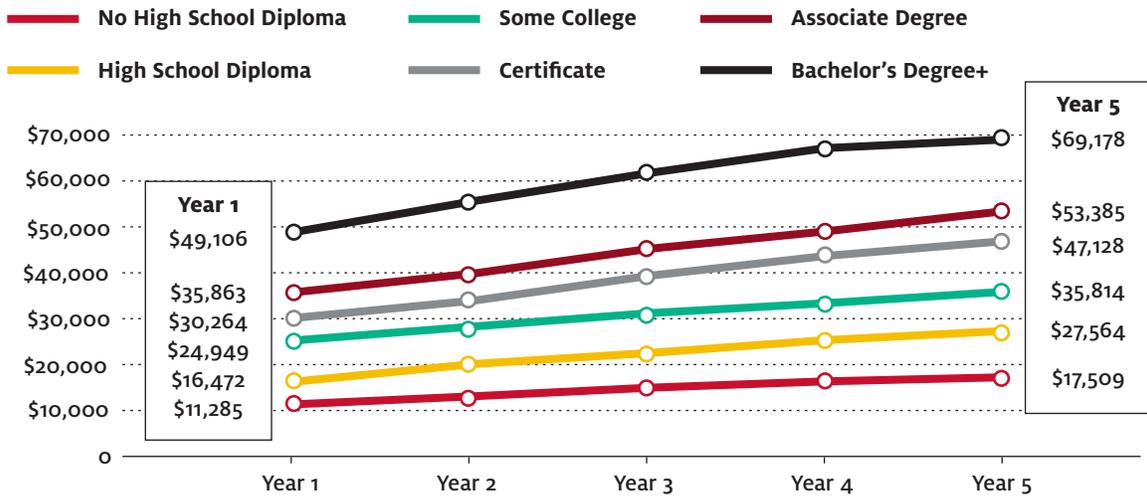
as of 2023. This mismatch between the requirements of the workforce and credentials of Heart of Texas region public school students highlights two areas for growth: 1) develop pathways that provide opportunity for students to go directly from high school into jobs that pay living wages; and 2) improve higher education enrollment and success rates among Heart of Texas region public school students.

What the Data Show: Figure 4.3 shows the average wages earned in the first five years in the workforce for Heart of Texas region ninth-grade cohort students by the highest level of education attained as of 2023. Students who attained a bachelor's degree or higher earned an average of \$49,106 in their first year in the workforce and \$69,178 in their fifth year. This is in contrast to students with no high

school diploma: They earned an average of \$11,285 in their first year and \$17,509 in their fifth year. Students whose highest level of education was a certificate earned an average of \$30,264 in their first year and \$47,128 in their fifth year, and students whose highest level of education attained was an associate degree earned an average of \$35,863 in their first year and \$53,385 in their fifth year.

FIGURE 4.3

Average Annual Wages Earned in First Five Years in Workforce by Highest Level of Education Attained, Heart of Texas Region Public School Ninth-Grade Cohorts, 2007–18



Source. University of Houston Education Research Center.

Note. The cohort is determined by Heart of Texas region public school students' first time enrolling in ninth grade. The highest level of education attained is as of 2023. "No high school diploma" refers to students who did not graduate from high school as of 2023; "high school diploma" refers to students who graduated high school but did not enroll in higher education institutions as of 2023; "some college" refers to students who enrolled in higher education but did not earn a credential as of 2023; "certificate," "associate degree," and "bachelor's degree+" refer to students who earned the respective credential as of 2023 as their highest level of education attained. "Bachelor's degree+" refers to students earning a bachelor's degree or higher as of 2023. Average wages were compiled from wages submitted to the Texas Workforce Commission as constant 2023 dollars.

Why This Matters: In 2024, the cost of living in Texas was \$26,268 for a single adult and \$78,012 for a family of four (ALICE, 2024). On average, the pathways from education to the workforce for the Heart of Texas region 2007 through 2018 ninth-grade cohorts that provided

wages to support living in Texas involved a higher education credential. As the state expands pathways directly from high school into the workforce, these pathways must align with jobs that pay at least a wage that can support the cost of living in the state.

Wages Earned by Highest Level of Education Attained and Industry

What the Data Show: Table 4.1 (next page) shows the average five-year annual wages by highest level of education attained and industry for ninth-grade cohort students.

Students whose highest level of education as of 2023 was a high school diploma were most often employed in the retail trade industry (n=792) and the accommodation and food service industry (n=553) and earned an average fifth-year annual wage of \$23,861 and \$15,854 respectively. Students whose highest level of education was a high school diploma earned the highest average annual wages during their fifth year in the workforce in the utilities industry (\$69,728; n=29) and mining, quarrying, and oil and gas extraction industry (\$50,749; n=73).

Across all industries, students with some college experience earned more on average than their peers with a high school diploma as their highest level of education. Students with some college experience earned average wages more than \$20,000 higher than peers with a high school diploma as their highest level of education in the mining, quarrying, and oil and gas extraction industry (\$72,934; n=104), professional, scientific, and technical services industry (\$52,857; n=323), and education industry (\$42,072; n=347).

For students whose highest level of education as of 2023 was a certificate, the data show many industries where certifications can lead to substantially higher workforce

earnings than their peers with some college experience. In the utilities industry, for example, there was an approximately \$38,000 difference in average fifth-year annual wages between those whose highest level of education was some college and those who earned a certificate (\$114,333; n=31). And there was a more than \$16,000 difference in average fifth-year annual wages between those whose highest level of education was

some college and those who earned a certificate in the public administration industry (\$60,066; n=106) and health care and social service industry (\$46,001; n=208).

See full table on next page.

Students whose highest level of education attained as of 2023 was an associate degree were most often employed in the health care and social assistance industry (n=318) and earned an average fifth-year annual wage of \$56,398. A substantial number of associate degree holders were employed in the education industry (n=169) and earned an average fifth-year annual wage of \$43,610.

Students whose highest level of education as of 2023 was a bachelor's degree or higher were most often employed in the education industry (n=164) and health care and social assistance industry (n=164) and earned average fifth-year annual wage of \$51,648 and \$79,221, respectively. Another industry commonly employing students whose highest level of education as of 2023 was a bachelor's degree or higher was the professional, scientific, and technical services industry (\$90,343; n=74).

Why this Matters: To support the economic independence of Heart of Texas region public school students, workforce pathway development should be prioritized in the industries that pay living wages. For each level of education, industries emerge for potential pathway development across the region. High schools interested in developing pathways for students to enter the workforce immediately after high school should consider the mining, quarrying, and oil and gas extraction industry and utility industry, as these industries pay living wages.

TABLE 4.1

Average Fifth-Year Annual Wages and Industry of Employment by Highest Level of Education Attained, Heart of Texas Region Public School Ninth-Grade Cohorts, 2007–18

Industry	High School Diploma		Some College		Certificate		Associate Degree		Bachelor's Degree+	
	Average Wage	Number in Workforce	Average Wage	Number in Workforce	Average Wage	Number in Workforce	Average Wage	Number in Workforce	Average Wage	Number in Workforce
Accommodation and Food Service	\$15,854	553	\$19,120	855	\$29,327	56	\$26,769	61	\$29,662	12
Administrative Support, Waste Management	\$21,412	505	\$26,692	878	\$33,964	81	\$47,490	106	\$66,253	33
Agriculture, Forestry, Fishing, and Hunting	\$26,775	17	\$42,436	43	\$33,179	5	\$31,707	11	n/a	0
Arts, Entertainment, and Recreation	\$21,765	27	\$31,098	78	\$24,758	18	\$35,633	7	\$32,819	7
Construction	\$37,391	419	\$45,190	579	\$53,915	86	\$59,657	61	\$61,836	17
Education	\$18,285	61	\$42,072	347	\$43,060	166	\$43,610	169	\$51,648	164
Finance and Insurance	\$31,093	92	\$43,323	317	\$45,430	66	\$48,318	61	\$75,676	38
Health Care and Social Assistance	\$17,894	290	\$29,461	596	\$46,001	208	\$56,398	318	\$79,221	164
Information	\$32,332	25	\$51,186	97	\$47,981	14	\$44,537	14	\$81,849	13
Management	\$20,358	75	\$30,650	120	\$31,892	11	\$39,980	16	\$88,924	6
Manufacturing	\$36,043	544	\$42,994	764	\$58,557	104	\$67,955	116	\$86,996	29
Mining, Quarrying, Oil and Gas Extraction	\$50,749	73	\$72,934	104	\$75,463	20	\$81,139	19	\$141,945	*
Other Services	\$30,704	119	\$33,641	156	\$34,641	59	\$48,486	44	\$56,559	11
Professional, Scientific, and Technical Services	\$32,064	107	\$52,857	323	\$49,821	50	\$59,526	110	\$90,343	74
Public Administration	\$39,356	115	\$43,427	276	\$60,066	106	\$55,067	82	\$56,191	24
Real Estate	\$30,544	51	\$40,626	140	\$35,627	16	\$59,723	26	\$66,751	12
Retail Trade	\$23,861	792	\$28,952	1,252	\$36,846	171	\$38,608	165	\$47,456	34
Transportation and Warehousing	\$30,839	124	\$40,368	250	\$53,535	29	\$44,272	27	\$67,059	*
Utilities	\$69,728	29	\$76,773	66	\$114,333	31	\$114,869	45	\$86,795	*
Wholesale Trade	\$36,480	206	\$44,916	331	\$55,508	40	\$63,319	65	\$91,566	26

Source: University of Houston Education Research Center.

Notes: The cohort is determined by Heart of Texas region students' first time enrolling in ninth grade. Industry categories are from the North American Industry Classification System. Average annual wages are compiled from wages submitted to the Texas Workforce Commission as constant 2023 dollars. *Indicates a masked value of less than 5.

Section 5: Conclusion

The economic success of states is largely dependent upon the education and skills of the workforce (Araki, 2020; Berger & Fisher, 2013). With the redesign of the Foundation High School Program in K–12 and workforce connections in the current higher education plan, Building a Talent Strong Texas, the state of Texas encourages workforce pathway development across public education. To infuse pathway development with data, Workforce Solutions for the Heart of Texas commissioned this report to present statewide and Heart of Texas region data to describe education and workforce outcomes for cohorts of ninth-grade students between 2007 and 2018. The presentation of this data linking educational outcomes to workforce employment and earnings is intended to assist K–12, higher education, and industry leaders in understanding pathways of successful employment in the local workforce and identify areas of development opportunity.

Statewide, only 21% of Texas public school students who began ninth grade between 2007 and 2018 attained a higher education credential as of 2023. Unfortunately, 16% of ninth-graders between 2007 and 2018 never graduated high school, 22% stopped their education after a high school diploma, and a staggering 40% of students enrolled in some college as of 2023 but earned no credential. The importance of higher education credential attainment is reinforced by the comparably higher workforce earnings of students who attained certificates, associate degrees, and bachelor's degrees. The statewide data clearly demonstrate that wages increase with educational attainment. Evidence of strong educational pathways to higher wages illuminated by the data include students with certificates employed in the public administration industry, students with associate degrees in the health care and social assistance and education industries, and students with bachelor's degrees in the education and professional, scientific, and technical services industries. As school districts and industries consider workforce pathway development for students who do not continue into higher education, this report highlights the opportunity for earning living wages in the utilities; mining, quarrying, and oil and gas extraction; and construction industries, as students whose highest level of education attained was a high school diploma earned the highest wages in these industries.

In the Heart of Texas region, education attainment rates were slightly higher than statewide. In the Heart of Texas region, 25% of ninth-grade students between 2007 and 2018 earned a higher education credential as of 2023. Thirteen percent of ninth-graders never graduated high school, 20% stopped their education after a high school diploma, and 42% enrolled in college but did not earn a credential as of 2023. Like the statewide trends, average wage earnings in the Heart of Texas region increased with educational attainment. The data presented in this report highlight areas of strong pathways from education to the workforce: Students with certificates employed in the utilities and public administration industries; students with associate degrees in the health care and social assistance and education industries; and students with bachelor's degrees in the health care and social assistance and professional, scientific, and technical services industries all earned higher wages. As was reported in the statewide data, this report highlights workforce pathway development opportunities for students who do not continue into higher education to earn living wages in the utilities and mining, quarrying, and oil and gas extraction industries, as students with high school diplomas earned higher wages in these industries.

The current trends in educational and workforce outcomes, along with projected Texas workforce requirements whereby 70% of jobs in the Texas economy will demand higher degree credentials by 2036 (George W. Bush Institute, 2023), call for a stronger and more strategic collaboration among school districts, higher education institutions, and workforce industries to better understand the pathways to successful employment in jobs that pay living wages. This report identifies industries ripe for education to workforce pathway development to promote effective alignment and collaboration between education and workforce sectors.

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