



# ECONOMIC IMPACTS OF ARIZONA CAREER PATHWAYS 2019-20

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## 1.0 INTRODUCTION

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Applied Economics has been contracted by Arizona Career Pathways to prepare an independent analysis of the economic impacts of training programs, and the return on investment they create for the region. Arizona Career Pathways provided annual data for FY19-20 on pre-training wages, post-training wages and employer name for individuals placed in jobs, and information on participation in public assistance programs. This data forms the basis for the economic impact analysis. A graduate is defined as an individual who completes their degree or certificate program. This includes individuals who are employed upon graduation, as and those who are not immediately employed, or have not reported back information on their employer.

Arizona Career Pathways is a non-profit workforce development organization that provides low-income students in Maricopa County with the support they need to complete degrees or certifications to ensure their employability. They partner with Valley Interfaith Project and Maricopa Community Colleges to respond the needs of workers and employers to create opportunities for credential and degree attainment, improving quality of life and standards of living for graduates. Arizona Career Pathways provides case management and life skills coaching, financial assistance, peer mentoring, job placement assistance, and other valuable support services to ensure successful degree or certificate completion and long-term career success. Training programs include a variety of allied health care occupations, business and financial services and information technology.

The organization's mission is to create substantial social and economic benefits through investments in training that enhance the productivity and competitiveness of the workforce in Maricopa County. The purpose of this analysis is to quantify the overall impacts of Arizona Career Pathways on the economy of Maricopa County in terms of the direct and indirect increase in payroll, output and supported jobs, as well as an estimate of annual tax revenues created by these graduates and estimated reductions in public assistance costs.

### 1.1 Economic Impact Approach

The economic impacts are calculated using economic multipliers from IMPLAN that are specific to Maricopa County. The tax revenue impacts are based on post-training wages and applicable local tax rates. Reductions in public assistance costs are estimated based on the number of individuals receiving assistance prior to graduation and the average annual amount of assistance per person for various assistance programs in Maricopa County. The analysis compares the aggregate increase in wages for graduates placed in jobs plus the reductions in public assistance costs to annual operating expenses for Arizona Career Pathways to estimate a return on investment. *Additional information on methodology can be found in the Appendix A.*

### 1.2 Firm Background

Applied Economics LLC is an economic consulting firm, based in Phoenix, Arizona, specializing in economic development, economic and fiscal impact assessment, socioeconomic modeling and urban planning. Applied Economics conducts economic and fiscal impact studies and develops

models to measure the effects of a wide variety of activities. These activities include workforce development programs, land use and policy changes, business-driven economic impacts, and incentive agreements. Applied Economics is frequently called upon by local governments to provide a third party evaluation of economic and fiscal impacts related to economic development activities. The principals at Applied Economics have worked together for more than twenty five years, and are very experienced in working with local and regional economic and planning issues.

The information and observations contained in this report are based on our present knowledge of the components of development, and of the current physical, socioeconomic and fiscal conditions of the affected areas. Estimates made in this analysis are based on hypothetical assumptions, current tax policies, and the current economic structure of the region. However, even if the assumptions outlined in this report were to occur, there will usually be differences between the estimates and the actual results because events and circumstances frequently do not occur as expected. This analysis is based on the best available information and is intended to aid Arizona Career Pathways in quantifying the value of its program and the return on investment. In no way will Applied Economics be held responsible or have any liability or be subject to damages as a result of this analysis. This report may be used only for the purposes that it was intended.

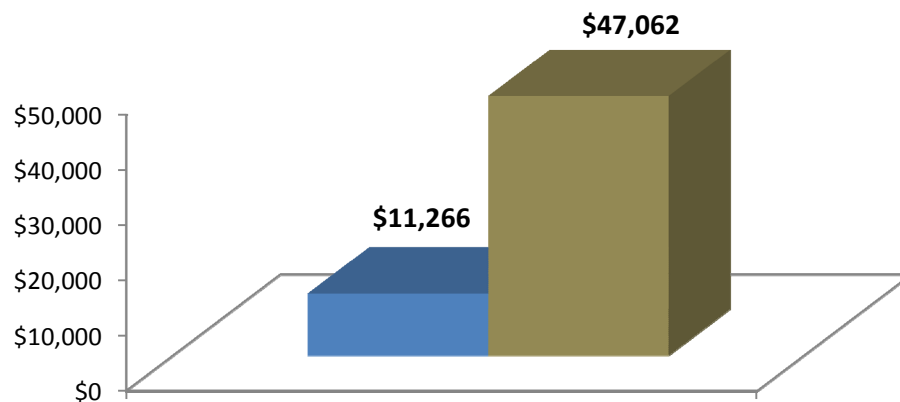
## 2.0 IMPACT SUMMARY

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The increases in post-training wages that are achieved by graduates of the Arizona Career Pathways program are transformational to the individual students and their families. In addition, the increase in productivity creates significant economic impacts to businesses in Maricopa County.

- In the 2019-20 fiscal, graduates of Arizona Career Pathways experienced average wage increases of \$35,800 per person compared to pre-training wages. Note that this figure only represents the wage increase, which is a measure of the value of workforce training. The average post-training wage for graduates in 2019-2020 was \$47,100.
- Graduates experienced a total combined increase in annual wages of \$2.1 million (Figure 1). In addition, the employment of these individuals at livable wages resulted in an estimated decrease in public assistance costs of \$520,000 based on the number of students receiving assistance when they entered the program. To achieve these results, Arizona Career Pathways expended \$600,000 on programs, general and administrative expenses and fundraising.
- The return on investment for the year was 342 percent. The return on investment is estimated based on annual expenses compared to the increase in wages plus the decrease in public assistance for the year.
- In other words, for every \$1.00 of funding, Arizona Career Pathways produced \$4.42 in direct wage increases plus decreases in public assistance costs for graduates in 2019-20.

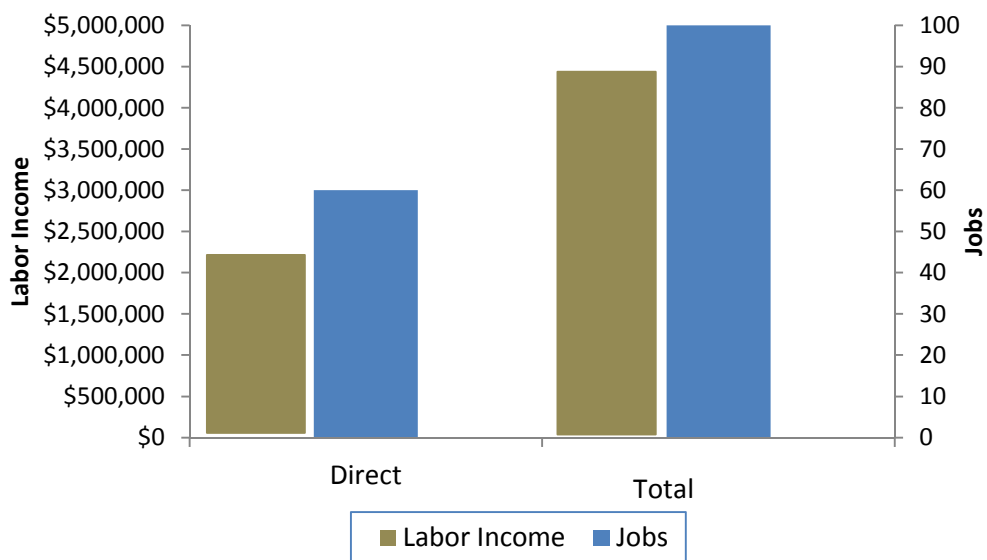
**FIGURE 1**  
**AVERAGE PRE AND POST-TRAINING WAGES**



Note: Pre-training average wage includes graduates who were not employed prior to entering the program.

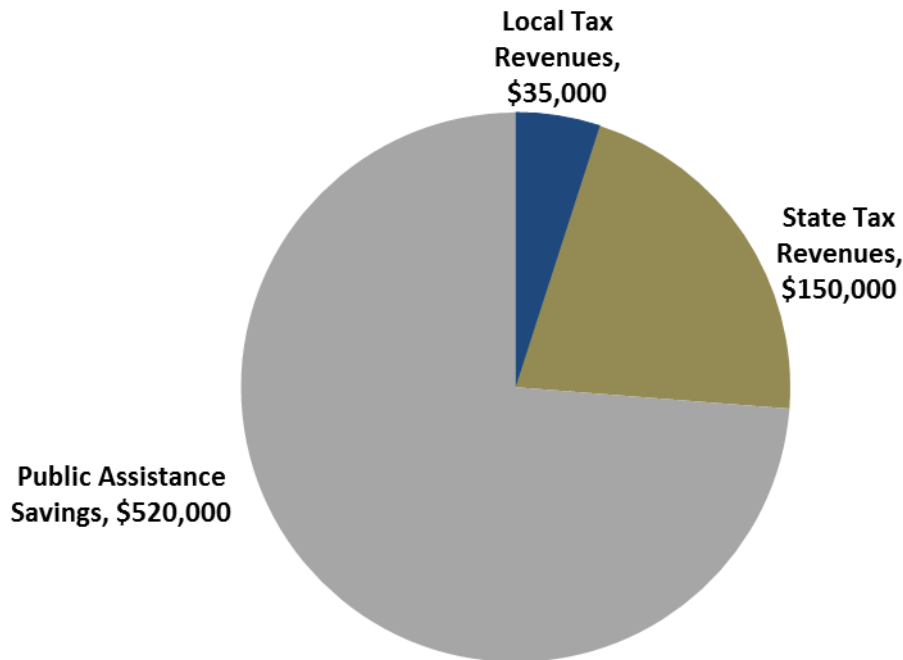
Arizona Career Pathways created an economic impact of \$12.1 million on the Maricopa County economy during the 2019-20 fiscal year. A total of 60 graduates obtained jobs resulting in a direct increase in wages of \$2.1 million over pre-training levels. This increased level of economic activity indirectly supports an estimated 40 additional indirect and induced jobs and \$2.2 million in annual labor income *at other local businesses* throughout the county through business supplier purchases and employees spending. Figure 2 shows annual output impacts and indirect jobs supported. It is important to keep in mind that these impacts cumulate over time as graduates continue to be employed in the county and progress in their career paths.

**FIGURE 2**  
**ANNUAL ECONOMIC IMPACTS IN MARICOPA COUNTY**



- These 60 graduates from 2019-20, and the additional workers they support at other local businesses, make a significant amount of taxable purchases. The increases in payroll that are directly and indirectly supported through the Arizona Career Pathways program resulted in an estimated \$35,000 in annual city and county sales tax revenues and close to \$150,000 in annual state sales and personal income tax from graduates placed in jobs in 2019-20, which will continue to cumulate into the future (Figure 3).
- Along with the tax revenues, Arizona Career Pathways also supports a decrease in public assistance expenditures. Many of the participants were receiving various types of public assistance prior to completing the training and being placed in jobs that enabled them to become self-sufficient. Based on the average cost per recipient for TANF, Food Stamps, General Assistance, Childcare Assistance and AHCCCS in Maricopa County and the number of graduates who were previously receiving assistance, Arizona Career Pathways supported an estimated annual reduction of \$520,000 million in public assistance payments.

**FIGURE 3**  
**ESTIMATED STATE AND LOCAL ANNUAL REVENUE IMPACTS**  
**FROM GRADUATES**



- In order to place graduates in high demand occupations, Arizona Career Pathways aligns its programs with the target industries for the region, including Healthcare & Biomedical, Financial Services, and Advanced Business Services. The types of graduates that Arizona Career Pathways produces fill a critical need for in-demand jobs that require skills training beyond high school, but not a four-year degree. According to a study by the National Skills Coalition, 51 percent of the job openings in Arizona over the next ten years will require skills training beyond high school, and an additional 32 percent will require a four-year degree.<sup>1</sup>
- Greater Phoenix is regionally competitive, and a national leader in the healthcare and biomedical industries. Projected employment growth in the healthcare in Maricopa County over the next decade is 50 percent compared to 14 percent nationally.<sup>2</sup> As a result, Maricopa County is projected to add 122,000 new jobs in healthcare over the next ten years. Arizona Career Pathways produced 101 total graduates in healthcare fields in 2019-20, including 54 graduates that have been placed in jobs.

<sup>1</sup> National Skills Coalition, *Skills Mismatch Fact Sheets by State, 2019*, <http://www.nationalskillscoalition.org/state-policy/fact-sheets>

<sup>2</sup> Arizona Commerce Authority, *Arizona Industry Projections 2019-2029*; Bureau of Labor Statistics, *Employment and Output by Industry 2019-2029*.

- Greater Phoenix is one of the top markets in the nation to locate and expand finance and insurance operations. Many national finance and insurance companies have a presence in the region. Over 41,000 new jobs are projected to be created in Maricopa County in this sector over the next ten years. Arizona Career Pathways produced 17 graduates in financial services, customer care and information technology fields in 2019-20, including 6 graduates that have been placed in jobs.

Arizona Career Pathways is a valuable program to support long-term workforce training in Maricopa County and generates a high return on investment compared to operating expenses during 2019-20. The organization continues to produce graduates to fill positions in key growth occupations in the county in health care, financial services and other fields. The availability of skilled workers benefits the local economy in general, plus it produces significant increases in earnings and standard of living for program graduates.



### 3.0 ECONOMIC IMPACTS

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Economic impacts measure the effects of economic stimuli or expenditures on the local economy. These impacts include direct and indirect jobs, labor income and output that are supported by graduates of the Arizona Career Pathways program. Indirect impacts are the result of the multiplier effect and capture supported supplier and consumer businesses and their employees in Maricopa County that benefit from this economic stimulus.

The economic impact results presented here are grouped into direct and total impacts. Direct impacts include the 60 graduates of the Arizona Career Pathways program in 2019-20 that found jobs in the region. Direct labor income of \$2.1 million represents the increase in wages for these individuals over their pre-training wages. The direct increase in production value or output created by these 60 workers is estimated at \$5.6 million per year.

The Arizona Career Pathways graduates from 2019-20 are projected to create a total annual economic impact of \$12.1 million in Maricopa County. They indirectly support more than 40 jobs and \$2.2 million in labor income at other local businesses through additional supplier purchases by their employers and consumer purchases made by graduates. These economic impacts at other local businesses are in addition to the 60 new jobs, a \$2.1 million increase in payroll and \$5.6 million in annual output that is directly attributed to Arizona Career Pathways graduates in 2019-20. The impacts for the 2019-20 fiscal year are detailed in Figure 4.

In reality, graduates continue to contribute to the local economy even after they leave Arizona Career Pathways, so the \$12.1 million impact will continue annually in the future. Of course, some graduates will move away and/or change jobs over time. However, this type of investment in human capital continues to provide benefits long after individuals complete the training programs.

The indirect impacts created by Arizona Career Pathways graduates in terms of supplier purchases and employee spending are called multiplier effects. Multiplier effects are a way of representing the larger economic effects on the local economy and translate an increase in output (loosely defined as gross sales, less non-local inputs) into a corresponding increase in jobs and labor income. In essence, the multiplier effect represents the recycling of local spending. This recycling process creates new business opportunities. The multipliers used in this analysis are from IMPLAN, a national vendor of economic impact software, and are specific to Maricopa County.

The economic multipliers used in this analysis vary by training program since industry-specific multipliers were used for each program. The average output multiplier for Arizona Career Pathways training programs during 2019-20 is 2.17. Thus, for every \$1.0 million increased production as a result of Arizona Career Pathways graduates, an additional \$1.17 million in demand is created at other supporting businesses in Maricopa County along with 7 indirect jobs.

**FIGURE 4**  
**ANNUAL ECONOMIC IMPACT OF GRADUATES IN 2019-20**

	Direct Impacts			Total Impacts			Annual Program Expenses	Return on Investment <sup>2</sup>
	Output	Jobs	Labor Income <sup>1</sup>	Output	Jobs	Labor Income		
<b>Total</b>	<b>\$5,594,425</b>	<b>60</b>	<b>\$2,147,803</b>	<b>\$12,112,851</b>	<b>101</b>	<b>\$4,318,909</b>	<b>\$603,268</b>	<b>342%</b>
Computer User Support	\$88,382	1	\$30,410	\$179,367	2	\$62,930		
Customer Care	\$73,580	1	\$20,800	\$153,486	1	\$47,959		
Financial Services	\$217,925	2	\$84,019	\$553,204	4	\$199,159		
Information Technology	\$51,385	2	\$17,680	\$104,283	2	\$36,587		
CNA	\$548,315	7	\$224,744	\$1,172,320	11	\$428,569		
Medical Assistant	\$244,976	2	\$48,984	\$505,660	4	\$133,041		
Physical Therapy Asst	\$122,488	1	\$6,448	\$252,830	2	\$48,477		
Radiology Technician	\$326,666	3	\$149,718	\$709,003	5	\$278,637		
Sonography	\$565,460	4	\$224,390	\$1,271,688	9	\$452,781		
EEG Technician	\$141,365	1	\$45,760	\$317,922	2	\$102,858		
Phlebotomy	\$73,429	3	\$33,654	\$159,371	4	\$62,633		
RN Program	\$2,529,885	28	\$1,159,499	\$5,490,910	46	\$2,157,921		
LPN Program	\$367,465	3	\$50,217	\$758,490	5	\$176,303		
Dental Assisting	\$243,106	2	\$51,480	\$484,315	3	\$131,053		

Source: Arizona Career Pathways; Applied Economics, 2021.

<sup>1</sup> Direct income represents only increase in salary over pre-training level, not full ending salary. <sup>2</sup> Return on investment based on increase in wages (direct income) per dollar of total expenses.

The largest program in terms of impacts is the RN program, which has placed a total of 28 graduates in jobs in 2019-20, followed by the CNA and Sonography programs with 7 and 4 graduates in jobs, respectively. In terms of the average wage increases per person, the diagnostic medical sonography, financial services and RN programs ranked the highest, with average wage increases of \$41,000 to \$56,000 per person in 2019-20. The overall average increase for all occupations in 2019-20 was \$35,800 per person or 218 percent. *Note that these percentage increases include individuals that were not employed prior to entering the program.*

Many Arizona Career Pathways participants are below the poverty level prior to entering the program. The average pre-training annual wage in 2019-20 was \$11,000 per person and includes 34 graduates who were not previously employed and did not report pre-training wages, which is more than half of the total graduates placed in jobs in the past year. Thus, a significant number of graduates from this past year were newly employed as a result of their training.

The average post-training annual wage was \$47,100 in 2019-20, or \$22.63 per hour. For the Phoenix Metro Area in 2020, \$22.56 per hour was considered to be a livable wage, so the average wage of Arizona Career Pathways graduates meets that standard.<sup>3</sup> The average post-training wage of \$47,100 is only somewhat higher than the average wage increase of \$35,800 because about half of the graduates placed in jobs did not have pre-training income. The magnitude of post-training wages is largely a function of the distribution of graduates by program. The diagnostic medical sonography and RN programs offered the highest post-training wages in 2019-20, at \$56,100 and \$56,800, respectively. In addition, the average post-training wages for RN's and LPN's were both over \$46,000.

<sup>3</sup> National Low Income Housing Coalition, Out of Reach 2020, 2-Bedroom Housing Wage for Phoenix-Mesa-Scottsdale MSA represents full time hourly wage required to afford a 2-bedroom home.

## 4.0 REVENUE IMPACTS

In addition to economic impacts, the graduates of the Arizona Career Pathways program also generate increased tax revenues to state and local governments. Through increases in wages and spending, they generate additional sales taxes to the city, county and state and additional state personal income taxes. It may also be the case that the companies they work for generate increased sales or income taxes as a result of increasing their production; however, information about employers is not available to calculate these types of revenue impacts.

Sales taxes from employee spending are based on typical consumer expenditure patterns. According to the Census Consumer Expenditure Survey, approximately 27 percent of gross income is spent on taxable goods. Applying this assumption to total labor income from the economic impact results in an annual increase of about \$35,000 in city and county sales taxes from FY19-20 graduates (Figure 5). Note that the direct and indirect impacts are based on the increase in wages for Arizona Career Pathways graduates, not their total wages.

In terms of state taxes, Arizona Career Pathways graduates from the past year are estimated to directly and indirectly generate close to \$150,000 annual increase in state sales and personal income tax revenues to the state. These revenue increases will cumulate over time as graduates continue to generate local taxes as they continue to work and contribute to the economy. All total, Arizona Career Pathways graduates directly and indirectly supported an annual increase of \$182,000 in state and local tax revenues from 2019-20 graduates.

**FIGURE 5**  
**ESTIMATED ANNUAL INCREASE IN LOCAL AND STATE TAX REVENUES**  
**BASED ON INCREASES IN POST-TRAINING WAGES**

	Local Impacts		State Impacts		Total Taxes
	City Sales Tax	County Sales Tax	Sales Tax	Personal Income Tax	
<b>2019-20</b>					
Direct Revenues	\$13,338	\$4,059	\$32,475	\$34,314	<b>\$84,186</b>
Total Revenues	\$26,820	\$8,163	\$65,302	\$81,278	<b>\$181,563</b>

Source: Arizona Career Pathways; Applied Economics, 2021.

*Note: Total revenue impacts include revenues related to additional indirect and induced workers and payroll supported through economic impacts. Total revenues are inclusive of direct revenues.*

## 5.0 REDUCTION IN PUBLIC ASSISTANCE COSTS

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In addition to supporting increases in tax revenues, the Arizona Career Pathways program also supported a reduction in public assistance costs. Information is available to document the number of program participants that were receiving various types of public assistance when they entered the program. It is assumed that based on the typical increase in wages for program participants, the individuals who found jobs were able to become self-sufficient.

Using average payments per recipient by type of program for Maricopa County from the Arizona Department of Economic Security and AHCCCS, it is possible to estimate the annual decrease in public assistance expenditures. All total, the Arizona Career Pathways program resulted in an estimated one-year decrease in public assistance expenditures of \$520,000 in Maricopa County, based on job placements for 2019-20 graduates (Figure 6).

**FIGURE 6**  
**ANNUAL REDUCTION IN PUBLIC ASSISTANCE COSTS**

<b>Program Year</b>	<b>Food Stamps</b>	<b>TANF</b>	<b>Utility Assistance</b>	<b>AHCCCS</b>	<b>Child Care</b>	<b>Total Public Assistance</b>
2019-20	(\$101,831)	\$0	(\$2,441)	(\$372,942)	(\$41,838)	<b>(\$519,053)</b>

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Source: Arizona Department of Economic Security; AHCCCS; Arizona Career Pathways; Applied Economics, 2021.

## 6.0 RETURN ON INVESTMENT

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The final and most important calculation is the return on investment that Arizona Career Pathways is providing to the region based on the value of increased wages for graduates per dollar of total expenses. All total, 120 individuals participated in the program in 2019-20. Of that total, 60 individuals found jobs immediately upon graduation. An additional 60 individuals completed the program in 2019-20, but did not provide sufficient information about post-training wages to be included in the economic impact analysis. However it is very likely that a number of the graduates who were not employed immediately did ultimately find jobs in their field in Maricopa County.

- The return on investment calculation is equal to (Aggregate increase in wages for graduates placed in jobs in a given year + decrease in public assistance costs for graduates from that year previously receiving assistance)/ total expenses for that year.
- The aggregate wage increase is the sum of the post-training wage minus the pre-training wage for each individual who was placed in a job based on data for graduates in the past year and is equal to \$2.1 million.
- The amount of public assistance is equal to the average cost per program times the number of graduates participating in those assistance programs as described in section 5.0 and is estimated at \$520,000.
- Total expenses used to estimate return on investment are taken from annual audited financial statements and include program costs, general and administrative costs and fundraising expenses and are equal to \$600,000.

For the 2019-20 fiscal year, total expenses were \$603,000. The number of graduates this year (including those not placed in jobs) was 120. The total annual expenses can be compared to an increase in wages less the decrease in public assistance of \$2.7 million in 2019-20, resulting in a return on investment of 342 percent. The average one-time cost per graduate in 2019-20 was \$5,027, based on 120 individuals completing the program. In comparison, the average annual wage increase for program graduates was \$35,800.

It is important to note that some of the individuals that did not obtain jobs immediately may have furthered their education with or without assistance from Arizona Career Pathways. Thus some of the value of increased wages that are attributed to the program may have happened anyhow. However, Arizona Career Pathways has been able to significantly decrease the dropout rate for the types of individuals that they serve, thus adding value to the community and increasing the return on investment for the public funding they receive.

Case management is integral to the success of participants in the Arizona Career Pathways program. Typical clients are already stretched thin by family and work demands and building habits of engagement requires a concerted effort. Case managers help students navigate academic and institutional challenges, as well as providing counsel and directives that are

essential to help them avoid disruptions that sabotage their ability to complete their academic program. Case managers are also able to connect students to other financial resources beyond the financial assistance provided by Arizona Career Pathways.

Arizona Career Pathways provides an important service to the community by enhancing the quality of life and standard of living for graduates and their families by increasing their household incomes. In 2019-20, the average increase in annual wages per graduate was \$35,800. Arizona Career Pathways also provides qualified motivated employees to meet the needs of local employers in high growth targeted industries such as healthcare and financial services. The types of graduates that Arizona Career Pathways produces fill a critical need for middle-skill workers in these industries.

## APPENDIX A – METHODOLOGY AND DATA SOURCES

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The estimated job training impacts for Arizona Career Pathways utilize on multipliers from IMPLAN for Maricopa County. IMPLAN is a national vendor of input-output software and data used to create economic impact models and is widely used in government, higher education and in the private sector to evaluate economic impacts. IMPLAN is an input-output model. Input-output analysis is a means of examining relationships within an economy, both between businesses and between businesses and final consumers. It captures all monetary market transactions for consumption in a given time period. The resulting mathematical formulas allow for examination of the effects of a change in one or several economic activities on an entire economy (impact analysis).

The IMPLAN model begins with the most current national transactions matrix developed by the National Bureau of Economic Analysis Benchmark Input-Output Model. The model breaks down the U.S. economy into over 500 separate economic sectors in agriculture, manufacturing, commercial services, and government. Next, IMPLAN creates state- and county-level values by adjusting the national level data, such as removing industries that are not present in a particular state or region. These economic sector data are updated annually by IMPLAN. The most current available sectoral data are for 2019, which was used in this analysis to evaluate 2019-20 data on graduates.

Economic impacts are typically estimated using multipliers. IMPLAN proprietary software combined with data files purchased from IMPLAN for a particular geographic region can be used to create multipliers. In this case, county-level data for Maricopa County were used to create the multipliers in order to focus the analysis on local job creation within the Arizona Career Pathways service area. In general, these multipliers quantify the total production requirements for each industry within the selected study area for every unit of production sold to final demand. Multipliers may be constructed for output, employment, and labor income. Multipliers can be used to measure the impact of industries in the region buying goods and services from other regional industries. The cycle of spending works its way backward through the supply chain until all money leaks from the regional economy, either through imports or by payments to value added.

In the case of job training and placement, multipliers for specific industries are matched to the types of businesses where graduates are placed. The increase in employment and payroll associated with newly hired Arizona Career Pathways graduates ultimately translates into increased production of goods or services. This increase in production triggers an increase in demand for inputs, some of which are provided by local suppliers. This activity can be quantified using economic multipliers for individual industries and then aggregated across all Arizona Career Pathways programs.

Multipliers are also used to measure how payroll from the businesses employing Arizona Career Pathways graduates results in additional consumer purchases by employees. This money is recirculated through their household spending patterns causing further economic activity in the

region and supporting additional jobs and labor income. These are the induced impacts discussed above. Direct, indirect, and induced impacts are summed to generate total impacts.

The economic multipliers are applied to data on individual graduates that was provided by Arizona Career Pathways. Each student record includes the degree/certificate type, graduation date, pre-training wage, post-training wage, employer name, and a binary indicator of previous participation in public assistance programs including AHCCCS, food stamps, utility assistance, TANF and child care assistance.