



APPLIED ECONOMICS

***ANNUAL ECONOMIC IMPACTS OF THE
JOBPATH PROGRAM ON PIMA COUNTY***

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1.0 INTRODUCTION

JobPath is a non-profit workforce development organization that sponsors unemployed and underemployed adults from Tucson and Pima County in long-term education and job training opportunities. JobPath was created in 1998 by Pima County Interfaith Council and community business leaders to meet an urgent need for job training programs in career areas to address a demand for skilled workers in our community. Sponsorship includes financial assistance, wrap-around case management, mentoring, peer support and assistance connecting to employers for JobPath participants in associate's degree or certification programs primarily at Pima Community College. Training programs include a variety of allied health care occupations, aviation technology, bioscience and other fields. JobPath's mission is to support long term job training in order to make a meaningful impact on the post-training wages of graduates.

The purpose of this analysis is to calculate the overall economic impacts of JobPath on Pima County in terms of the direct and indirect increase in payroll, output and supported jobs. In addition, the cost of training can be compared to the increase in post-training wages to calculate a return on investment. This report includes data on program participants from 2005-06 through 2016-17. It includes information on post-training wage increases, as well as an estimate of the reduction in public assistance costs associated with individuals completing the JobPath program.

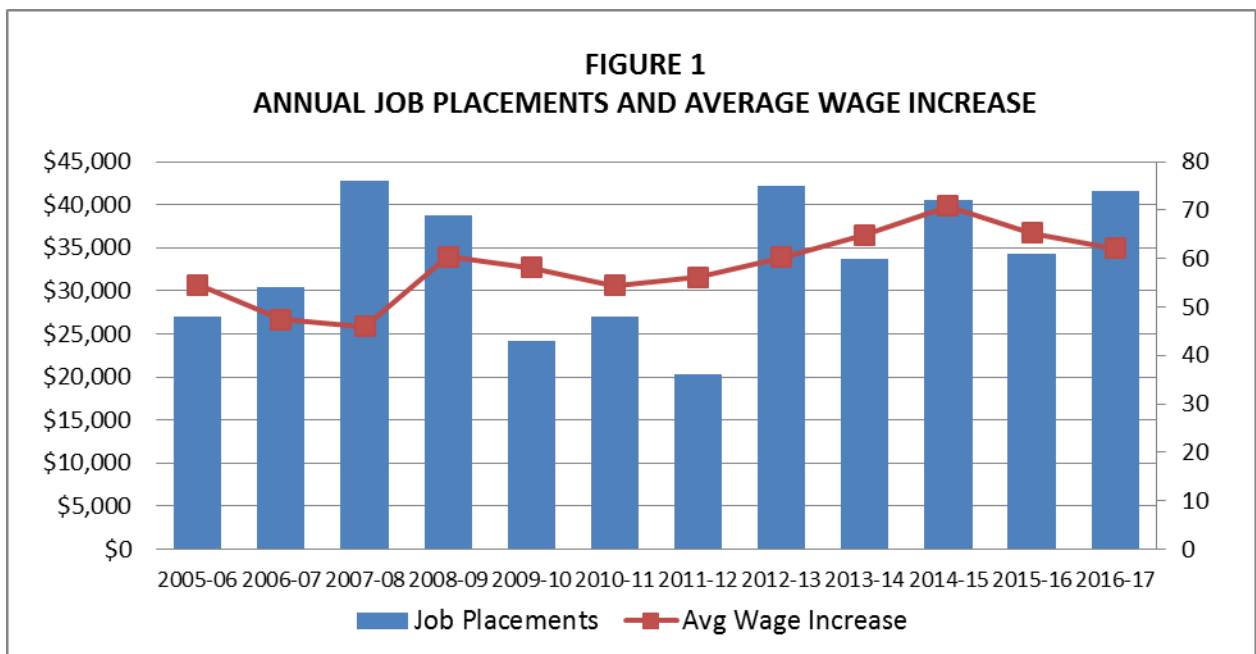
JobPath has produced economic impacts on the county ranging from \$4.2 million to \$15.3 million per year over the past twelve years, with the highest annual impact occurring this past year in 2016-17. These impacts are driven by direct wage increases of \$1.1 million to \$2.9 million per year for graduates placed in jobs. Over the twelve-year period, 716 individuals obtained jobs immediately upon graduation.

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 JobPath in quantifying the value of its program relative to the cost of training. 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

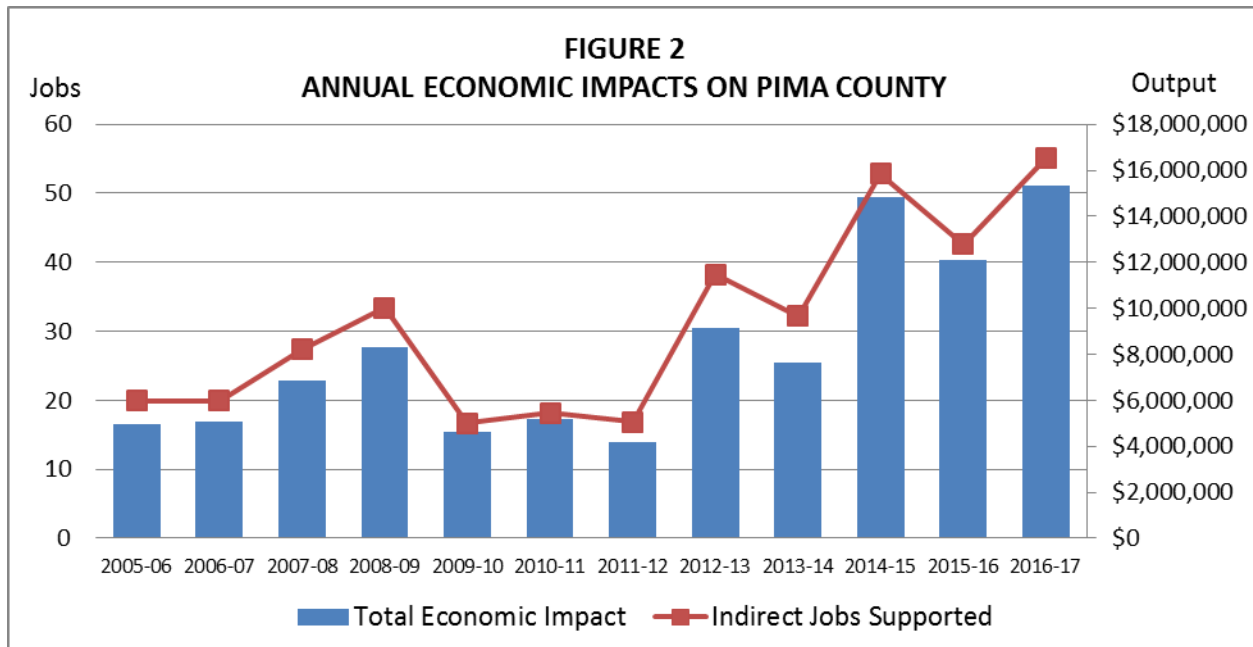
The JobPath training program provides significant economic benefits to the City of Tucson and Pima County. These positive impacts include the following:

- During the past twelve fiscal years, JobPath received \$8.4 million in funding from the city and county, and from grants and donations. During this same time period, graduates of the JobPath program who found jobs experienced a total increase in wages of \$23.7 million plus there was a reduction in public assistance costs estimated at \$3.6 million for these individuals.
- The annual program funding can be compared to the increase in wages less the decrease in public assistance for the year, resulting in an average return on investment of 224 percent over the past twelve years. The return on investment for 2016-17 was 240 percent. The average cost per graduate over this same period was \$8,704.
- Over the past twelve years, graduates of JobPath experienced average wage increases of \$33,000 per person compared to pre-training wages. In 2016-17, the average increase in wages at \$34,900 was above the long-term average (Figure 1). Note that this figure only represents the wage increase. The full post-training wage for graduates in 2016-17 was \$42,000.
- Wage increases can be compared to JobPath funding to calculate return on investments. For every \$1.00 of funding from local sources, JobPath produced \$2.40 in direct wage increases for graduates in 2016-17.



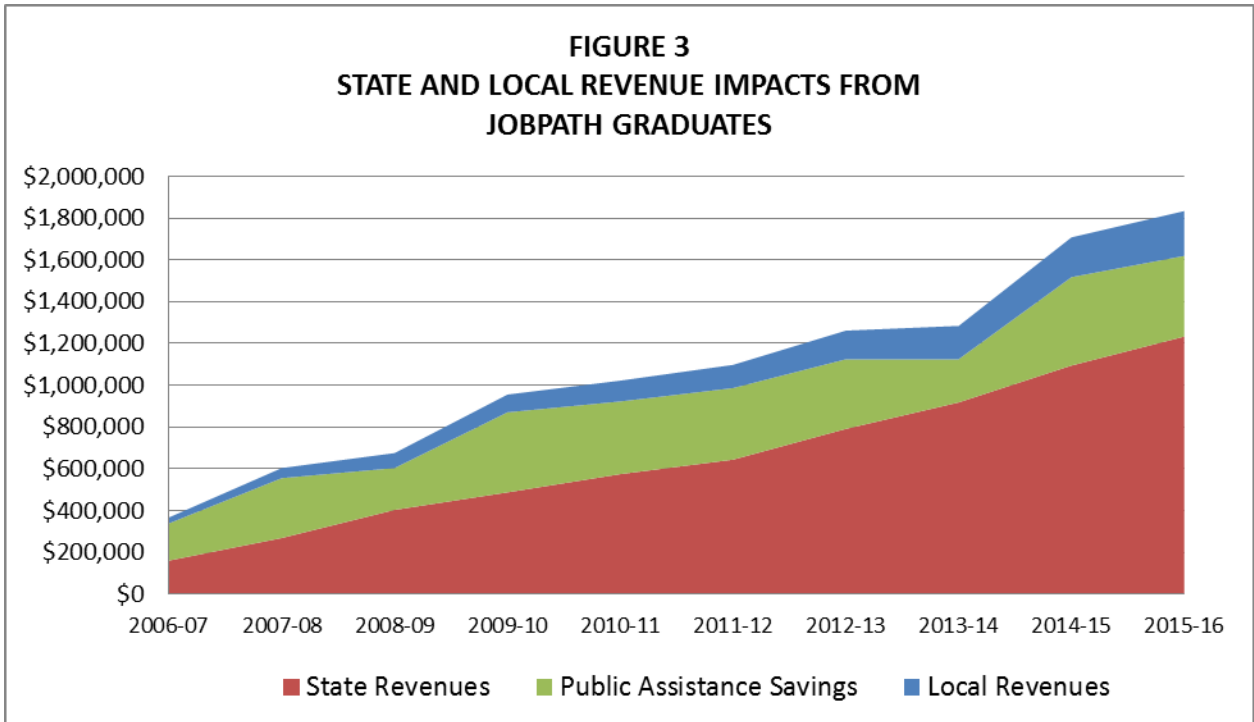
JobPath creates an annual economic impact of \$98.3 million on the Pima County economy, based on the sum of annual impacts over the past twelve years. A total of 716 graduates obtained jobs resulting in a direct increase in wages of \$23.7 million over pre-training levels. This increased level of economic activity indirectly supports an estimated 373 additional jobs and \$12.9 million in annual payroll *at other local businesses* throughout the County through business supplier purchases and employees spending.

Figure 2 shows annual economic impacts and indirect jobs supported. This past year was the largest single year impact to date, surpassing the previous peak in 2014-15. This is largely due to the increased number of graduates who were placed in jobs in 2016-17 compared to the previous year, and specific types of industries in which they were placed.



- Looking at the cumulative impacts of the JobPath program and assuming that graduates from previous years continue to be employed in jobs paying at least equal to their post-training wages, the economic impact over the past twelve years totals \$517.7 million, based on cumulative wage increases of \$139.7 million.
- These 716 graduates from the past twelve years, 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 JobPath program resulted in \$1.4 million in additional city and county sales tax revenues and \$8.1 million in additional state sales and personal income tax revenues over the twelve year period (Figure 3). These revenue impacts are based on cumulative taxes paid by employed graduates from 2005-06 through 2016-17.
- Along with the additional tax revenues, JobPath also supported 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 Pima County and the number of graduates who were previously receiving assistance, JobPath created an estimated cumulative reduction of \$3.6 million in public assistance payments by the state over the past twelve years. Annual impacts are shown in Figure 3.



- Local program funding for JobPath increased by 17 percent in 2016-17 due to a significant increase in grants of \$58,000, although county funding also increased by \$77,000. Despite the fact that funding levels remain comparatively low, JobPath was able to achieve post-training wage increases per person of close to \$35,000 in 2016-17.
- In order to understand the scale of the JobPath program and its value to the local economy, it is useful to compare the increase in workers in key occupations in Pima County, versus the number of JobPath graduates placed in those occupations.¹ In the occupations where JobPath produced the largest number of graduates last year, these graduates filled a significant number of the new jobs in Pima County.
 - In the Aviation program, JobPath produced 24 graduates in 2016-17. This industry has a larger number of workers retiring and, although there was a slight decline in the overall number of aircraft mechanics working in Pima County in 2016, these graduates most likely filled existing positions that were vacated due to retirements or separations.

¹ Bureau of Labor Statistics, Occupational Employment Statistics series for Pima County.

- In the RN program, JobPath produced 12 graduates, all of whom were placed in jobs upon graduation, helping to meet the continued high demand for nurses in the county. These graduates accounted for 11 percent of the new jobs in that occupation in Pima County between 2015 and 2016.
- In the LPN program, JobPath produced 8 graduates. The overall number of LPN's working in Pima County increased by 80 people from 2015 to 2016, with JobPath graduates accounting for 10 percent of those additional jobs.
- Along with producing graduates in high demand occupations, JobPath has also aligned its programs with the target industries for the region, including Aerospace and Defense, Transportation and Logistics, and Bioscience. The types of graduates that JobPath produces fill a critical need for middle-skill workers. According to a study by the National Skills Coalition, 52 percent of the job openings in Arizona over the next ten years will be in middle-skill jobs.²
- The Aerospace & Defense industry is a major component of the region's economy and the Tucson metro area is ranked as one of the top five areas in the country for this industry.³ Having the workforce to support this industry is critical to their long-term sustainability in Pima County. Pima Community College plays an important role in workforce development for Aerospace & Defense through its Aviation Technology Center, which produced 24 JobPath graduates this past year.
- Pima County has also become a leading center for innovation in the Bioscience industry. According to the Arizona Bioscience Roadmap, jobs in hospitals account for 78 percent of all bioscience jobs in Arizona. In the Tucson metro area, there is a growing hospital sub-sector that experienced significant employment increases even during the recession. Tucson has a 39 percent higher employment concentration in hospitals than the national average.⁴ Health-allied fields accounted for 48 percent of JobPath graduates this year. While some jobs in this industry require a four year degree, Pima Community College has a significant focus in applied degree programs to support health care and bioscience in the region.
- Because of Southern Arizona's strategic location relative to Mexico and Southern California, more than 150 transportation and logistics providers have been attracted to Pima County. However, a nationwide shortage of truck drivers threatens to slow the flow of products across the country since close to 70 percent of all freight tonnage is currently transported by truck. JobPath's focus on training truck drivers produced 9 graduates this past year, 8 of whom found jobs with local transportation providers.

² National Skills Coalition, [Forgotten Middle Skill Jobs: State by State Snapshots](http://www.nationalskillscoalition.org/state-policy/fact-sheets),

<http://www.nationalskillscoalition.org/state-policy/fact-sheets>

³ Sun Corridor Inc, <http://www.suncorridorinc.com/industry-strengths/aerospace-defense>

⁴ Flinn Foundation and TECnomy Partners, Arizona Bioscience Roadmap, 2016.

JobPath is a valuable program to support long-term workforce training in Pima County. It has generated a high return on investment based on program funding during the past twelve years. JobPath continues to produce graduates to fill positions in key growth occupations in the county in health care, aviation, trucking 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 IMPACT RESULTS

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

The economic impact results presented here are grouped into direct and total impacts. Direct impacts include the 716 graduates of the JobPath program from 2005-06 through 2016-17 who found jobs in the community. Direct income of \$23.7 million represents the increase in wages for these individuals over their pre-training wages. The direct increase in production value created by these 716 workers is estimated at \$57.5 million over twelve years. Total impacts include local supplier purchases by the employers of JobPath graduates in order to support additional production, and consumer spending by employees and their families. Both of these activities in turn support additional jobs, payroll and production value at other local businesses.

The secondary impacts supported by JobPath 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 personal 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 Pima County.

The JobPath graduates from 2016-17 created an annual economic impact of \$15.3 million in Pima County (Figure 4). They indirectly supported an estimated 55 jobs and \$2.2 million in personal 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 74 new jobs and \$2.6 million increase in payroll directly attributed to JobPath graduates in 2016-17.

In reality, graduates continue to contribute to the local economy even after they leave JobPath. If we look at cumulative impacts of the program over the past twelve years, the total economic impact on the community is estimated at \$517.7 million. 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. A recent study of JobPath graduates from the past five years showed that 79 percent of them were still employed in Pima 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 JobPath training programs is 1.71. Thus for every \$1.0 million increased production as a result of JobPath graduates, an additional \$710,000 in demand is created at other supporting businesses in Pima County along with 6 indirect jobs.

**FIGURE 4
ECONOMIC IMPACT OF JOBPATH PROGRAM**

	Direct Impacts			Total Impacts			Total Program Costs	**Return on Investment
	Output	Jobs	Income*	Output	Jobs	Income		
2005-06	\$2,931,088	48	\$1,472,815	\$4,973,245	68	\$2,138,353	\$379,600	344%
CNA	\$180,101	6	\$83,509	\$308,285	7	\$124,980	\$12,386	
Histology	\$256,815	4	\$119,080	\$439,601	6	\$178,216	\$30,008	
Pharmacy Technology	\$91,161	2	\$43,602	\$147,747	3	\$61,920	\$19,049	
Radiology Technician	\$164,838	3	\$76,432	\$282,160	4	\$114,389	\$30,603	
Respiratory Therapy	\$33,486	1	\$15,527	\$57,320	1	\$23,238	\$14,437	
RN Program	\$1,186,235	14	\$550,033	\$2,030,526	22	\$823,185	\$151,001	
Dental Hygenist	\$723,838	9	\$438,575	\$1,212,388	14	\$601,333	\$72,412	
Structural Repair	\$32,372	1	\$11,024	\$47,040	1	\$15,767	\$9,882	
Education	\$28,865	1	\$18,863	\$52,380	1	\$26,093	\$15,035	
Home Health	\$57,018	1	\$32,760	\$94,674	1	\$45,350	\$464	
First Path	\$14,752	2	\$8,476	\$24,495	2	\$11,733	\$7,136	
PCT	\$161,607	4	\$74,934	\$276,630	5	\$112,147	\$17,188	
2006-07	\$3,017,612	54	\$1,439,862	\$5,062,855	74	\$2,106,127	\$879,600	84%
CNA	\$72,537	3	\$33,634	\$124,165	4	\$50,337	\$35,757	
Histology	\$24,357	1	\$11,294	\$41,693	1	\$16,903	\$9,567	
Radiology Technician	\$120,983	3	\$56,098	\$207,092	4	\$83,956	\$43,702	
Respiratory Therapy	\$286,870	6	\$133,016	\$491,048	8	\$199,073	\$130,805	
RN Program	\$1,329,275	19	\$616,358	\$2,275,374	28	\$922,448	\$358,201	
LPN Program	\$90,433	2	\$41,932	\$154,797	3	\$62,755	\$21,051	
Dental Hygenist	\$510,643	7	\$309,400	\$855,299	10	\$424,221	\$142,122	
Dental Assisting	\$41,710	1	\$25,272	\$69,861	1	\$34,651	\$13,497	
Education	\$44,561	1	\$29,120	\$80,862	1	\$40,282	\$5,317	
Plumbing	\$128,063	2	\$31,512	\$190,091	3	\$52,551	\$35,133	
Biotech Research	\$92,638	3	\$56,264	\$167,707	4	\$81,165	\$48,562	
Aviation	\$258,250	4	\$87,945	\$375,266	5	\$125,785	\$25,959	
PCT	\$17,292	2	\$8,018	\$29,600	2	\$12,000	\$9,928	
2007-08	\$4,060,809	76	\$1,965,069	\$6,866,618	103	\$2,879,811	\$939,600	140%
CNA	\$71,127	10	\$32,980	\$121,750	10	\$49,358	\$22,702	
Histology	\$101,909	2	\$47,253	\$174,441	3	\$70,719	\$63,988	
Radiology Technician	\$528,272	8	\$244,949	\$904,264	12	\$366,593	\$97,613	
Respiratory Therapy	\$249,550	4	\$115,711	\$427,165	6	\$173,175	\$43,812	
RN Program	\$1,669,952	24	\$774,323	\$2,858,524	36	\$1,158,860	\$368,129	
LPN Program	\$138,386	4	\$64,167	\$236,882	5	\$96,033	\$8,019	
Dental Hygenist	\$721,852	9	\$437,372	\$1,209,062	14	\$599,684	\$101,638	
Dental Assisting	\$77,326	4	\$46,852	\$129,517	5	\$64,239	\$34,941	
Education	\$0	0	\$0	\$0	0	\$0	\$15,562	
Plumbing	\$59,171	1	\$14,560	\$87,831	1	\$24,281	\$8,982	
Biotech Research	\$68,216	2	\$41,431	\$123,494	3	\$59,768	\$19,048	
Aviation	\$139,721	4	\$47,581	\$203,031	5	\$68,054	\$84,984	
Medical Lab Tech	\$144,315	2	\$66,916	\$247,030	3	\$100,147	\$26,915	
Medical Info Tech	\$1,217	1	\$564	\$2,083	1	\$844	\$26,915	
Social Services	\$0	0	\$0	\$0	0	\$0	\$12,383	
Trucking	\$89,795	1	\$30,410	\$141,544	1	\$48,056	\$3,967	
2008-09	\$4,900,631	69	\$2,340,648	\$8,325,401	102	\$3,455,308	\$720,283	253%
Histology	\$28,218	1	\$13,084	\$48,301	1	\$19,582	\$8,423	
Radiology Technician	\$213,706	2	\$99,091	\$365,809	3	\$148,301	\$51,096	
Respiratory Therapy	\$290,278	4	\$134,596	\$496,880	6	\$201,438	\$40,678	
RN Program	\$2,683,393	35	\$1,244,235	\$4,593,272	54	\$1,862,135	\$390,861	
LPN Program	\$377,305	6	\$174,949	\$645,849	9	\$261,830	\$35,616	
Dental Hygenist	\$643,878	7	\$390,127	\$1,078,459	11	\$534,906	\$47,843	
Dental Assisting	\$34,329	1	\$20,800	\$57,499	1	\$28,519	\$8,870	
Plumbing	\$29,585	1	\$7,280	\$43,915	1	\$12,141	\$16,885	
Biotech Research	\$65,859	1	\$40,000	\$119,229	2	\$57,703	\$15,189	
PCT	\$148,033	3	\$68,640	\$253,394	4	\$102,727	\$13,411	
Aviation	\$37,747	2	\$12,854	\$54,850	2	\$18,385	\$23,134	
Medical Info Tech	\$114,165	1	\$52,936	\$195,421	2	\$79,225	\$12,513	
Social Services	\$0	0	\$0	\$0	0	\$0	\$19,773	
Trucking	\$116,389	2	\$39,416	\$183,465	3	\$62,288	\$15,254	
Electrician	\$54,944	1	\$13,520	\$81,557	1	\$22,547	\$9,474	

FIGURE 4
ECONOMIC IMPACT OF JOBPATH PROGRAM (continued)

	Direct Impacts			Total Impacts			Total Program Costs	**Return on Investment
	Output	Jobs	Income*	Output	Jobs	Income		
2009-10	\$2,698,248	43	\$1,407,176	\$4,639,351	60	\$2,020,845	\$656,113	173%
CNA	\$89,183	3	\$44,720	\$154,574	4	\$65,167	\$11,761	
Histology	\$80,410	2	\$40,321	\$139,369	3	\$58,756	\$11,325	
Radiology Technician	\$78,813	1	\$39,520	\$136,601	1	\$57,589	\$43,520	
Respiratory Therapy	\$99,553	1	\$49,920	\$172,548	2	\$72,744	\$53,360	
RN Program	\$1,228,387	17	\$615,962	\$2,129,071	25	\$897,588	\$234,050	
LPN Program	\$368,579	5	\$184,820	\$638,831	7	\$269,323	\$15,514	
Dental Hygienist	\$361,851	5	\$214,750	\$609,230	7	\$295,525	\$105,718	
Dental Assisting	\$126,172	3	\$74,880	\$212,429	4	\$103,045	\$22,961	
Plumbing	\$0	0	\$0	\$0	0	\$0	\$33,682	
Biotech Research	\$26,147	1	\$16,640	\$48,039	1	\$23,878	\$25,537	
Aviation	\$73,137	1	\$50,398	\$116,350	1	\$64,697	\$10,757	
PCT	\$77,465	2	\$38,844	\$134,264	2	\$56,604	\$10,469	
Medical Lab Tech	\$0	0	\$0	\$0	0	\$0	\$23,214	
HIT	\$41,481	1	\$20,800	\$71,895	1	\$30,310	\$16,572	
Electrician	\$47,070	1	\$15,600	\$76,150	1	\$25,619	\$10,206	
ECE	\$0	0	\$0	\$0	0	\$0	\$14,501	
EMT	\$0	0	\$0	\$0	0	\$0	\$5,976	
Solar	\$0	0	\$0	\$0	0	\$0	\$6,989	
2010-11	\$3,017,894	48	\$1,468,349	\$5,165,672	66	\$2,147,617	\$578,149	214%
Radiology Technician	\$305,578	5	\$153,229	\$529,635	7	\$223,287	\$38,499	
Respiratory Therapy	\$170,024	3	\$85,257	\$294,690	4	\$124,238	\$53,416	
RN Program	\$1,113,341	15	\$558,274	\$1,929,670	22	\$813,524	\$174,767	
LPN Program	\$380,514	5	\$190,805	\$659,517	7	\$278,044	\$24,599	
Dental Hygienist	\$261,013	4	\$154,905	\$439,455	6	\$213,171	\$80,560	
Dental Assisting	\$157,014	4	\$93,184	\$264,356	5	\$128,234	\$56,186	
Biotech	\$24,060	2	\$15,312	\$44,205	2	\$21,972	\$29,580	
Medical Lab Tech	\$44,592	1	\$22,360	\$77,287	1	\$32,583	\$3,980	
Electrician	\$31,380	1	\$10,400	\$50,767	1	\$17,079	\$22,450	
Medical Coding & Billing	\$210,391	5	\$124,862	\$354,224	6	\$171,827	\$67,478	
Power Plant/A&P	\$319,987	3	\$59,761	\$521,865	4	\$123,658	\$26,635	
			\$1,886,012			\$2,565,280		
2011-12	\$2,420,421	36	\$1,136,157	\$4,205,571	53	\$1,699,408	\$572,875	158%
Radiology Technician	\$219,385	4	\$108,526	\$390,706	6	\$161,022	\$20,602	
Respiratory Therapy	\$7,779	1	\$3,848	\$13,853	1	\$5,709	\$29,224	
RN Program	\$1,219,032	15	\$603,035	\$2,170,993	24	\$894,735	\$200,355	
LPN Program	\$309,004	5	\$152,859	\$550,309	7	\$226,800	\$27,953	
Dental Hygienist	\$162,794	2	\$103,168	\$292,785	3	\$146,307	\$48,101	
Dental Assisting	\$0	0	\$0	\$0	0	\$0	\$55,739	
Plumbing	\$24,257	1	\$8,320	\$38,355	1	\$13,292	\$17,546	
Biotech	\$6,191	1	\$3,328	\$11,676	1	\$5,188	\$10,503	
Aviation	\$67,938	1	\$36,400	\$123,734	2	\$56,878	\$17,060	
Trucking	\$32,474	1	\$14,400	\$55,562	1	\$22,935	\$6,887	
Electrician	\$48,513	1	\$16,640	\$76,711	1	\$26,584	\$11,730	
Medical Coding & Billing	\$26,814	2	\$16,993	\$48,225	2	\$24,098	\$98,100	
Power Plant/A&P	\$170,563	1	\$39,520	\$249,108	2	\$66,707	\$4,892	
Air Frame	\$125,678	1	\$29,120	\$183,554	2	\$49,153	\$24,183	
2012-13	\$5,169,041	75	\$2,543,911	\$9,127,363	113	\$3,861,578	\$660,733	335%
Radiology Technician	\$97,961	2	\$48,460	\$174,461	3	\$71,901	\$17,488	
Respiratory Therapy	\$74,003	2	\$36,608	\$131,793	3	\$54,316	\$13,338	
RN Program	\$1,286,006	14	\$636,166	\$2,290,268	23	\$943,892	\$127,537	
LPN Program	\$1,229,899	19	\$608,411	\$2,190,346	28	\$902,711	\$82,494	
Dental Hygienist	\$166,240	3	\$105,352	\$298,983	4	\$149,404	\$38,688	
Dental Assisting	\$117,829	4	\$74,672	\$211,915	5	\$105,895	\$26,261	
Med Lab Tech	\$39,419	1	\$19,500	\$70,202	1	\$28,933	\$15,164	
Aviation	\$683,980	13	\$366,462	\$1,245,706	19	\$572,625	\$146,747	
Trucking	\$1,402,883	15	\$622,080	\$2,400,280	25	\$990,790	\$70,302	
Electrician	\$64,257	1	\$22,040	\$101,605	1	\$35,211	\$26,569	
Medical Coding & Billing	\$6,564	1	\$4,160	\$11,806	1	\$5,899	\$96,145	

**FIGURE 4
ECONOMIC IMPACT OF JOBPATH PROGRAM (continued)**

	Direct Impacts			Total Impacts			Total Program Costs	**Return on Investment
	Output	Jobs	Income*	Output	Jobs	Income		
2013-14	\$4,297,596	60	\$2,187,635	\$7,628,215	92	\$3,292,815	\$703,946	240%
Radiology Technician	\$125,936	2	\$62,299	\$224,282	3	\$92,434	\$35,292	
Respiratory Therapy	\$75,685	1	\$37,440	\$134,788	2	\$55,550	\$32,845	
RN Program	\$1,157,663	15	\$572,677	\$2,061,699	23	\$849,691	\$213,688	
LPN Program	\$727,277	11	\$359,772	\$1,295,219	16	\$533,801	\$92,258	
Dental Hygenist	\$520,111	7	\$329,612	\$935,420	11	\$467,437	\$108,387	
Dental Assisting	\$56,104	4	\$35,555	\$100,903	4	\$50,422	\$37,632	
Med Lab Tech	\$84,094	1	\$41,600	\$149,765	2	\$61,723	\$2,771	
Aviation	\$660,992	12	\$354,146	\$1,203,839	17	\$553,380	\$137,431	
Trucking	\$889,734	7	\$394,534	\$1,522,301	13	\$628,377	\$27,591	
Law Enforcement	\$0	0	\$0	\$0	0	\$0	\$10,452	
Biotech	\$0	0	\$0	\$0	0	\$0	\$5,598	
2014-15	\$8,943,383	72	\$2,870,152	\$14,824,728	125	\$4,585,147	\$727,987	352%
Electric Utility Technology	\$343,172	1	\$31,788	\$476,971	2	\$55,595	\$1,284	
Radiology Technician	\$0	0	\$0	\$0	0	\$0	\$4,423	
Respiratory Therapy	\$223,794	3	\$105,810	\$376,103	4	\$148,651	\$34,217	
RN Program	\$1,905,526	18	\$900,933	\$3,202,375	30	\$1,265,712	\$174,889	
LPN Program	\$912,925	12	\$431,631	\$1,534,237	18	\$606,394	\$52,626	
Dental Hygenist	\$364,118	5	\$235,976	\$651,874	8	\$316,209	\$62,441	
Dental Assisting	\$145,566	4	\$94,338	\$260,605	5	\$126,413	\$20,278	
Med Lab Tech	\$73,314	1	\$42,244	\$127,176	1	\$57,402	\$30,937	
Aviation	\$2,072,516	10	\$356,360	\$3,483,586	23	\$803,407	\$198,709	
Trucking	\$2,373,328	10	\$545,532	\$3,748,929	22	\$964,056	\$41,559	
Electrician	\$80,091	5	\$26,196	\$114,226	5	\$35,797	\$86,224	
Law Enforcement	\$263,714	2	\$58,344	\$498,404	4	\$120,694	\$17,579	
Fire Science Academy	\$185,319	1	\$41,000	\$350,243	2	\$84,815	\$2,821	
2015-16	\$7,340,566	61	\$2,238,759	\$12,111,274	104	\$3,630,920	\$732,024	259%
Fire Science Academy	\$0	0	\$0	\$0	0	\$0	\$5,678	
Electric Utility Technology	\$561,373	1	\$52,000	\$780,247	2	\$90,945	\$7,616	
Radiology Technician	\$44,433	2	\$21,008	\$74,673	2	\$29,514	\$15,677	
Respiratory Therapy	\$222,331	4	\$105,118	\$373,643	5	\$147,679	\$42,698	
RN Program	\$1,180,947	12	\$558,352	\$1,984,668	19	\$784,423	\$109,529	
LPN Program	\$742,151	12	\$350,889	\$1,247,238	17	\$492,961	\$63,586	
Dental Hygenist	\$334,559	5	\$216,819	\$598,954	7	\$290,539	\$89,785	
Dental Assisting	\$80,177	2	\$51,961	\$143,540	3	\$69,628	\$31,462	
Biotech Research	\$13,537	1	\$7,800	\$23,482	1	\$10,599	\$2,993	
Aviation	\$2,306,851	12	\$396,653	\$3,877,469	27	\$894,246	\$232,658	
Med Lab Tech	\$154,371	3	\$88,949	\$267,783	4	\$120,867	\$33,036	
Trucking	\$1,524,214	6	\$350,355	\$2,407,662	14	\$619,142	\$17,996	
Law Enforcement	\$175,621	1	\$38,854	\$331,914	2	\$80,377	\$4,038	
Engineering	\$0	0	\$0	\$0	0	\$0	\$75,269	
2016-17	\$8,738,759	74	\$2,583,516	\$15,342,967	129	\$4,780,371	\$857,089	240%
Fire Science Academy	\$93,509	1	\$20,688	\$159,798.22	2	\$41,831	\$17,223	
Electric Utility Technology	\$0	0	\$0	\$0	0	\$0	\$18,883	
Radiology Technician	\$338,372	5	\$159,982	\$593,586	7	\$240,121	\$30,333	
Respiratory Therapy	\$190,161	4	\$89,908	\$333,588	5	\$134,945	\$39,242	
RN Program	\$1,146,897	12	\$542,253	\$2,011,934	19	\$813,880	\$132,671	
LPN Program	\$503,194	8	\$237,910	\$882,725	11	\$357,085	\$52,837	
Dental Hygenist	\$362,032	4	\$234,624	\$655,148	6	\$324,117	\$57,037	
Dental Assisting	\$28,047	1	\$18,177	\$50,755	1	\$25,110	\$15,080	
Aviation	\$4,053,578	19	\$696,995	\$7,248,674	46	\$1,800,161	\$267,405	
Med Lab Tech	\$227,924	4	\$131,331	\$396,944	5	\$184,674	\$29,027	
Trucking	\$1,038,720	7	\$238,760	\$1,795,649	13	\$490,390	\$41,964	
Electrician	\$225,247	5	\$73,674	\$330,139	6	\$106,317	\$132,211	
Surgical Tech	\$96,785	1	\$45,760	\$169,784	2	\$68,682	\$5,848	
Law Enforcement	\$347,200	2	\$76,814	\$593,330	4	\$155,319	\$10,334	
Welding	\$87,094	1	\$16,640	\$120,912	1	\$37,738	\$6,994	
Total	\$57,536,049	716	\$23,654,049	\$98,273,261	1,089	\$36,598,299	\$8,407,999	224%

Source: JobPath; Applied Economics, 2018.

*Direct income represents only increase in salary over pre-training level, not full ending salary.

**Return on investment based on increase in wages (direct income) per dollar of program costs.

The largest program is the RN program, which has placed a total of 210 graduates in jobs over the twelve-year period, followed by the LPN and aviation programs that had 98 and 78 graduates, respectively. In terms of the average wage increases per person, the dental hygienist, RN and surgical technology programs ranked the highest, with an average wage increase of \$45,200 to \$58,700 per person in 2016-17. The overall average increase for all occupations in 2016-17 was \$34,900 per person or 496 percent. *Note that these percentage increases include individuals who were not employed prior to entering JobPath.*

Most JobPath participants are below the poverty level prior to entering the program. The average pre-training annual wage in 2016-17 was \$7,040 per person and includes 36 graduates who were previously unemployed, which is about 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 \$41,950 in 2016-17. Post-training wages are largely a function of the distribution of graduates by program. The dental hygienist and RN programs offered the highest post-training wages in 2016-17, at \$61,500 and \$49,000, respectively. This year, the fire science academy and surgical technology programs also had average post-training wages over \$45,000.

4.0 REVENUE IMPACT RESULTS

In addition to economic impacts, the graduates of the JobPath program also generate revenue impacts 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 Bureau Consumer Expenditure Survey, approximately 27 percent of gross personal income is spent on taxable goods. Applying this assumption to personal income from the economic impact results in a cumulative increase of \$1.1 million in city sales tax and \$281,000 in RTA sales tax over the twelve-year period (Figure 5). Note that the direct impacts include only the additional taxes generated by the increase in wages for JobPath graduates, not their total wages.

In terms of state taxes, JobPath graduates directly and indirectly generated \$3.3 million in increased state sales tax revenues over the past twelve years. In addition, they generated a cumulative increase of \$4.8 million in personal income tax revenues to the state. It is important to look at cumulative revenue impacts since graduates from previous years continue to generate local taxes as they continue to work and contribute to the economy. All total, JobPath graduates directly and indirectly supported an increase of \$9.5 million in cumulative state and local tax revenues over the past twelve years.

**FIGURE 5
CUMULATIVE ANNUAL REVENUE IMPACTS OF JOBPATH PROGRAM
BASED ON INCREASES IN POST-TRAINING WAGES**

	Local Impacts		State Impacts		Total Taxes
	City Sales		Sales Tax	Personal Income Tax	
	Tax	RTA Sales Tax			
2005-06					
Direct Revenues	\$7,953	\$1,988	\$22,269	\$34,168	\$66,379
Total Revenues	\$11,547	\$2,887	\$32,332	\$49,217	\$95,983
2006-07					
Direct Revenues	\$15,728	\$3,932	\$44,040	\$66,364	\$130,065
Total Revenues	\$22,920	\$5,730	\$64,177	\$96,501	\$189,328
2007-08					
Direct Revenues	\$26,340	\$6,585	\$73,752	\$110,179	\$216,855
Total Revenues	\$38,471	\$9,618	\$107,719	\$161,026	\$316,834
2008-09					
Direct Revenues	\$38,979	\$9,745	\$109,142	\$167,202	\$325,068
Total Revenues	\$57,130	\$14,282	\$159,964	\$243,274	\$474,650
2009-10					
Direct Revenues	\$46,578	\$11,645	\$134,218	\$200,660	\$393,100
Total Revenues	\$68,042	\$17,011	\$195,975	\$291,256	\$572,284
2010-11					
Direct Revenues	\$54,507	\$13,627	\$160,384	\$233,919	\$462,437
Total Revenues	\$79,640	\$19,910	\$234,246	\$340,496	\$674,291
2011-12					
Direct Revenues	\$60,642	\$15,161	\$180,630	\$260,145	\$516,578
Total Revenues	\$88,816	\$22,204	\$264,529	\$379,299	\$754,848
2012-13					
Direct Revenues	\$74,380	\$18,595	\$219,094	\$319,127	\$631,196
Total Revenues	\$109,669	\$27,417	\$322,916	\$467,946	\$927,948
2013-14					
Direct Revenues	\$86,193	\$21,548	\$252,171	\$371,517	\$731,429
Total Revenues	\$127,450	\$31,863	\$372,703	\$544,988	\$1,077,004
2014-15					
Direct Revenues	\$101,692	\$25,423	\$295,568	\$441,670	\$864,352
Total Revenues	\$152,210	\$38,052	\$442,031	\$652,288	\$1,284,581
2015-16					
Direct Revenues	\$113,781	\$28,445	\$329,418	\$495,099	\$966,743
Total Revenues	\$171,817	\$42,954	\$496,930	\$736,059	\$1,447,760
2016-17					
Direct Revenues	\$131,917	\$31,933	\$368,481	\$555,863	\$1,088,194
Total Revenues	\$205,375	\$49,408	\$569,210	\$849,386	\$1,673,378
12 Year Total	\$1,133,087	\$281,336	\$3,262,731	\$4,811,736	\$9,488,890

Source: JobPath; Applied Economics, 2018.

Note: Total revenue impacts include revenues related to additional workers and payroll supported through economic impacts. Total revenues are inclusive of direct revenues. Revenues cumulate over time, accounting for continuing impacts from graduates in previous years.

In addition to supporting increases in tax revenues, the JobPath program also generated 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 came to JobPath. 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 Pima County from the Arizona Department of Economic Security and AHCCCS, it is possible to estimate the annual decrease in public assistance expenditures. While the reductions are shown for each year, it is assumed that these impacts would be cumulative over time. All total, the JobPath program resulted in a \$3.6 million cumulative annual decrease in public assistance in Pima County, based on job placements over the past twelve years (Figure 6).

FIGURE 6
ANNUAL REDUCTION IN PUBLIC ASSISTANCE EXPENDITURES
FROM JOBPATH GRADUATES

Program Year	Assistance Program					Total
	Food Stamps	TANF	Utility Assistance	AHCCCS	Child Care	
2005-06	(\$43,864)	(\$3,093)	(\$3,632)	(\$115,401)	(\$46,623)	(\$212,612)
2006-07	(\$41,123)	(\$9,279)	(\$1,816)	(\$102,579)	(\$23,311)	(\$178,107)
2007-08	(\$49,347)	(\$12,372)	(\$3,632)	(\$128,223)	(\$93,245)	(\$286,819)
2008-09	(\$39,160)	(\$7,552)	(\$10,227)	(\$128,223)	(\$15,453)	(\$200,615)
2009-10	(\$96,747)	(\$7,383)	(\$2,479)	(\$207,034)	(\$69,358)	(\$383,001)
2010-11	(\$85,020)	\$0	(\$7,660)	(\$231,446)	(\$23,757)	(\$347,883)
2011-12	(\$100,619)	\$0	(\$2,538)	(\$232,259)	(\$7,201)	(\$342,616)
2012-13	(\$100,005)	(\$7,211)	(\$2,487)	(\$207,860)	(\$15,902)	(\$333,465)
2013-14	(\$57,059)	\$0	(\$4,892)	(\$123,623)	(\$21,377)	(\$206,951)
2014-15	(\$100,762)	(\$2,437)	(\$9,744)	(\$281,829)	(\$28,502)	(\$423,274)
2015-16	(\$81,654)	(\$4,848)	(\$2,417)	(\$270,668)	(\$22,360)	(\$381,948)
2016-17	(\$68,517)	\$0	\$0	(\$241,701)	(\$16,735)	(\$326,953)
Total	(\$863,879)	(\$54,175)	(\$51,522)	(\$2,270,846)	(\$383,824)	(\$3,624,246)

Source: Arizona Department of Economic Security; AHCCCS; JobPath; Applied Economics, 2018.

5.0 RETURN ON INVESTMENT

The final and most important calculation is the return on investment that JobPath is providing to the city and county based on the value of increased wages for graduates per dollar of local program funding. All total, 966 individuals participated in the program from 2005-06 through 2016-17. Of that total, 716 individuals found jobs immediately upon graduation. An additional 42 individuals (including 6 in this past year) completed the program between 2006-2007 and 2016-17, but decided to continue their education or joined the military and were not placed in jobs. Finally, 208 individuals who completed the program during the twelve-year period did not provide sufficient information about post-training wages to be included in the economic impact analysis. However, based on longer term data on graduates, it is evident that a number of the graduates who were not employed immediately did ultimately find jobs in their field in Pima County.

Note that the local program funding figure used to estimate return on investment includes all direct costs for both graduates placed in jobs and those who did not complete the program, decided to continue their education, or were not employed immediately upon graduation for other reasons. Local program funding includes direct financial assistance and case management. Case management is integral to the success of participants in the JobPath 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 JobPath, including Pell Grants, scholarships, and Workforce Investment Act funds through Arizona@Work Pima County.

It is important to note that program costs include all monies spent on individual graduates during the time they were in the program, which may extend beyond a single year. While the total program cost is equal to the sum of the city, county and local grant and donation funding in a given year, some of the costs reported in a given year may have actually occurred in the previous year. Since this trend is consistent over time, it is assumed that the return on investment calculation is not significantly impacted.

In total, the locally funded program cost for 2005-06 was \$379,600, yielding an average cost per graduate of \$7,400 based on 51 individuals who completed the program that year.⁵ The amount of increased wages plus reductions in public assistance for graduates in 2005-06 year totaled \$1.7 million. As a result, the program yielded a 344 percent return on investment (Figure 7).

In 2006-07, the locally funded program cost was \$879,600, compared to an increase in wages combined with a decrease in public assistance costs of \$1.6 million for a return on investment

⁵ Cost per graduate includes all participants who completed the program in that year, not only those who found jobs immediately upon graduation.

of 84 percent. The average cost per graduate in 2006-07 was \$9,700, based on 91 individuals completing the program that year. Funding in 2006-07 increased significantly over the previous year. There was a significant increase in the number of graduates but not as large as the increase in funding. There was also an increase in the number of multi-year participants that were carried forward into 2007-08 that accounted for some of the year to year differences.

In 2007-08, the locally funded program cost was \$939,600, compared to an increase in wages combined with a decrease in public assistance of \$2.3 million for a return on investment of 140 percent. The average cost per graduate in 2007-08 was \$10,100, based on 93 individuals completing the program that year. Although funding increased by 7 percent over the previous year, the total number of graduates only increased from 91 to 93. This resulted in a slightly higher cost per graduate in 2007-08.

In 2008-09, the locally funded program cost was \$720,300, compared to an increase in wages combined with a decrease in public assistance of \$2.5 million for a return on investment of 253 percent. The average cost per graduate in 2008-09 was \$8,400, based on 86 individuals completing the program that year. Although funding decreased by 23 percent over the previous year, the total number of graduates stayed about the same and the average wage increase per job was higher than in the previous year, resulting in a higher return on investment and a lower average cost per graduate.

In 2009-10, the locally funded program cost was \$656,100, compared to an increase in wages combined with a decrease in public assistance of \$1.8 million for a return on investment of 173 percent. The average cost per graduate in 2009-10 was \$7,600, based on 86 individuals completing the program that year. Funding decreased by 9 percent over the previous year, but the aggregate increase in wages fell by a larger proportion than funding, resulting in a lower return on investment compared to 2008-09. However, since the total number of graduates also decreased, the average cost per graduate actually decreased by about 10 percent.

In 2010-11, the locally funded program cost was \$578,200, compared to an increase in wages combined with a decrease in public assistance of \$1.8 million for a return on investment of 214 percent. The average cost per graduate in 2010-11 was \$8,900, based on 65 individuals completing the program that year. The cost per graduate increased because the total number of graduates decreased from 86 in 2009-10 to 65 in 2010-11, despite an increase in the number of graduates obtaining jobs. However, return on investment increased over last year with the total wage increases for graduates up \$123,000 (9% increase) and funding down about \$21,000 (3% decrease).

In 2011-12, the locally funded program cost was \$572,900. Total funding remained about the same as the previous year as did the overall number of graduates (including those without jobs). This funding can be compared to an increase in wages combined with a decrease in public assistance of \$1.5 million in 2011-12 for a return on investment of 158 percent. The average cost per graduate in 2011-12 was \$9,100, based on 63 individuals completing the program, which is 2 percent higher than last year. The total wage increase is slightly lower than last year due to the smaller number of graduates for whom post-training wages are available,

however, the average post-training wages for graduates in 2011-12 is about 4 percent higher than in 2010-11.

The decrease in return on investment in 2011-12 is primarily due to the fact that post-training wage data was only available for 36 of the 63 graduates, compared to 48 out of 65 graduates in the previous year. In some cases the graduates have not been responsive to requests for information. In other cases, there were changes in local market conditions and it was more difficult to find jobs for graduates. This has been the case with dental assistants, dental hygienists and medical coding and billing graduates. All three of these programs were reduced in the following year to adjust to job market changes, while programs where hiring has been strong, such as those related to aviation, were expanded to meet increased demand.

In 2012-13, the locally funded program cost was \$660,700. Total funding increased by 15 percent in 2012-13 compared to 2011-12, which was the first funding increase since 2007-08. At the same time, the overall number of graduates (including those not placed in jobs) increased by 46 percent and the number of graduates placed in jobs more than doubled over the previous year. The annual funding level for the program can be compared to an increase in wages combined with a decrease in public assistance of \$2.9 million in 2012-13 for a return on investment of 335 percent, which is the second highest return over the study period. The average cost per graduate in 2012-13 was \$7,200, based on 92 individuals completing the program, which is 21 percent lower than last year. The total wage increase is more than double the previous year's amount, due to the larger number of graduates and the higher average wage increase per graduate.

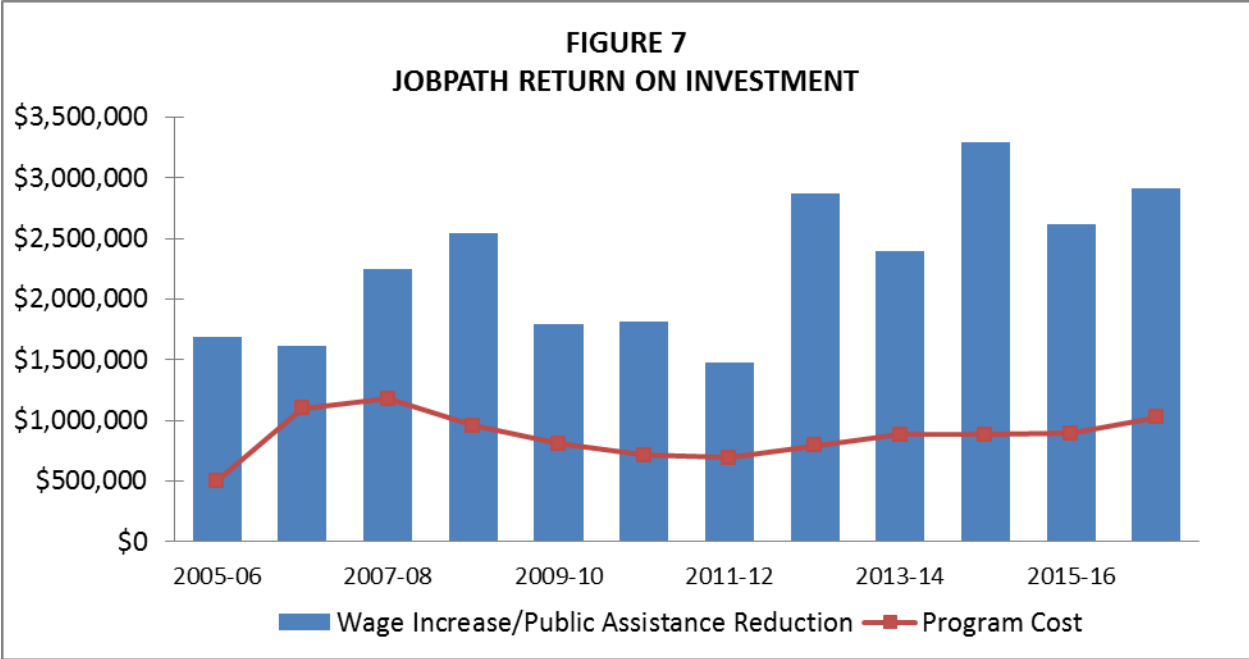
In 2013-14, the total cost of the program was \$703,900. Total funding increased by 7 percent in 2013-14 compared to 2012-13 due primarily to an increase in grants and donations. The overall number of graduates (including those not placed in jobs) was down by 21 percent over the previous year, although 2012-13 was a record year in terms of the number of graduates. The share of graduates obtaining jobs remained constant at about 82 percent. The current funding level for the program in 2013-14 can be compared to an increase in wages less the decrease in public assistance for the year of \$2.4 million, resulting in a return on investment of 240 percent, which is well above the average for the study period of 219 percent. The average cost per graduate in 2013-14 was \$9,600, based on 73 individuals completing the program, which is slightly higher than last year. This is primarily due to increased program costs, particularly for aviation, nursing and dental hygienists which are some of the most popular programs. However, the average wage increase for program graduates was also 7 percent higher than last year.

In 2014-15, the locally funded program cost included \$728,000 from the city and county and from grants and donations. Total funding increased by 3 percent in 2014-15 compared to 2013-14 due exclusively to an increase in grants and donations. The overall number of graduates (including those not placed in jobs) was up by 21 percent over the previous year making it the highest year thus far in terms of graduates. The share of graduates with jobs remained about the same at about 82 percent, as it has over the last several years. The current funding level for the program in 2014-15 can be compared to an increase in wages less the decrease in public

assistance for the year of \$3.3 million, resulting in a return on investment of 352 percent, which is the highest return to date and well above the average for the study period. The average cost per graduate in 2014-15 was \$8,300, based on 88 individuals completing the program, which is significantly lower than last year due to the larger number of graduates versus a very modest increase in costs. The average wage increase for program graduates was also 9 percent higher than last year and represents the highest average wage increase to date.

In 2015-16, the locally funded program cost included \$732,000 from the city and county and from grants and donations, which is nearly unchanged compared to 2014-15. Continuing declines in city and county funding were offset by increases in grants and donations. The overall number of graduates (including those not placed in jobs) declined about 5 percent from the previous year, although this was still the second highest year in terms of number of graduates. The share of graduates able to attain jobs in 2015-16 dropped to 73 percent, but this was almost entirely due to the 10 graduates in the new engineering program who will continue their education. The current funding level for the program can be compared to an increase in wages less the decrease in public assistance of \$2.6 million in 2015-16, resulting in a return on investment of 259 percent. The average cost per graduate in 2015-16 was \$8,700, based on 84 individuals completing the program; this figure is only slightly higher than last year and largely due to the slightly smaller number of graduates, since costs were nearly unchanged. The average wage increase for program graduates was \$36,700, which is the second highest increase of the study period.

In 2016-17, the locally funded program cost included \$857,100 from the city and county and from grants and donations, which is up 17 percent over the previous year, primarily due to increased grant revenues, but also due to increased funding from the county. This is the first significant funding increase in several years. The overall number of graduates (including those not placed in jobs) increased about 12 percent from the previous year, and this was the second highest year thus far in terms of the total number of graduates. The share of graduates able to attain jobs upon graduation in 2016-17 increased to 79 percent this year. The current funding level for the program can be compared to an increase in wages less the decrease in public assistance of \$2.9 million in 2016-17, resulting in a return on investment of 240 percent. The average cost per graduate in 2016-17 was \$9,100, based on 94 individuals completing the program, which is slightly higher than last year given the increase in grant funding. The average wage increase for program graduates was \$34,900.



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 JobPath. Thus some of the value of increased wages that are attributed to the JobPath program may have happened anyhow, given that a significant number of students are already enrolled at the community college prior to becoming JobPath clients. However, JobPath 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.

JobPath provides an important service to the community by enhancing the quality of life for graduates and their families. They also provide qualified motivated employees to meet the needs of local employers in high growth and targeted industries. Based on the average increase in wages compared to the program costs, JobPath has provided an excellent return on investment over the past twelve years, with another strong year in 2016-17, and has created substantial long-term economic impacts in Pima County.