



Department of
Job and Family Services

2028 Ohio Job Outlook

Employment Projections



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Ohio Job Outlook to 2028

Overview

Employment projections are a key product of the Bureau of Labor Market Information. The bureau completes 10-year employment projections every two years and two-year employment projections annually. The projections are based on the most current data available at the time they are made; they are estimates of future employment assuming there are no changes in the current situation. People who use this information include individuals planning their education, training and careers; educational program planners developing training courses and curricula; administrators and legislators responsible for government policies; and business executives planning marketing and personnel strategies.

One key use of the long-term employment projections is in the identification of Ohio top jobs. Statistical thresholds for wage, growth and annual openings determine the baseline list of occupations used.¹ The list of top jobs is for operational and implementation purposes, specifically to foster cross-agency alignment and to better target job-matching and career-planning services through **OhioMeansJobs.com**.

This report presents Ohio employment projections from 2018 to 2028. It is divided into three sections. The “Ohio Population Trends” section presents population projections and historical labor force participation rates. The “Ohio Industry Employment” section presents employment projections for Ohio’s goods-producing and service-providing industries. The “Ohio Occupational Employment” section presents employment projections for occupations and occupational groups.

Overall, the Ohio economy is expected to add 138,000 additional jobs between 2018 and 2028, with an expected 685,000 job openings annually. The health care and social assistance services industries are expected to add the most jobs, and a large portion of job growth will come from health care occupations. Read more to learn about the growth expectations for Ohio’s industries and occupations.

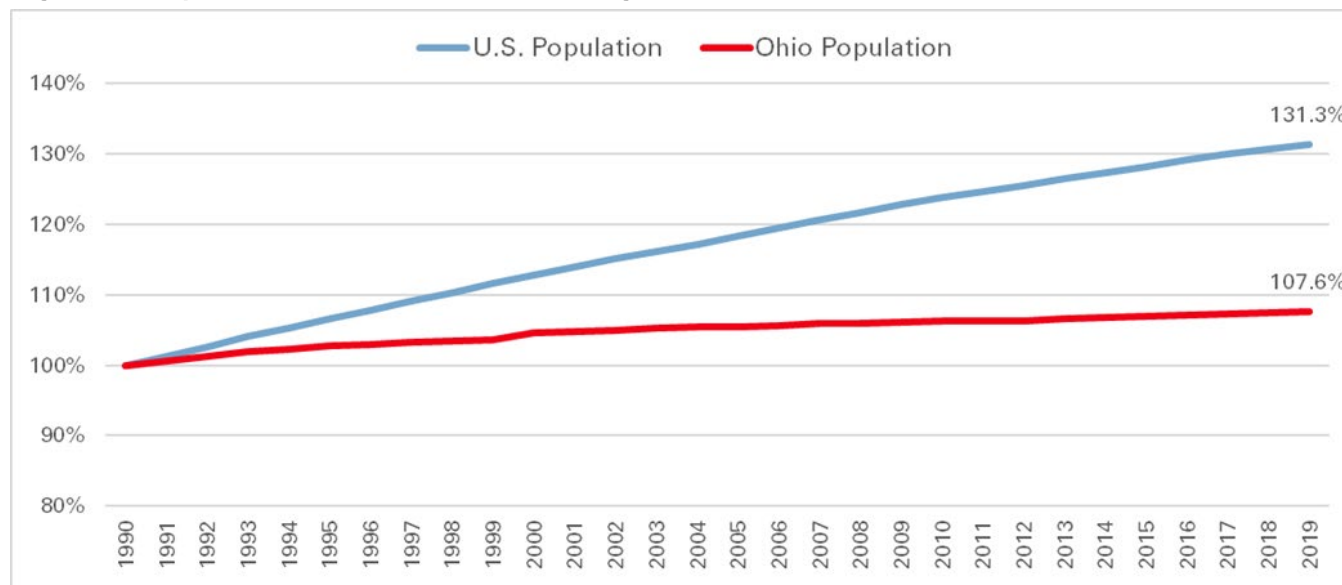
The data in this report was compiled and analyzed prior to the COVID-19 pandemic. (See Data Limitations on page 18 for more information.)

¹ Additional factors included are employment patterns for key industry clusters, employer job-forecasting survey data, and assessments by a review committee.

Ohio Population Trends

Historically, Ohio's population has grown more slowly than the national average. As shown in Figure 1, Ohio's population grew 7.6% from 1990 to 2019 while the U.S. population grew 31.3%. From 2000 to 2019, the national population grew 16.3%, but Ohio's population grew only 2.9%.

Figure 1. Population Growth as a Percentage from 1990



Source: U.S. Census Bureau and U.S. Bureau of Economic Analysis

Ohio's slower-than-average growth is expected to continue (Figure 2). Projected ten-year population growth rates for the U.S. are 7.4%, with the projected working age population (age 16 and older) expected to grow at a rate of 8.5%. In comparison, Ohio's total population is expected to grow 0.3% in 10 years, and the working-age population will see 0.5% growth. The oldest population group (65 and older) is expected to grow 31.3% for the entire U.S. and is expected to increase by 18.4% in Ohio. However, the age group of 25 to 64 is expected to decline in Ohio by 5.5% and is expected to increase nationally by 2.8%.

Figure 2. U.S. and Ohio Population Projections (in thousands)

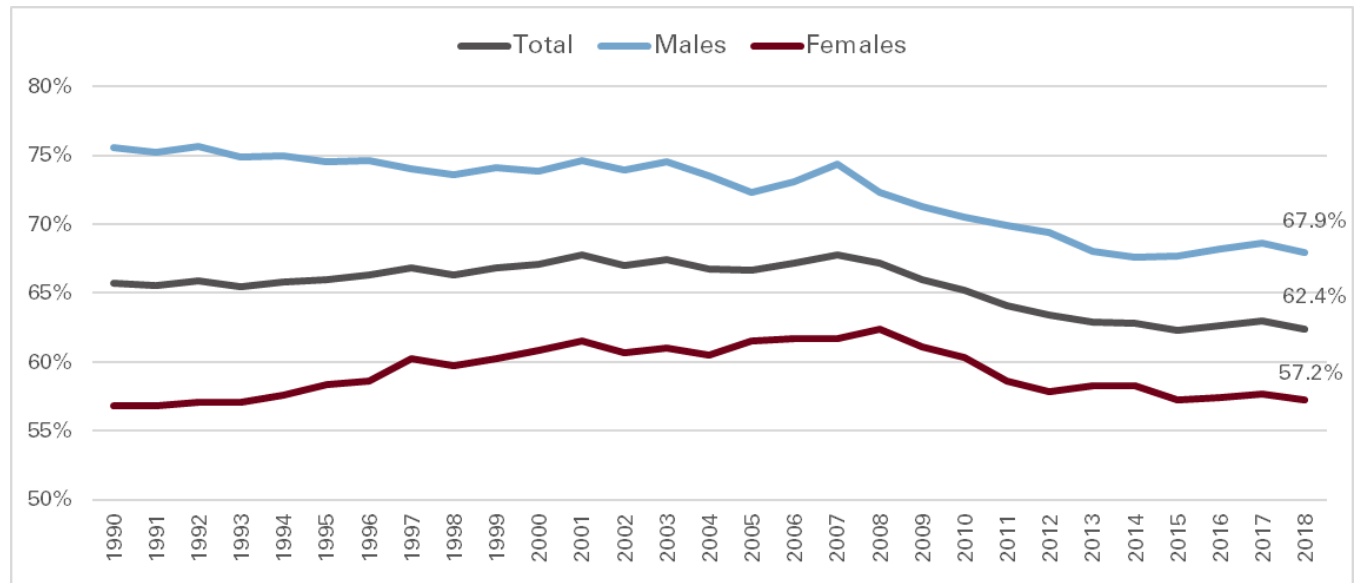
	2020	2025	2030	% change 2020-2030
U.S.				
Total Population	334,503	347,335	359,402	7.4%
Working-Age Population	268,750	280,749	291,500	8.5%
Age 25 to 64	173,379	175,664	178,228	2.8%
Age 65 and over	56,441	65,920	74,107	31.3%
Ohio				
Total Population	11,575	11,599	11,615	0.3%
Working-Age Population	9,271	9,316	9,318	0.5%
Age 25 to 64	5,874	5,678	5,551	-5.5%
Age 65 and over	2,011	2,244	2,382	18.4%

Source: Ohio Development Services Agency and U.S. Census Bureau

Even though the total and working-age populations in Ohio have been growing, labor force participation rates have been declining. This means fewer people in the working-age population are working or actively looking for work. In 2000, the labor force participation rate for Ohio was 67.1%; by 2018 it had dropped to 62.4%.

Figure 3 shows the labor force participation rates for men, women, and the total working-age population from 2000 to 2018.

Figure 3. Ohio Labor Force Participation Rates by Gender – 1990 to 2018



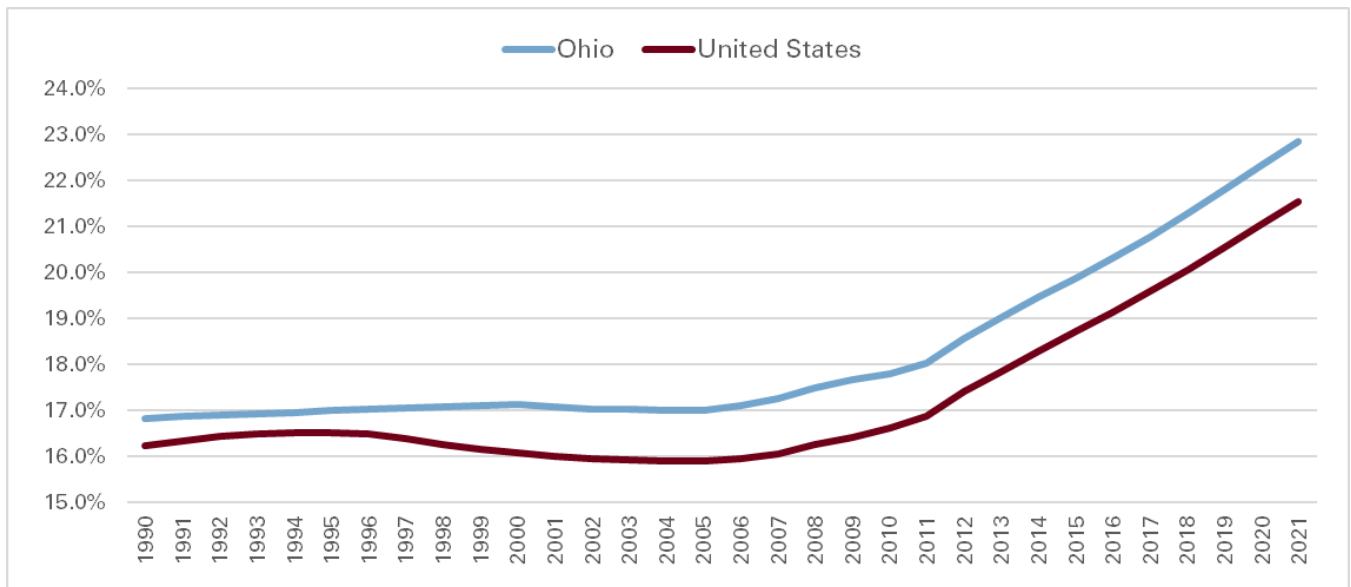
Source: Bureau of Labor Statistics

The decline in labor force participation is part of a national trend. At first glance it appears the recession may have caused a steep decline in participation rates. During the recession, some individuals were discouraged and stopped looking for work, which means they were no longer part of the labor force. Many of these individuals rejoined the labor force as the economy recovered. Other factors are driving the decline in labor force participation. The strongest factor, one that began at the height of the recession, was the beginning of retirements for the baby boom generation. In 2008 the first of the baby boomers turned 62 and became eligible for Social Security; in 2011 they turned 65, the traditional age for retirement. Nationally, about 10,000 baby boomers turn 65 each day.² Even though they have retired, they are still part of the working age population. As long as they are not employed and not actively looking for work, they count against the labor force participation rate. Continuing retirements among the baby boomers will push labor force participation rates lower.

² <http://www.pewresearch.org/daily-number/baby-boomers-retire/>

Figure 4 shows the percentage of those 65 and older in the work-age population projected to 2021. A second factor affecting participation rates is an overall decline in labor force participation among many demographic groups. For example, labor force participation among prime-age men (ages 25 to 54) declined for 60 years, from 1954 to 2014.³

Figure 4. Percentage of Working-Age Population Age 65 and Older



Source: IHS Markit Ltd

³ <https://data.bls.gov/timeseries/LNS11300061>

Ohio Industry Employment

This section shows projected employment changes for a variety of industry classifications. Business establishments are classified into industries according to the primary goods and services they produce or provide, using the North American Industry Classification System (NAICS). For example, factories assembling cars are classified in the motor vehicle manufacturing industry, and supermarkets are in the grocery store industry. See Appendix Table A for examples of types of businesses by NAICS classification. NAICS has several levels of classification, each giving a more detailed picture of each industry. This report presents industry employment projections at the NAICS sector and industry-group levels to illustrate expected changes.⁴ The data in this report was compiled and analyzed prior to the COVID-19 pandemic. (See Data Limitations on page 18 for more information.)

Industry Sectors

Industries typically are grouped in two broad categories: goods-producing, which produce physical products, and service-providing, which are all other industries. The goods-producing industry sectors are agriculture, forestry, fishing and hunting; mining, quarrying, and oil and gas extraction; construction; and manufacturing. The service-providing industry sectors are wholesale trade; retail trade; transportation and warehousing; utilities; information; finance and insurance; real estate and rental and leasing; professional, scientific and technical services⁵; management of companies and enterprises; administrative and support and waste management and remediation services⁶; educational services; health care and social assistance; arts, entertainment and recreation; accommodation and food services; other services (except public administration); and government.

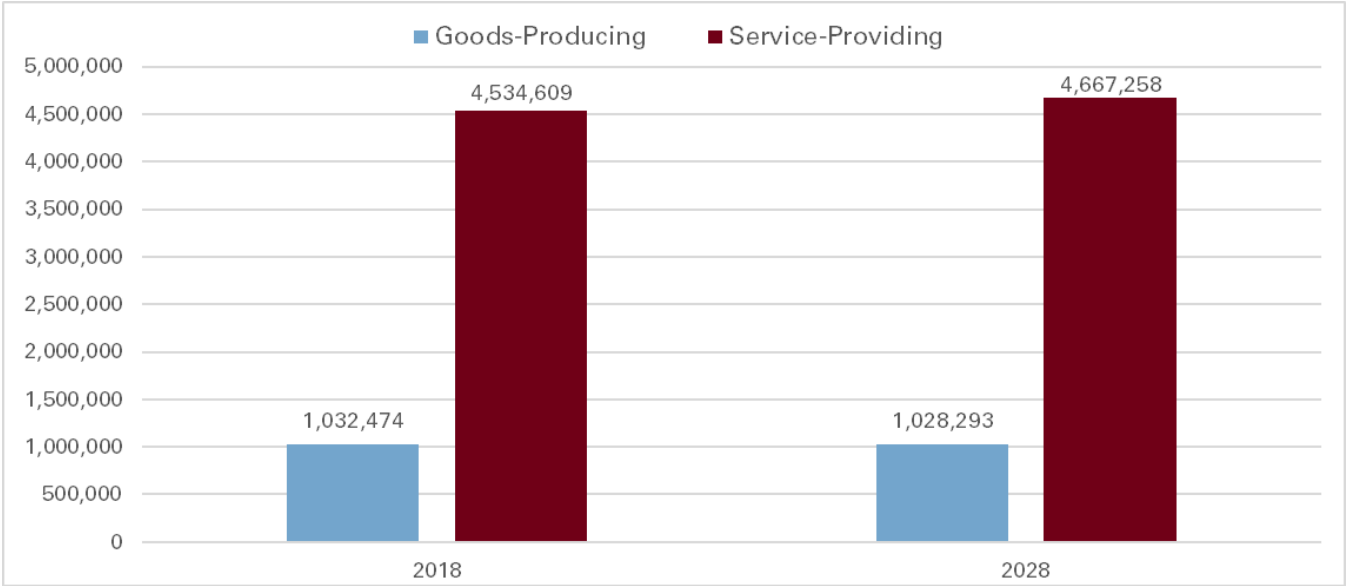
⁴ NAICS consists of the following industry levels: 11 supersectors (individual two-digit NAICS or several two-digit NAICS grouped together); 20 sectors (individual two-digit NAICS); 99 subsectors (three-digit NAICS); 312 industry groups (four-digit NAICS); 713 industries (five-digit NAICS); and 1,065 detailed NAICS (six-digit NAICS).

⁵ Short title, "Professional and technical services" used in charts / tables.

⁶ Short title, "Administrative and waste services" used in charts / tables.

Figure 5 details employment projections for goods-producing and service-providing industries. Overall, the number of jobs for Ohioans is expected to rise from 5.860 million in 2018 to 5.999 million by 2028, an increase of more than 138,000 jobs. Service-providing industries are expected to add 132,649 jobs, an increase of 2.9%. Goods-producing industries are expected to shrink by 4,181 jobs, a decrease of 0.4%.⁷

Figure 5. Ohio Industry Employment Outlook

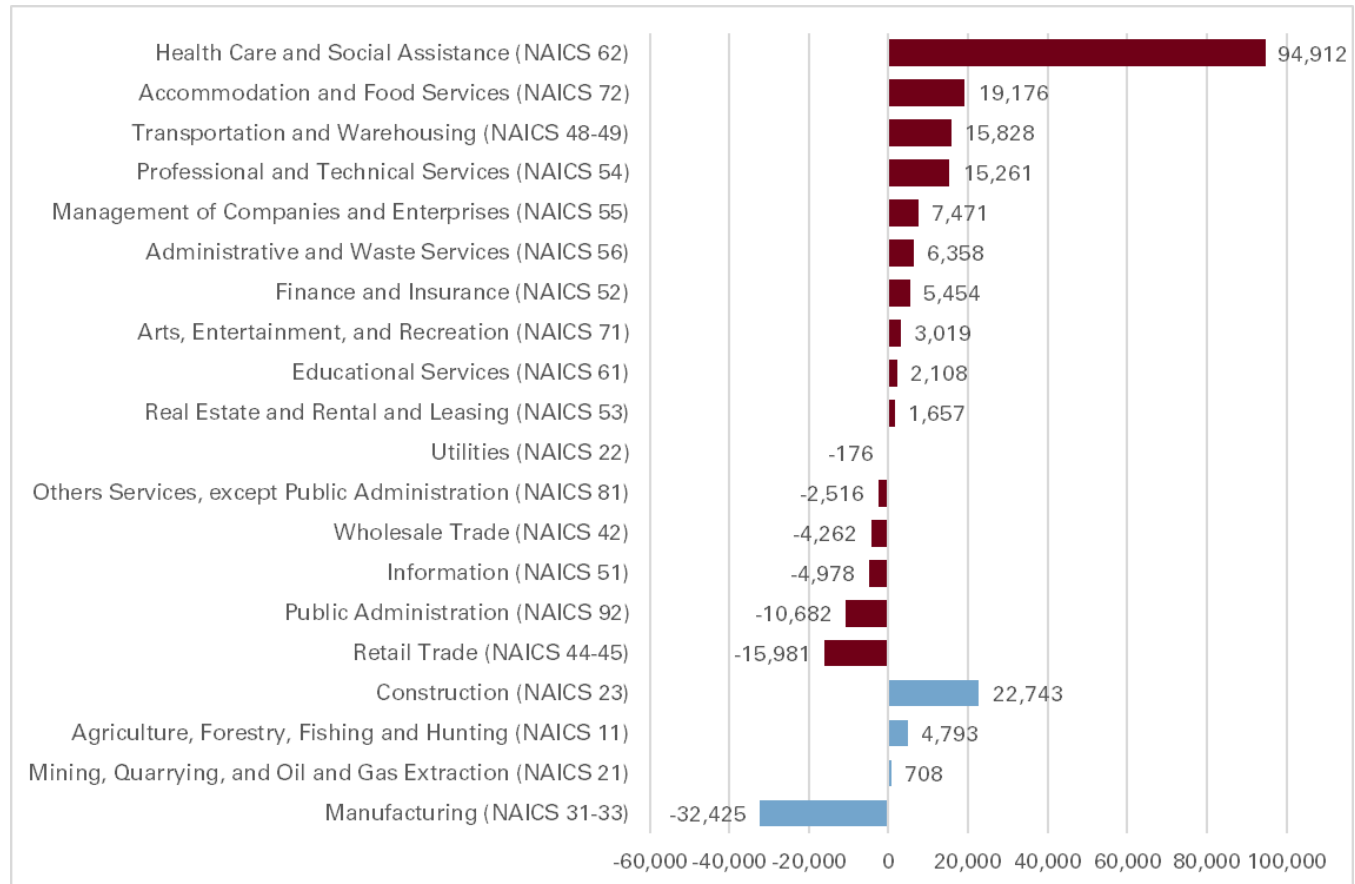


Source: Ohio Bureau of Labor Market Information

⁷ Self-employed and other workers whose jobs fall outside of traditional industry classifications are expected to add 10,229 jobs, an increase of 3.5%.

Figure 6 shows the employment change expected for each industry sector between 2018 and 2028. Service-providing industries are denoted by a dark red bar; goods-producing industries have a blue bar. Among the goods-producing sectors, construction is projected to grow by 22,743 jobs and manufacturing is projected to shrink by 32,425 jobs. Growth among the service-providing sectors will be led by the health care and social assistance industry, which is expected to add more than 94,000 jobs, an 11.3% increase. The accommodation and food services industry is expected to add more than 19,000 jobs. The transportation and warehousing industry, as well as professional and technical services are each expected to add more than 15,000 jobs. However, retail trade is expected to shrink by more than 15,000 jobs. See Appendix Table B for industry projections by absolute and percent change.

Figure 6. Ohio Employment Outlook by Industry Sector, 2018-2028

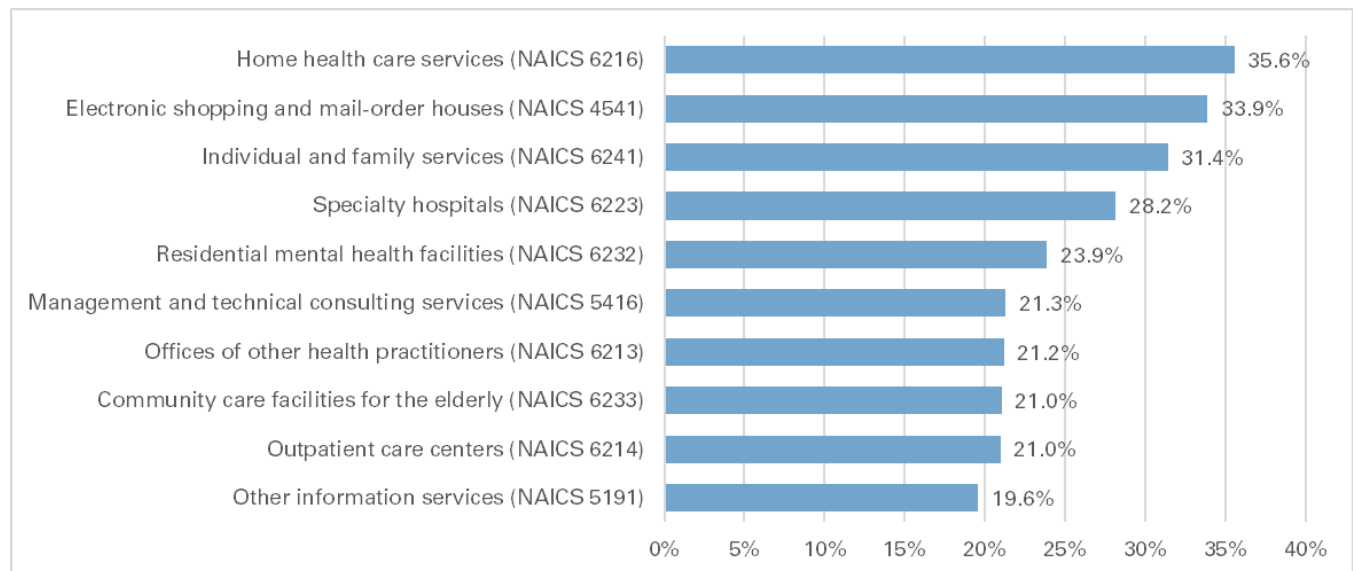


Source: Ohio Bureau of Labor Market Information

High-Growth Industry Groups: Within the sectors are industry groups of related industries; these industry groups within sectors can change in different ways. Figure 7 shows the 10 industry groups expected to grow the fastest from 2018 to 2028. Each is expected to grow between 19.6% and 35.6%.

The fastest-growing industry group is projected to be home health care services (NAICS 6216), with an increase of 35.6%. This industry group is in the health care and social assistance sector. Six other fastest-growing industry groups also are in that sector: individual and family services (NAICS 6241), with a 31.4% increase; specialty (excluding psychiatric and substance abuse) hospitals (NAICS 6223), with a 28.2% increase; residential mental health facilities (NAICS 6232), with a 23.9% increase; offices of other health practitioners (NAICS 6213), with a 21.2% increase; community care facilities for the elderly (NAICS 6233) and outpatient care centers (NAICS 6214) each with a 21.0% increase. One reason for the growth in this sector is Ohio's aging population, as more Baby Boomers reach retirement age. See Appendix Table C for a list of the top 30 industry groups with the fastest expected growth.

Figure 7. Top 10 Ohio Industry Groups with the Fastest Job Growth

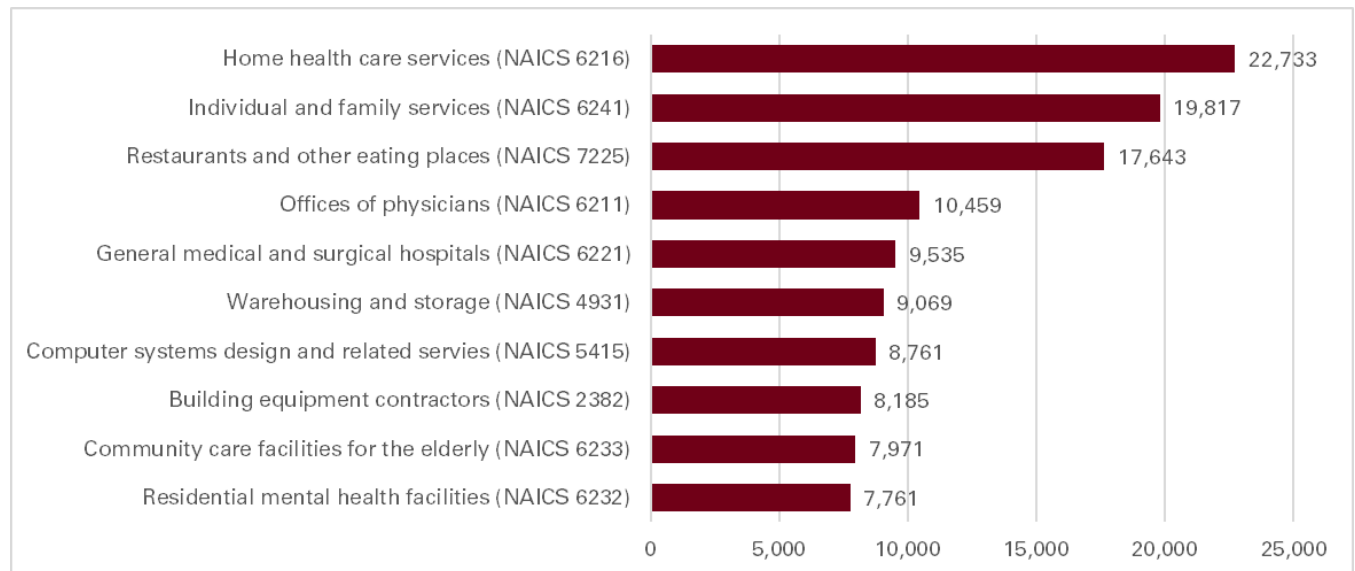


Source: Ohio Bureau of Labor Market Information

Most New Jobs: Although some industry groups are expected to experience high rates of job growth, the groups themselves may be small and, therefore, offer a smaller number of jobs. By the same token, large industry groups with lower expected percentage growths may offer a large number of additional jobs. This is illustrated in Figure 8 by restaurants and other eating places (NAICS 7225). This industry group employed more than 411,000 workers in 2018; it is expected to add more than 17,000 more jobs by 2028, a 4.3% increase. By contrast, home health care services (NAICS 6216), which employed nearly 64,000 workers in 2018, is expected to add more than 22,000 jobs by 2028, a 35.6% increase.

The 10 industry groups projected to add the most new jobs are shown in Figure 8; they are expected to add 121,934, or 87.9%, of new jobs by 2028. See Appendix Table D for a complete list of the top 30 private-sector industries with the most new jobs. See Appendix Table E for a complete look at industry projections by NAICS classification levels.

Figure 8. Ohio Industries Adding the Most New Jobs, 2018-2028



Source: Ohio Bureau of Labor Market Information

Ohio Occupational Employment

The employment outlook for individual occupations is affected by the industries that employ them. Some occupations, such as registered nurses, tire builders, and structural iron workers, are highly concentrated in a few industries; demand for those occupations depends on the health of those industries. Other occupations, such as secretaries and computer systems analysts, are present in many industries; demand for those occupations is more closely tied to changes in the economy as a whole. Changes in technology, business practices and operations affect how employers structure staffing to improve productivity. For example, technological advances will continue to reduce the need for such occupations as telephone operators, typists, travel agents and order clerks.

Understanding the employment outlook of occupations is important for career planning. As some occupations are expected to grow and others are expected to shrink, Ohio developed a list of in-demand occupations to assist in career planning. Along with other information, the employment outlook of occupations provides the baseline data for the in-demand list using statistical thresholds for wages, annual openings and growth. The in-demand list is available and utilized throughout **OhioMeansJobs.com** to better target job matching and career planning services provided on the website. This section presents the job outlook in Ohio by type of work and required education and training levels.

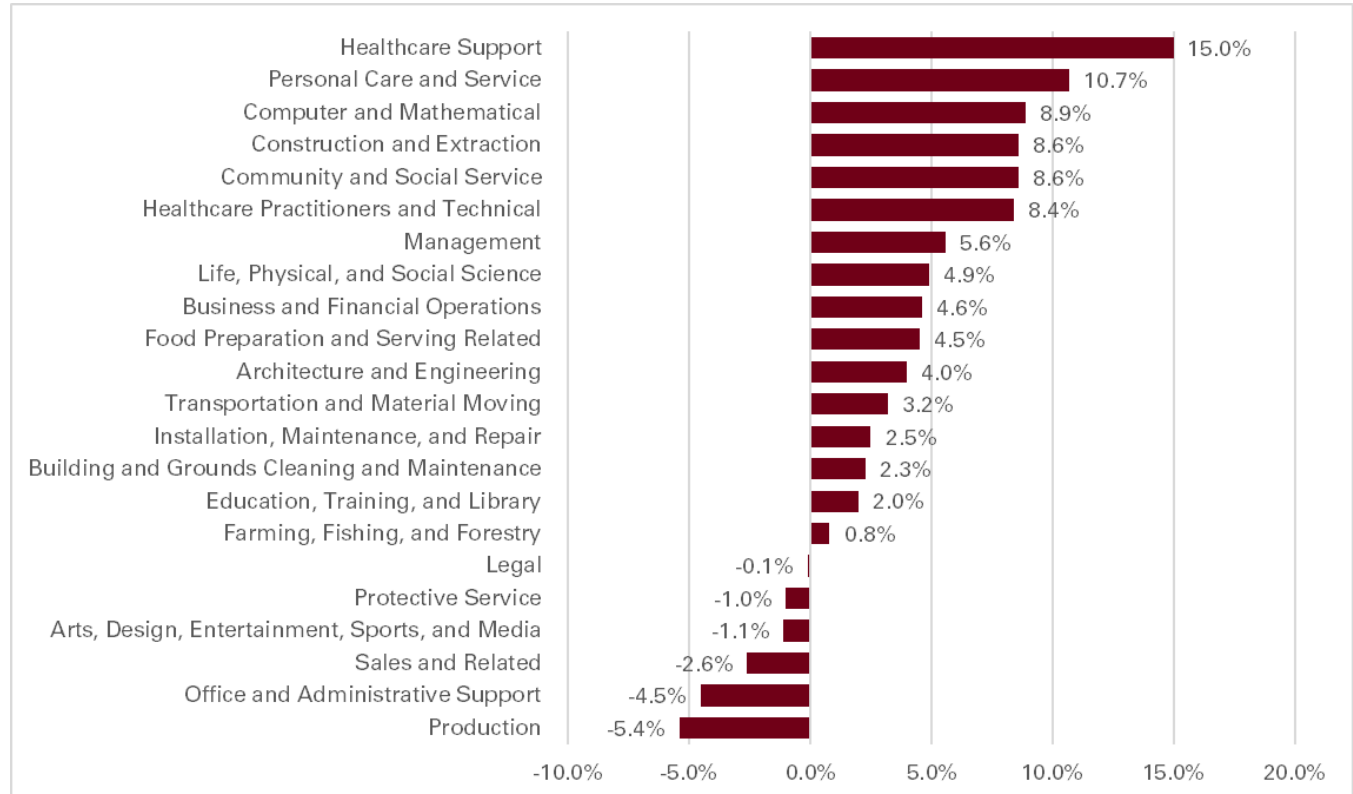
Occupations are classified using the Standard Occupational Classification (SOC) system, which has 22 groups of occupations with related types of work. For example, one occupational group consists of managerial occupations. Within each occupational group are specific occupations, each with different requirements for knowledge, skills, abilities and duties. Occupations are classified at the six-digit SOC level. See Appendix Table F for a comprehensive look at occupational projections by occupational group.

Ohio is expected to add 138,000 jobs from 2018 to 2028, but perhaps more important to individuals searching for jobs, is the expected number of annual job openings. On average, Ohio's economy is expected to have over 685,000 job openings annually. About 2% of annual job openings will result from the creation of new jobs. About 37% of annual job openings will result from the need to replace workers who leave the labor force, usually upon retirement; the remaining 60% of openings will result from the need to replace workers who switch occupations.

The data in this report was compiled and analyzed prior to the COVID-19 pandemic. (See Data Limitations on page 18 for more information.)

Fastest-Growing Occupational Groups: Figure 9 shows the projected fastest-growing occupational groups. Health care support occupations are expected to grow the most, at 15.0%. The next-fastest growing occupational group is personal care and service occupations, at 10.7%. The two fastest-growing occupational groups are in the health care and social assistance sector. See Appendix Table G for a list of Ohio's fastest-growing occupations.

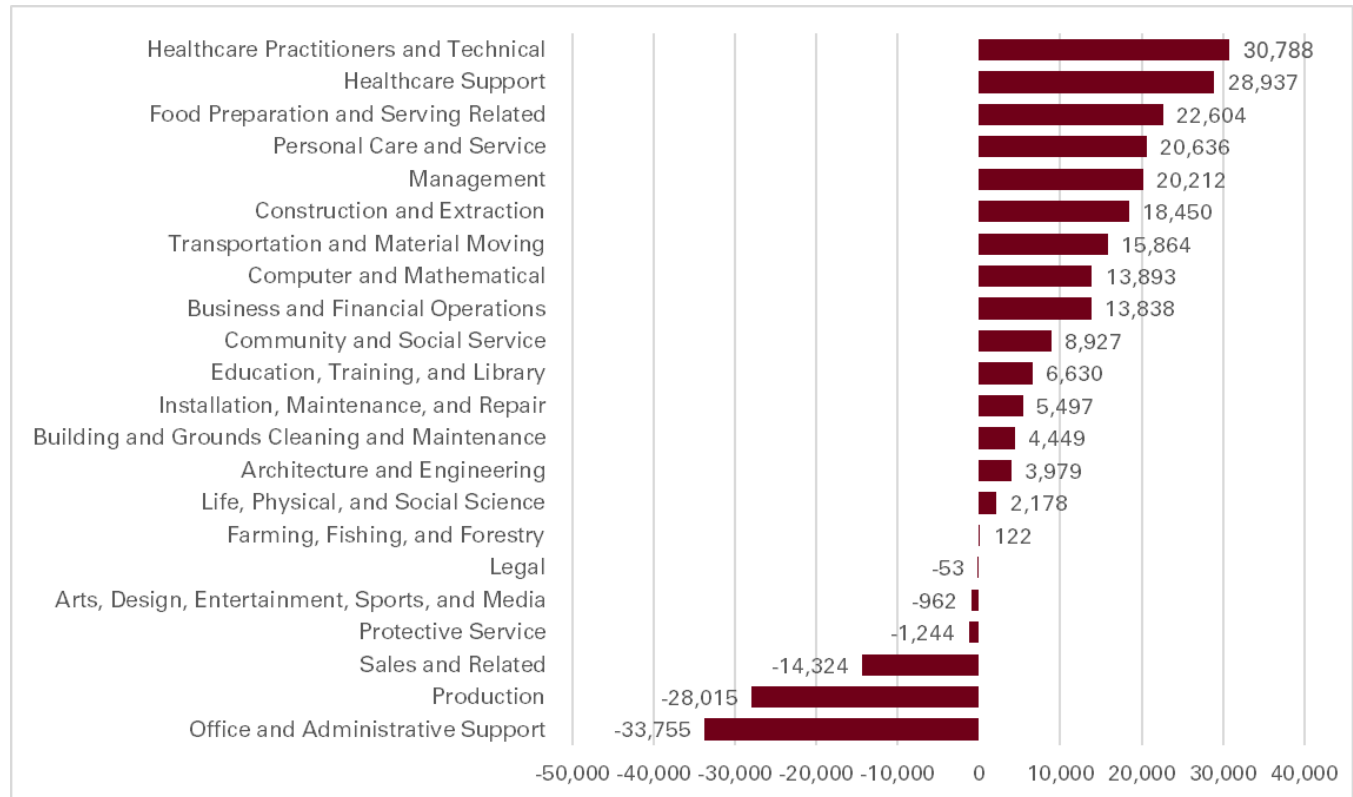
Figure 9. Ohio Rate of Employment Change by Major Occupational Group, 2018-2028



Source: Ohio Bureau of Labor Market Information

Occupational Groups with the Most New Jobs: As with industries, fast-growing occupational groups may be relatively small and may not add as many new jobs as larger groups that are growing more slowly. The health care practitioners and technical occupations group is expected to add 30,788 jobs, and the health care support occupations group is expected to add 28,937 jobs. About four out of every ten new jobs will be in these health care occupational groups. Figure 10 shows the major occupational groups ranked in terms of number of jobs.

Figure 10. Projected Employment Change by Occupational Group, 2018-2028



Source: Ohio Bureau of Labor Market Information

Occupations with the Most Annual Openings: New job growth is one component of occupational demand but needs arising from transfers out of occupations and exits from the labor force result in a larger number of job openings. About 98% of the job openings from 2018 to 2028 are expected to result from the need to replace workers who leave the labor force or switch occupations. Even shrinking occupations have replacement needs, and they may provide substantial opportunities for employment.

Figure 11 shows the top 10 occupations with the most projected annual openings. Of the top 10, combined food preparation and serving workers, including fast food (SOC 35-3021) leads with an expected 31,447 annual openings. Rounding out the top five are cashiers (SOC 41-2011); retail salespersons (SOC 41-2031); waiters and waitresses (SOC 35-3031); and laborers and freight, stock, and material movers, hand (SOC 53-7062). See Appendix Table H for the full list of occupations with the most annual openings.

Figure 11. Occupations in Ohio with the Most Projected Annual Openings, 2018-2028

Occupational Title	Total Annual Openings	Median Wage May 2019
Combined Food Preparation and Serving Workers, Including Fast Food (SOC 35-3021)	31,447	\$9.53
Cashiers (SOC 41-2011)	21,693	\$10.29
Retail Salespersons (SOC 41-2031)	21,610	\$11.36
Waiters and Waitresses (SOC 35-3031)	18,146	\$9.59
Laborers and Freight, Stock, and Material Movers, Hand (SOC 53-7062)	17,626	\$14.43
Customer Service Representatives (SOC 43-4051)	12,693	\$16.70
Office Clerks, General (SOC 43-9061)	12,366	\$16.49
Janitors and Cleaners, Except Maids and Housekeeping Cleaners (SOC 37-2011)	11,992	\$12.52
Stock Clerks and Order Fillers (SOC 53-7065)	10,444	\$12.57
Truck Drivers, Heavy and Tractor-Trailer (SOC 53-3032)	9,628	\$21.66

Source: Ohio Bureau of Labor Market Information

Self-Employment: The number of self-employed individuals varies widely by occupation. Appendix Table I provides a list of the 58 occupations that have at least 1,000 self-employed workers. The self-employed percentages range from 1.0% for laborers and freight, stock, and material movers, hand (SOC 53-7062) to 86.4% for door-to-door sales workers, news and street vendors, and related sales workers (SOC 41-9091).

Figure 12 shows occupations in which more than half the people employed in that occupation are self-employed.

Figure 12. Occupations with High Self-Employment, 2018

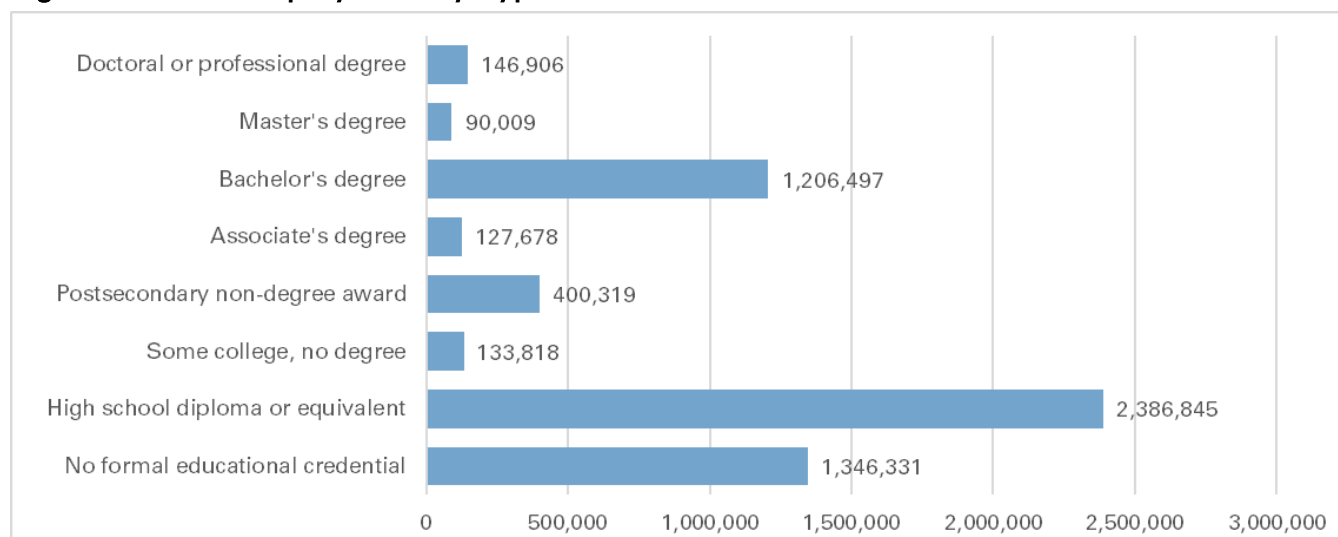
Occupational Title	2018 Employment	Self- Employed	Percent Self- Employed
Door-to-Door Sales, News and Street Vendors, and Related Sales Workers (SOC 41-9091)	1,556	31,447	86.4%
Cooks, Private Household (SOC 35-2013)	765	527	68.9%
Funeral Home Managers (SOC 11-9171)	1,265	809	64.0%
Photographers (SOC 27-4021)	5,128	3,258	63.5%
Writers and Authors (SOC 27-3043)	3,566	2,194	61.5%
Craft Artists (SOC 27-1012)	329	197	59.9%
Art Directors (SOC 27-1011)	2,657	1,573	59.2%
Fine Artists, Including Painters, Sculptors, and Illustrators (SOC 27-1013)	1,595	935	58.6%
Multi-Media Artists and Animators (SOC 27-1014)	1,299	759	58.4%
Real Estate Brokers (SOC 41-9021)	1,713	976	57.0%
Real Estate Sales Agents (SOC 41-9022)	14,252	8,035	56.4%

Source: Ohio Bureau of Labor Market Information

Education and Training: Each occupation has typical education levels associated with it, although in practice workers in an occupation may have a range of educational experience. Some occupations have specific requirements associated with licensure or certification. Knowledge of the typical education level associated with an occupation can be useful for career planning and job seeking.

Figure 13 shows the distribution of jobs by their typical education level in 2018. That year, almost 64% of all jobs had a typical education level of a high school diploma or less. Just over 36% of jobs had a typical education level of some form of post-secondary education, which could be anything from a certificate to an advanced degree. Over 24% of jobs had a bachelor's degree or higher as a typical education.

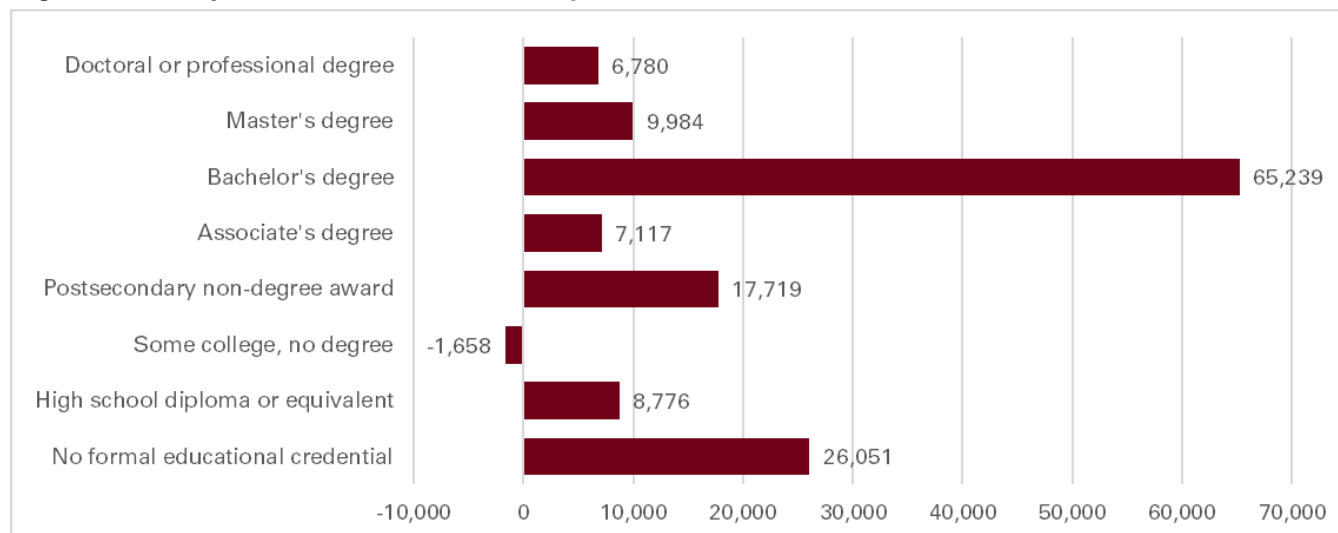
Figure 13. 2018 Employment by Typical Education Levels



Source: Ohio Bureau of Labor Market Information

Figure 14 shows projected net job growth by education level. More than 24% of the net job growth from 2018 to 2028 is expected to be in occupations typically associated with a high school diploma or less. Seventy-five percent of net job growth is anticipated in occupations typically associated with some form of post-secondary education. A predicted 58% of job growth will be in occupations typically associated with a bachelor's degree or higher. This represents an expected shift toward occupations associated with higher education levels.

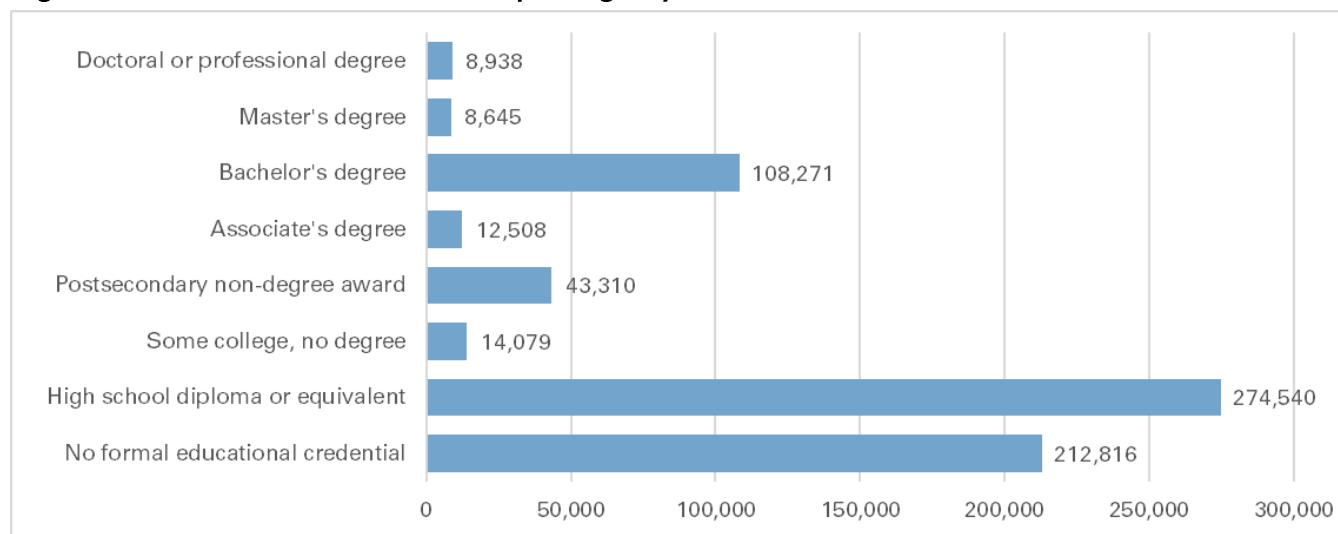
Figure 14. Projected Net Job Growth by Education Level, 2018-2028



Source: Ohio Bureau of Labor Market Information

Despite this expected shift, an anticipated 71.3% of annual job openings still will be in occupations associated with a high school diploma or less. See Figure 15.

Figure 15. Estimated Annual Job Openings by Education Level, 2018-2028



Source: Ohio Bureau of Labor Market Information

For detailed data regarding annual openings for occupations with employment of 100 or more, see Appendix Table J. This table also includes employment, wage, and education and training information.

Appendix Table K provides a detailed list of the educational and training classifications for all occupations.

Technical Notes

The Ohio long-term industry and occupational forecasts were derived primarily from data produced by the Occupational Employment Statistics (OES) and the Quarterly Census of Employment and Wages (QCEW) programs. The forecasts were funded by a grant from the U.S. Department of Labor (DOL).

Industry Employment Forecasts

The forecasting models utilized a historical monthly employment series from the QCEW program data through December 2018. Industry groups with three- or four-digit North American Industry Classification System (NAICS) codes were chosen. Industry employment projections were made at the four-digit NAICS industry level using a variety of models, including single-equation regression models. These models related Ohio industry employment to national industry employment and other key economic determinants for Ohio, especially income and population.

Occupational Employment Forecasts

Occupational estimates were derived from an industry-occupation matrix. From a three-year OES survey cycle, industry staffing patterns were generated based on the Standard Occupational Classification (SOC) coding structure. Occupational patterns for work arrangements outside the scope of the OES program (including agriculture, private household, self-employed and unpaid family workers) were developed using U.S. national staffing patterns and U.S. Census of Agriculture information.

Wages

The median wage estimates were produced using OES data, which are based on a semiannual mail survey. The survey gathers employment and wage data for specific occupations by geographic area and industry. Statewide Ohio wages were used when available.

Annual Openings

To project occupational openings, Ohio uses national separation rates calculated by the Bureau of Labor Statistics (BLS) caused by workers exiting the labor force due to retirement or other reasons (labor force exits) and separations caused by workers transferring to different occupations (occupational transfers). Projections of separations are combined with projections of employment change to determine occupational openings.

Educational and Training Classifications

DOL's educational and training classification system consists of three categories: a) typical education needed for entry, b) commonly required work experience in related occupations, and c) typical on-the-job training needed to obtain competency in the occupation. For complete definitions <https://www.bls.gov/emp/documentation/education/tech.htm>.

Data Limitations

Every effort was made to ensure the accuracy of the projections, but data and forecasts are subject to error. The information in this report is best used as an indicator of employment trends, not as an exact count or prediction. It should be used in combination with other data sources and information. While every attempt is made to incorporate current and near-future events, such as business closings, corporate layoffs, openings, and expansions, it's not possible to know everything that might happen. Events that may take place after the projection period or announcements concerning closings, layoffs, openings, and expansions known after projections were completed are not reflected in the forecasts. Also, legislative policy could cause employment to change. Events such as these will likely cause the actual employment numbers to vary significantly from these projections. This report provides estimates of the number of jobs, not the number of employees. It makes no distinctions for employment characteristics such as full-time, part-time or secondary jobs.

For additional information or questions, visit <http://OhioLMI.com>, email ContactLMI@jfs.ohio.gov, or call (888) 296-7541, option 6.

Appendix Tables

Appendix Table A
Ohio Business Types by Industry Sector

GOODS-PRODUCING (PRIVATE)	
<i>MINING and LOGGING</i>	Mining and support activities, oil and gas extraction, cutting and transporting timber
<i>CONSTRUCTION</i>	Construction of buildings; heavy and civil engineering (bridges, roads); and specialty trade contractors (pouring concrete, site preparation, plumbing, painting, and electrical work)
<i>MANUFACTURING</i>	
Durable Goods	Nonmetal and metal products, machinery, computers and electronics, appliances, transportation equipment, furniture, medical, and wood products
Non-durable Goods	Food, printing, chemicals (toiletries), plastics, textiles, paper, apparel, leather, petroleum, and coal products
SERVICE-PROVIDING (PRIVATE)	
<i>TRADE, TRANSPORTATION, and UTILITIES</i>	
Wholesale Trade	Wholesalers of durable and nondurable goods, business to business electronic markets, and sales representatives
Retail Trade	Auto dealers, building and garden supply centers, furniture, electronic, appliance, food, health, gasoline, clothing, sporting, hobby, book, and music stores
Transportation, Warehousing and Utilities	Transportation (air, rail, water, truck, transit, pipeline, scenic, and sightseeing); private postal services, couriers, warehousing, and storage; utilities (power, natural gas distribution, water, and sewage)
<i>INFORMATION</i>	Publishing, motion picture, sound recording, broadcasting, phone services, data processing and hosting, news, libraries, and internet
<i>FINANCIAL ACTIVITIES</i>	
Finance and Insurance	Banks, securities, insurance, funds, and trusts
Real Estate, Rental, and Leasing	Real estate agents; rental and leasing of automobiles, consumer goods, and machinery
<i>PROFESSIONAL and BUSINESS SERVICES</i>	
Professional, Scientific, and Technical Services	Legal services, accounting, bookkeeping, architectural, engineering, design, computer system design, scientific research, advertising, marketing, photography, translation, and veterinary
Management of Companies and Enterprises	Holding companies, corporate offices, and management offices
Admin. Support and Waste Mgmt. Services	Administrative management (hotel management) and facilities support; employment placement, executive search, temporary help, and professional employer organizations; document preparation, telephone call centers, collection agencies, travel arrangement, security, pest control, janitorial, landscaping, carpet cleaning, packing and labeling, trade show organizer, and auctioneers
<i>EDUCATIONAL and HEALTH SERVICES</i>	
Educational Services	Private schools and universities and support services for education (college selection, test preparation, and guidance counseling)
Health Care and Social Assistance	Private ambulatory health, hospitals, nursing and residential care, and social assistance (care for children, elderly, and disabled, emergency relief, vocational and rehabilitation services)
<i>LEISURE and HOSPITALITY</i>	
Arts, Entertainment, and Recreation	Performing arts, spectator sports, museums, historical sites, zoos, parks, amusement, and gambling
Accommodation and Food Services	Hotels, RV parks, food, and drinking places
<i>OTHER SERVICES</i>	Repair (autos, electronics, machinery, and appliances); personal (hair, nail, skin, weight reduction, and tattoos); funeral homes; dry-cleaning and laundry services; pet care, parking lots, astrology, coin machines, dating, escort, future telling, life coaching, and personal fitness trainer; associations (churches, grant making, social advocacy, and unions)
GOVERNMENT (PUBLIC)	
Federal Government	Civilian federal employees including the U.S. Postal Service
State Government	Includes state universities and hospitals
Local Government	Includes local schools, community colleges, and local hospitals; township, city, and county employees such as fire fighters and park rangers

Appendix Table B
Ohio Employment Projections Report by Major Industry, 2018–2028

Industry	2018 Annual Employment	2028 Projected Employment	Change in Employment 2018-2028	Percent Change 2018-2028
Total	5,860,006	5,998,703	138,697	2.4%
Goods-Producing Industries	1,032,474	1,028,293	-4,181	-0.4%
Agriculture, Forestry, Fishing and Hunting	96,737	101,530	4,793	5.0%
Mining	11,178	11,886	708	6.3%
Construction	215,867	238,610	22,743	10.5%
Manufacturing	708,692	676,267	-32,425	-4.6%
Service-Providing Industries	4,534,609	4,667,258	132,649	2.9%
Wholesale Trade	218,471	214,209	-4,262	-2.0%
Retail Trade	568,752	552,771	-15,981	-2.8%
Transportation and Warehousing	206,656	222,484	15,828	7.7%
Utilities	19,204	19,028	-176	-0.9%
Information	70,876	65,898	-4,978	-7.0%
Finance and Insurance	235,715	241,169	5,454	2.3%
Real Estate and Rental and Leasing	64,191	65,848	1,657	2.6%
Professional and Technical Services	262,753	278,014	15,261	5.8%
Management of Companies and Enterprises	140,725	148,196	7,471	5.3%
Administrative and Waste Services	326,007	332,365	6,358	2.0%
Educational Services	433,151	435,259	2,108	0.5%
Health Care and Social Assistance	837,444	932,356	94,912	11.3%
Arts, Entertainment and Recreation	81,562	84,581	3,019	3.7%
Accommodation and Food Services	484,904	504,080	19,176	4.0%
Other Services (Except Government)	232,307	229,791	-2,516	-1.1%
Government	351,891	341,209	-10,682	-3.0%
Self-Employed and Unpaid Family Workers	292,923	303,152	10,229	3.5%

Source: Ohio Department of Job and Family Services, Bureau of Labor Market Information, January 2021.

Appendix Table C
Ohio's Top 30 Industries* with the Fastest Job Growth, 2018–2028

NAICS	Industry	2018 Annual Employment	2028 Projected Employment	Change in Employment 2018-2028	Percent Change 2018-2028
6216	Home Health Care Services	63,880	86,613	22,733	35.6%
4541	Electronic Shopping and Mail Order Houses	18,118	24,259	6,141	33.9%
6241	Individual and Family Services	63,059	82,876	19,817	31.4%
6223	Specialty (except Psychiatric and Substance Abuse) Hospitals	8,591	11,012	2,421	28.2%
6232	Residential Mental Health Facilities	32,506	40,267	7,761	23.9%
5416	Management, Scientific, and Technical Consulting Services	34,716	42,109	7,393	21.3%
6213	Offices of Other Health Practitioners	34,094	41,325	7,231	21.2%
6233	Community Care Facilities for the Elderly	37,880	45,851	7,971	21.0%
6214	Outpatient Care Centers	31,078	37,606	6,528	21.0%
5191	Other Information Services	5,960	7,128	1,168	19.6%
5182	Data Processing, Hosting, and Related Services	7,969	9,529	1,560	19.6%
4881	Support Activities for Air Transportation	5,473	6,532	1,059	19.4%
6117	Educational Support Services	22,887	27,169	4,282	18.7%
6222	Psychiatric and Substance Abuse Hospitals	5,999	7,062	1,063	17.7%
5611	Office Administrative Services	20,626	24,226	3,600	17.5%
4931	Warehousing and Storage	57,023	66,092	9,069	15.9%
6116	Other Schools and Instruction	11,217	12,989	1,772	15.8%
2371	Utility System Construction	15,929	18,406	2,477	15.6%
5112	Software Publishers	7,035	8,075	1,040	14.8%
2131	Support Activities for Mining	5,681	6,515	834	14.7%
5415	Computer Systems Design and Related Services	62,605	71,366	8,761	14.0%
4539	Other Miscellaneous Store Retailers	11,561	13,090	1,529	13.2%
5621	Waste Collection	5,706	6,453	747	13.1%
6215	Medical and Diagnostic Laboratories	6,410	7,242	832	13.0%
2373	Highway, Street, and Bridge Construction	10,565	11,894	1,329	12.6%
2382	Building Equipment Contractors	70,226	78,411	8,185	11.7%
6211	Offices of Physicians	94,046	104,505	10,459	11.1%
5222	Nondepository Credit Intermediation	21,334	23,636	2,302	10.8%
2361	Residential Building Construction	20,173	22,347	2,174	10.8%
7121	Museums, Historical Sites, and Similar Institution	7,789	8,625	836	10.7%

* Industries with 5,000 or more workers.

Source: Ohio Department of Job and Family Services, Bureau of Labor Market Information, January 2021.

Appendix Table D
Ohio's Top 30 Industries with the Most New Jobs, 2018–2028

NAICS	Industry	2018 Annual Employment	2028 Projected Employment	Change in Employment 2018-2028	Percent Change 2018-2028
6216	Home Health Care Services*	63,880	86,613	22,733	35.6%
6241	Individual and Family Services*	63,059	82,876	19,817	31.4%
7225	Restaurants and Other Eating Places	411,730	429,373	17,643	4.3%
6211	Offices of Physicians	94,046	104,505	10,459	11.1%
6221	General Medical and Surgical Hospitals	267,030	276,565	9,535	3.6%
4931	Warehousing and Storage	57,023	66,092	9,069	15.9%
5415	Computer Systems Design and Related Services	62,605	71,366	8,761	14.0%
2382	Building Equipment Contractors	70,226	78,411	8,185	11.7%
6233	Community Care Facilities for the Elderly	37,880	45,851	7,971	21.0%
6232	Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse	32,506	40,267	7,761	23.9%
5511	Management of Companies and Enterprises	140,725	148,196	7,471	5.3%
5416	Management, Scientific, and Technical Consulting Services	34,716	42,109	7,393	21.3%
6213	Offices of Other Health Practitioners	34,094	41,325	7,231	21.2%
6214	Outpatient Care Centers	31,078	37,606	6,528	21.0%
4541	Electronic Shopping and Mail Order Houses*	18,118	24,259	6,141	33.9%
6117	Educational Support Services	22,887	27,169	4,282	18.7%
5611	Office Administrative Services	20,626	24,226	3,600	17.5%
6113	Colleges, Universities, and Professional Schools	96,031	99,547	3,516	3.7%
5242	Agencies, Brokerages, and Other Insurance Related Activities	42,877	46,293	3,416	8.0%
2381	Foundation, Structure, and Building Exterior Contractors	27,693	30,474	2,781	10.0%
7139	Other Amusement and Recreation Industries	44,217	46,809	2,592	5.9%
2362	Nonresidential Building Construction	27,079	29,668	2,589	9.6%
5617	Services to Buildings and Dwellings	72,567	75,132	2,565	3.5%
2371	Utility System Construction	15,929	18,406	2,477	15.6%
6223	Specialty (except Psychiatric and Substance Abuse) Hospitals*	8,591	11,012	2,421	28.2%
5419	Other Professional, Scientific, and Technical Services	23,762	26,180	2,418	10.2%
5222	Nondepository Credit Intermediation	21,334	23,636	2,302	10.8%
6244	Child Day Care Services	33,641	35,896	2,255	6.7%
2389	Other Specialty Trade Contractors	20,729	22,919	2,190	10.6%
2361	Residential Building Construction	20,173	22,347	2,174	10.8%

*Industries expected to have the most new jobs and growth rates of at least 25%.

Source: Ohio Department of Job and Family Services, Bureau of Labor Market Information, January 2021.

Appendix Table E
Ohio's Industry* Employment Projections Report, 2018–2028

NAICS	Industry	2018 Annual Employment	2028 Projected Employment	Change in Employment 2018-2028	Percent Change 2018-2028
Total All Industries		5,860,006	5,998,703	138,697	2.4%
	Agriculture, Forestry, Fishing, and Hunting	96,737	101,530	4,793	5.0%
	Mining	11,178	11,886	708	6.3%
213	Support Activities for Mining	5,681	6,515	834	14.7%
	Construction	215,867	238,610	22,743	10.5%
236	Construction of Buildings	47,252	52,015	4,763	10.1%
2361	Residential Building Construction	20,173	22,347	2,174	10.8%
2362	Nonresidential Building Construction	27,079	29,668	2,589	9.6%
237	Heavy and Civil Engineering Construction	28,774	32,628	3,854	13.4%
2371	Utility System Construction	15,929	18,406	2,477	15.6%
2373	Highway, Street, and Bridge Construction	10,565	11,894	1,329	12.6%
238	Specialty Trade Contractors	139,841	153,967	14,126	10.1%
2381	Foundation, Structure, and Building Exterior Contractors	27,693	30,474	2,781	10.0%
2382	Building Equipment Contractors	70,226	78,411	8,185	11.7%
2383	Building Finishing Contractors	21,193	22,163	970	4.6%
2389	Other Specialty Trade Contractors	20,729	22,919	2,190	10.6%
	Manufacturing	708,692	676,267	-32,425	-4.6%
311	Food Manufacturing	62,317	62,419	102	0.2%
3114	Fruit and Vegetable Preserving and Specialty Manufacturing	11,786	11,073	-713	-6.1%
3115	Dairy Product Manufacturing	7,848	7,830	-18	-0.2%
3116	Animal Slaughtering and Processing	11,916	12,302	386	3.2%
3118	Bakeries and Tortilla Manufacturing	12,581	12,476	-105	-0.8%
3119	Other Food Manufacturing	10,589	11,123	534	5.0%
312	Beverage and Tobacco Product Manufacturing	9,729	10,161	432	4.4%
321	Wood Product Manufacturing	13,022	12,543	-479	-3.7%
3219	Other Wood Product Manufacturing	9,521	9,100	-421	-4.4%
322	Paper Manufacturing	20,396	19,021	-1,375	-6.7%
3222	Converted Paper Product Manufacturing	18,172	17,237	-935	-5.2%
323	Printing and Related Support Activities	21,687	17,534	-4,153	-19.2%
325	Chemical Manufacturing	46,210	44,752	-1,458	-3.2%
3250A1	Chemical Manufacturing (3251, 3252, 3253, and 3259 only)	21,960	20,097	-1,863	-8.5%
3250A2	Chemical Manufacturing (3255 and 3256 only)	18,802	19,184	382	2.0%
3254	Pharmaceutical and Medicine Manufacturing	5,448	5,471	23	0.4%
326	Plastics and Rubber Products Manufacturing	58,750	55,352	-3,398	-5.8%
3261	Plastics Product Manufacturing	45,478	43,756	-1,722	-3.8%
3262	Rubber Product Manufacturing	13,272	11,596	-1,676	-12.6%
327	Nonmetallic Mineral Product Manufacturing	27,687	25,592	-2,095	-7.6%
331	Primary Metal Manufacturing	36,222	31,610	-4,612	-12.7%
3311	Iron and Steel Mills and Ferroalloy Manufacturing	7,899	6,527	-1,372	-17.4%
3312	Steel Product Manufacturing from Purchased Steel	7,958	7,307	-651	-8.2%
3314	Nonferrous Metal (except Aluminum) Production and Processing	5,159	4,645	-514	-10.0%
3315	Foundries	11,611	9,860	-1,751	-15.1%
332	Fabricated Metal Product Manufacturing	103,736	97,606	-6,130	-5.9%
3320A1	Fabricated Metal Product Manufacturing (3321, 3322, 3325, 3326, and 3329 only)	37,933	34,083	-3,850	-10.2%
3320A2	Fabricated Metal Product Manufacturing (3323 and 3324 only)	26,085	24,949	-1,136	-4.4%
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	26,190	25,819	-371	-1.4%
3328	Coating, Engraving, Heat Treating, and Allied Activities	13,528	12,755	-773	-5.7%

Appendix Table E – cont'd.
Ohio's Industry* Employment Projections Report, 2018–2028

NAICS	Industry	2018 Annual Employment	2028 Projected Employment	Change in Employment 2018-2028	Percent Change 2018-2028
333	Machinery Manufacturing	81,126	77,261	-3,865	-4.8%
3330A1	Machinery Manufacturing (3331, 3332, 3334, and 3339 only)	50,486	47,867	-2,619	-5.2%
3335	Metalworking Machinery Manufacturing	23,014	22,064	-950	-4.1%
334	Computer and Electronic Product Manufacturing	21,005	19,110	-1,895	-9.0%
3344	Semiconductor and Other Electronic Component Manufacturing	6,579	5,923	-656	-10.0%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	10,997	10,446	-551	-5.0%
335	Electrical Equipment, Appliance, and Component Manufacturing	26,783	25,053	-1,730	-6.5%
3353	Electrical Equipment Manufacturing	8,041	7,841	-200	-2.5%
3359	Other Electrical Equipment and Component Manufacturing	6,526	6,652	126	1.9%
336	Transportation Equipment Manufacturing	130,023	130,788	765	0.6%
3361	Motor Vehicle Manufacturing	21,973	23,393	1,420	6.5%
3362	Motor Vehicle Body and Trailer Manufacturing	9,658	9,669	11	0.1%
3363	Motor Vehicle Parts Manufacturing	77,331	78,119	788	1.0%
3364	Aerospace Product and Parts Manufacturing	19,557	18,206	-1,351	-6.9%
337	Furniture and Related Product Manufacturing	16,398	15,806	-592	-3.6%
3370A1	Furniture and Related Product Manufacturing (3371 and 3372 only)	15,634	15,112	-522	-3.3%
339	Miscellaneous Manufacturing	21,918	21,631	-287	-1.3%
3391	Medical Equipment and Supplies Manufacturing	9,082	9,186	104	1.2%
3399	Other Miscellaneous Manufacturing	12,836	12,445	-391	-3.1%
	Wholesale Trade	218,471	214,209	-4,262	-2.0%
423	Merchant Wholesalers, Durable Goods	133,016	129,433	-3,583	-2.7%
4230A1	Merchant Wholesalers, Durable Goods (4232, 4233, 4235, 4236, 4237, and 4239 only)	58,182	57,963	-219	-0.4%
4231	Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers	15,451	15,001	-450	-2.9%
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers	25,415	24,070	-1,345	-5.3%
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	33,968	32,399	-1,569	-4.6%
424	Merchant Wholesalers, Nondurable Goods	70,131	68,803	-1,328	-1.9%
4240A1	Merchant Wholesalers, Nondurable Goods (4244 and 4248 only)	31,275	31,528	253	0.8%
4240A2	Merchant Wholesalers, Nondurable Goods (4242 and 4246 only)	16,518	16,395	-123	-0.7%
4240A3	Merchant Wholesalers, Nondurable Goods (4241, 4247, and 4249 only)	17,796	16,615	-1,181	-6.6%
425	Wholesale Electronic Markets and Agents and Brokers	15,324	15,973	649	4.2%
	Retail Trade	568,752	552,771	-15,981	-2.8%
441	Motor Vehicle and Parts Dealers	79,345	78,777	-568	-0.7%
4411	Automobile Dealers	50,436	50,926	490	1.0%
4412	Other Motor Vehicle Dealers	4,764	5,099	335	7.0%
4413	Automotive Parts, Accessories, and Tire Stores	24,145	22,752	-1,393	-5.8%
442	Furniture and Home Furnishings Stores	13,920	14,142	222	1.6%
4421	Furniture Stores	7,530	7,398	-132	-1.8%
4422	Home Furnishings Stores	6,390	6,744	354	5.5%
443	Electronics and Appliance Stores	15,470	12,979	-2,491	-16.1%
444	Building Material and Garden Equipment and Supplies Dealers	52,202	53,536	1,334	2.6%
4441	Building Material and Supplies Dealers	45,098	46,028	930	2.1%
4442	Lawn and Garden Equipment and Supplies Stores	7,104	7,508	404	5.7%

Appendix Table E – cont'd.
Ohio's Industry* Employment Projections Report, 2018–2028

NAICS	Industry	2018 Annual Employment	2028 Projected Employment	Change in Employment 2018-2028	Percent Change 2018-2028
445	Food and Beverage Stores	104,311	102,104	-2,207	-2.1%
4450A1	Food and Beverage Stores (4451 and 4452 only)	100,124	97,917	-2,207	-2.2%
446	Health and Personal Care Stores	36,145	36,294	149	0.4%
447	Gasoline Stations	36,566	37,624	1,058	2.9%
448	Clothing and Clothing Accessories Stores	38,634	31,640	-6,994	-18.1%
4481	Clothing Stores	27,836	21,375	-6,461	-23.2%
4482	Shoe Stores	6,432	6,639	207	3.2%
451	Sporting Goods, Hobby, Book, and Music Stores	19,304	17,432	-1,872	-9.7%
4511	Sporting Goods, Hobby, and Musical Instrument Stores	17,148	16,455	-693	-4.0%
452	General Merchandise Stores	114,956	107,105	-7,851	-6.8%
453	Miscellaneous Store Retailers	30,109	27,688	-2,421	-8.0%
4530A1	Miscellaneous Store Retailers (4532 and 4533 only)	15,704	12,632	-3,072	-19.6%
4539	Other Miscellaneous Store Retailers	11,561	13,090	1,529	13.2%
454	Nonstore Retailers	27,790	33,450	5,660	20.4%
4541	Electronic Shopping and Mail Order Houses	18,118	24,259	6,141	33.9%
4542	Vending Machine Operators	5,597	5,534	-63	-1.1%
	Transportation and Warehousing	206,656	222,484	15,828	7.7%
481	Air Transportation	10,193	10,350	157	1.5%
4812	Nonscheduled Air Transportation	6,066	6,180	114	1.9%
484	Truck Transportation	71,980	75,786	3,806	5.3%
485	Transit and Ground Passenger Transportation	10,749	11,644	895	8.3%
488	Support Activities for Transportation	20,761	22,400	1,639	7.9%
4881	Support Activities for Air Transportation	5,473	6,532	1,059	19.4%
4885	Freight Transportation Arrangement	7,705	7,823	118	1.5%
492	Couriers and Messengers	25,682	25,611	-71	-0.3%
4921	Couriers	23,723	23,507	-216	-0.9%
493	Warehousing and Storage	57,023	66,092	9,069	15.9%
	Utilities	19,204	19,028	-176	-0.9%
2211	Electric Power Generation, Transmission and Distribution	12,440	12,265	-175	-1.4%
2212	Natural Gas Distribution	5,541	5,471	-70	-1.3%
	Information	70,876	65,898	-4,978	-7.0%
511	Publishing Industries, except Internet	21,122	18,696	-2,426	-11.5%
5111	Newspaper, Periodical, Book, and Directory Publishers	14,087	10,621	-3,466	-24.6%
5112	Software Publishers	7,035	8,075	1,040	14.8%
512	Motion Picture and Sound Recording Industries	6,259	6,581	322	5.1%
5121	Motion Picture and Video Industries	6,086	6,435	349	5.7%
515	Broadcasting (except Internet)	5,961	5,436	-525	-8.8%
5151	Radio and Television Broadcasting	5,894	5,381	-513	-8.7%
517	Telecommunications	23,605	18,528	-5,077	-21.5%
518	Data Processing, Hosting, and Related Services	7,969	9,529	1,560	19.6%
519	Other Information Services	5,960	7,128	1,168	19.6%
	Finance and Insurance	235,715	241,169	5,454	2.3%
522	Credit Intermediation and Related Activities	97,566	97,756	190	0.2%
5220A1	Credit Intermediation and Related Activities (5221 and 5223 only)	76,232	74,120	-2,112	-2.8%
5222	Nondepository Credit Intermediation	21,334	23,636	2,302	10.8%
523	Securities, Commodity Contracts, and Other Financial Investments and Related Activities	19,208	20,088	880	4.6%
524	Insurance Carriers and Related Activities	117,686	122,031	4,345	3.7%
5241	Insurance Carriers	74,809	75,738	929	1.2%

Appendix Table E – cont'd.
Ohio's Industry* Employment Projections Report, 2018–2028

NAICS	Industry	2018 Annual Employment	2028 Projected Employment	Change in Employment 2018-2028	Percent Change 2018-2028
5242	Agencies, Brokerages, and Other Insurance Related Activities	42,877	46,293	3,416	8.0%
	Real Estate and Rental and Leasing	64,191	65,848	1,657	2.6%
531	Real Estate	45,199	47,034	1,835	4.1%
532	Rental and Leasing Services	18,315	18,130	-185	-1.0%
5320A1	Rental and Leasing Services (5322, 5323, and 5324 only)	10,983	10,572	-411	-3.7%
5321	Automotive Equipment Rental and Leasing	7,332	7,558	226	3.1%
	Professional, Scientific, and Technical Services	262,753	278,014	15,261	5.8%
5411	Legal Services	31,824	28,604	-3,220	-10.1%
5412	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	30,262	28,819	-1,443	-4.8%
5413	Architectural, Engineering, and Related Services	42,298	43,019	721	1.7%
5414	Specialized Design Services	7,011	7,170	159	2.3%
5415	Computer Systems Design and Related Services	62,605	71,366	8,761	14.0%
5416	Management, Scientific, and Technical Consulting Services	34,716	42,109	7,393	21.3%
5417	Scientific Research and Development Services	17,372	18,938	1,566	9.0%
5418	Advertising, Public Relations, and Related Services	12,903	11,809	-1,094	-8.5%
5419	Other Professional, Scientific, and Technical Services	23,762	26,180	2,418	10.2%
	Management of Companies and Enterprises	140,725	148,196	7,471	5.3%
	Administrative and Support and Waste Management and Remediation Services	326,007	332,365	6,358	2.0%
561	Administrative and Support Services	308,689	314,174	5,485	1.8%
5611	Office Administrative Services	20,626	24,226	3,600	17.5%
5613	Employment Services	139,777	137,994	-1,783	-1.3%
5614	Business Support Services	32,042	33,562	1,520	4.7%
5616	Investigation and Security Services	24,751	24,912	161	0.7%
5617	Services to Buildings and Dwellings	72,567	75,132	2,565	3.5%
5619	Other Support Services	11,387	11,274	-113	-1.0%
562	Waste Management and Remediation Service	17,318	18,191	873	5.0%
5621	Waste Collection	5,706	6,453	747	13.1%
5629	Remediation and Other Waste Management Services	6,732	7,450	718	10.7%
	Educational Services	433,151	435,259	2,108	0.5%
6111	Elementary and Secondary Schools	279,490	274,165	-5,325	-1.9%
6112	Junior Colleges	18,885	17,012	-1,873	-9.9%
6113	Colleges, Universities, and Professional Schools	96,031	99,547	3,516	3.7%
6116	Other Schools and Instruction	11,217	12,989	1,772	15.8%
6117	Educational Support Services	22,887	27,169	4,282	18.7%
	Health Care and Social Assistance	837,444	932,356	94,912	11.3%
621	Ambulatory Health Care Services	272,720	322,243	49,523	18.2%
6211	Offices of Physicians	94,046	104,505	10,459	11.1%
6212	Offices of Dentists	32,242	32,929	687	2.1%
6213	Offices of Other Health Practitioners	34,094	41,325	7,231	21.2%
6214	Outpatient Care Centers	31,078	37,606	6,528	21.0%
6215	Medical and Diagnostic Laboratories	6,410	7,242	832	13.0%
6216	Home Health Care Services	63,880	86,613	22,733	35.6%
6219	Other Ambulatory Health Care Services	10,970	12,023	1,053	9.6%
622	Hospitals	281,620	294,639	13,019	4.6%
6221	General Medical and Surgical Hospitals	267,030	276,565	9,535	3.6%
6222	Psychiatric and Substance Abuse Hospitals	5,999	7,062	1,063	17.7%

Appendix Table E – cont'd.
Ohio's Industry* Employment Projections Report, 2018–2028

NAICS	Industry	2018 Annual Employment	2028 Projected Employment	Change in Employment 2018-2028	Percent Change 2018-2028
6223	Specialty (except Psychiatric and Substance Abuse) Hospitals	8,591	11,012	2,421	28.2%
623	Nursing and Residential Care Facilities	168,635	177,780	9,145	5.4%
6231	Nursing Care Facilities (Skilled Nursing Facilities)	93,793	87,520	-6,273	-6.7%
6232	Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	32,506	40,267	7,761	23.9%
6233	Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	37,880	45,851	7,971	21.0%
624	Social Assistance	114,469	137,694	23,225	20.3%
6241	Individual and Family Services	63,059	82,876	19,817	31.4%
6242	Community Food and Housing, and Emergency and Other Relief Services	6,241	6,806	565	9.1%
6243	Vocational Rehabilitation Services	11,528	12,116	588	5.1%
6244	Child Day Care Services	33,641	35,896	2,255	6.7%
	Arts, Entertainment, and Recreation	81,562	84,581	3,019	3.7%
711	Performing Arts, Spectator Sports, and Related Industries	15,260	15,681	421	2.8%
7112	Spectator Sports	4,980	5,062	82	1.7%
7113	Promoters of Performing Arts, Sports, and Similar Events	6,009	6,476	467	7.8%
712	Museums, Historical Sites, and Similar Institutions	7,789	8,625	836	10.7%
713	Amusement, Gambling, and Recreation Industries	58,513	60,275	1,762	3.0%
7131	Amusement Parks and Arcades	6,728	6,918	190	2.8%
7132	Gambling Industries	7,568	6,548	-1,020	-13.5%
7139	Other Amusement and Recreation Industries	44,217	46,809	2,592	5.9%
	Accommodation and Food Services	484,904	504,080	19,176	4.0%
721	Accommodation, including Hotels and Motels	38,616	39,208	592	1.5%
7211	Traveler Accommodation	36,581	36,991	410	1.1%
722	Food Services and Drinking Places	446,288	464,872	18,584	4.2%
7223	Special Food Services	19,354	20,120	766	4.0%
7224	Drinking Places (Alcoholic Beverages)	15,204	15,379	175	1.2%
7225	Restaurants and Other Eating Places	411,730	429,373	17,643	4.3%
	Other Services (Except Government)	232,307	229,791	-2,516	-1.1%
811	Repair and Maintenance	48,356	49,129	773	1.6%
8111	Automotive Repair and Maintenance	32,998	33,187	189	0.6%
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	9,514	10,243	729	7.7%
812	Personal and Laundry Services	55,801	55,513	-288	-0.5%
8121	Personal Care Services	27,173	27,468	295	1.1%
8122	Death Care Services	6,848	6,742	-106	-1.6%
8123	Dry cleaning and Laundry Services	11,239	9,854	-1,385	-12.3%
8129	Other Personal Services	10,541	11,449	908	8.6%
813	Religious, Grantmaking, Civic, Professional, and Similar Organizations	109,933	108,809	-1,124	-1.0%
8131	Religious Organizations	65,705	65,693	-12	0.0%
8133	Social Advocacy Organizations	5,105	5,233	128	2.5%
8134	Civic and Social Organizations	20,504	20,071	-433	-2.1%
8139	Business, Professional, Labor, Political, and Similar Organizations	14,515	13,481	-1,034	-7.1%
814	Private Households	18,217	16,340	-1,877	-10.3%

Appendix Table E – cont'd.
Ohio's Industry* Employment Projections Report, 2018–2028

NAICS	Industry	2018 Annual Employment	2028 Projected Employment	Change in Employment 2018-2028	Percent Change 2018-2028
	Government	351,891	341,209	-10,682	-3.0%
	Postal Service	23,156	18,263	-4,893	-21.1%
	Federal Government, Excluding Post Office	55,481	55,836	355	0.6%
	State Government, Excluding Education and Hospitals	52,867	49,659	-3,208	-6.1%
	Local Government, Excluding Education and Hospitals	220,387	217,451	-2,936	-1.3%
	Self-Employed and Unpaid Family Workers, All Jobs	292,923	303,152	10,229	3.5%

*Industries with 5,000 or more workers.

Source: Ohio Department of Job and Family Services, Bureau of Labor Market Information, January 2021.

Appendix Table F
Ohio Occupational Employment Projections by Occupational Group, 2018–2028

Occupational Title	Employment		Change in Employment		Growth	Annual Openings		
	2018 Annual	2028 Projected	2018-2028	Percent		Exits	Transfers	Total
Total, All Occupations	5,860,006	5,998,703	138,697	2.4%	13,870	256,824	414,566	685,260
Management Occupations	362,088	382,300	20,212	5.6%	2,021	12,009	19,948	33,978
Business and Financial Operations Occupations	299,874	313,712	13,838	4.6%	1,384	8,338	20,722	30,444
Computer and Mathematical Occupations	155,450	169,343	13,893	8.9%	1,389	2,700	9,158	13,247
Architecture and Engineering Occupations	100,244	104,223	3,979	4.0%	398	2,373	5,432	8,203
Life, Physical, and Social Science Occupations	44,062	46,240	2,178	4.9%	220	905	3,228	4,353
Community and Social Service Occupations	103,519	112,446	8,927	8.6%	893	3,864	7,573	12,330
Legal Occupations	38,890	38,837	-53	-0.1%	-5	991	1,580	2,566
Education, Training, and Library Occupations	326,316	332,946	6,630	2.0%	663	12,948	15,673	29,284
Arts, Design, Entertainment, Sports, and Media Occupations	90,882	89,920	-962	-1.1%	-97	3,745	6,366	10,014
Healthcare Practitioners and Technical Occupations	367,700	398,488	30,788	8.4%	3,076	10,077	11,594	24,747
Healthcare Support Occupations	193,090	222,027	28,937	15.0%	2,894	10,476	13,005	26,375
Protective Service Occupations	120,483	119,239	-1,244	-1.0%	-124	5,407	7,476	12,759
Food Preparation and Serving Related Occupations	506,846	529,450	22,604	4.5%	2,260	36,312	53,486	92,058
Building and Grounds Cleaning and Maintenance Occupations	193,428	197,877	4,449	2.3%	445	10,962	14,532	25,939
Personal Care and Service Occupations	192,783	213,419	20,636	10.7%	2,064	14,180	16,024	32,268
Sales and Related Occupations	547,659	533,335	-14,324	-2.6%	-1,432	28,849	46,010	73,427
Office and Administrative Support Occupations	755,442	721,775	-33,755	-4.5%	-3,366	35,551	49,630	81,815
Farming, Fishing, and Forestry Occupations	14,966	15,088	122	0.8%	12	594	1,827	2,433
Construction and Extraction Occupations	215,515	233,965	18,450	8.6%	1,844	7,240	17,630	26,714
Installation, Maintenance, and Repair Occupations	218,823	224,320	5,497	2.5%	550	6,977	14,620	22,147
Production Occupations	515,729	487,714	-28,015	-5.4%	-2,802	19,152	38,403	54,753
Transportation and Material Moving Occupations	496,844	512,708	15,864	3.2%	1,587	23,199	40,700	65,486

Source: Ohio Department of Job and Family Services, Bureau of Labor Market Information, January 2021.

Appendix Table G
Ohio's Fastest Growing Occupations*, 2018–2028

Occupational Title	Percent Change	Total Annual Openings	Median Wage May 2019
Personal and Home Care Aides (SOC 39-9021)	32.0%	8,998	\$11.08 †
Home Health Aides (SOC 31-1011)	30.5%	9,025	\$11.08 †
Occupational Therapist Assistants (SOC 31-2011)	29.1%	563	\$28.71
Information Security Analysts (SOC 15-1212)	28.9%	389	\$44.59
Physician Assistants (SOC 29-1071)	27.4%	414	\$52.09
Statisticians (SOC 15-2041)	26.4%	103	\$38.46
Taxi Drivers and Chauffeurs (SOC 53-3041)	25.6%	1,982	▲
Nurse Practitioners (SOC 29-1171)	24.6%	653	\$49.75
Speech-Language Pathologists (SOC 29-1127)	23.1%	459	\$35.71
Massage Therapists (SOC 31-9011)	22.4%	481	\$19.43
Actuaries (SOC 15-2011)	22.3%	146	\$46.49
Operations Research Analysts (SOC 15-2031)	21.4%	358	\$39.29
Physical Therapist Assistants (SOC 31-2021)	21.0%	968	\$28.32
Genetic Counselors (SOC 29-9092)	20.3%	12	\$37.77
Respiratory Therapists (SOC 29-1126)	19.5%	487	\$27.69
Software Developers, Applications (SOC 15-1132)	19.4%	3,466	▲
Numerical Tool and Process Control Programmers (SOC 51-9162)	18.5%	231	\$24.47
Medical Assistants (SOC 31-9092)	17.9%	3,327	\$15.87
Substance Abuse, Behavioral Disorder, and Mental Health Counselors (SOC 21-1018)	17.6%	1,130	\$21.94
Health Specialties Teachers, Postsecondary (SOC 25-1071)	17.4%	1,084	\$107,960 ††
Floor Layers, Except Carpet, Wood, and Hard Tiles (SOC 47-2042)	17.3%	136	\$20.83
Residential Advisors (SOC 39-9041)	17.2%	598	\$13.47
Interpreters and Translators (SOC 27-3091)	17.0%	298	\$24.41
Market Research Analysts and Marketing Specialists (SOC 13-1161)	16.8%	3,225	\$29.18
Veterinary Technologists and Technicians (SOC 29-2056)	16.5%	381	\$16.40
Nursing Instructors and Teachers, Postsecondary (SOC 25-1072)	16.1%	284	\$73,730 ††
Medical and Public Health Social Workers (SOC 21-1022)	15.7%	890	\$26.77
Physical Therapists (SOC 29-1123)	15.5%	484	\$42.19
Veterinarians (SOC 29-1131)	15.4%	189	\$46.65
Diagnostic Medical Sonographers (SOC 29-2032)	15.3%	203	\$31.75
Veterinary Assistants and Laboratory Animal Caretakers (SOC 31-9096)	15.2%	548	\$12.49
Phlebotomists (SOC 31-9097)	14.7%	736	\$16.52
Film and Video Editors (SOC 27-4032)	14.6%	60	\$26.91
Cooks, Restaurant (SOC 35-2014)	14.4%	6,155	\$12.04
Tile and Marble Setters (SOC 47-2044)	14.3%	111	\$19.26

* Occupations with at least 500 employment.

† Aggregated statewide wages.

†† Certain occupations only report wages at the annual level - for elementary and secondary teachers this typically reflects a 9 1/2-month school year.

▲ Wage not available due to OES/SOC changes.

Source: Ohio Department of Job and Family Services, Bureau of Labor Market Information, January 2021.

Appendix Table H
Occupations in Ohio with the Most Annual Openings, 2018–2028

Occupational Title	Total Annual Openings	Median Wage May 2019
Combination Food Preparation and Serving Workers, Including Fast Food (SOC 35-3021)	31,447	\$9.53 †
Cashiers (SOC 41-2011)	21,693	\$10.29
Retail Salespersons (SOC 41-2031)	21,610	\$11.36
Waiters and Waitresses (SOC 35-3031)	18,146	\$9.59
Laborers and Freight, Stock, and Material Movers, Hand (SOC 53-7062)	17,626	\$14.43
Customer Service Representatives (SOC 43-4051)	12,693	\$16.70
Office Clerks, General (SOC 43-9061)	12,366	\$16.49
Janitors and Cleaners, Except Maids and Housekeeping Cleaners (SOC 37-2011)	11,992	\$12.52
Stock Clerks and Order Fillers (SOC 53-7065)	10,444	\$12.57
Truck Drivers, Heavy and Tractor-Trailer (SOC 53-3032)	9,628	\$21.66
Home Health Aides (SOC 31-1011)	9,025	\$11.08 †
Personal and Home Care Aides (SOC 39-9021)	8,998	\$11.08 †
Farmers, Ranchers, and Other Agricultural Managers (SOC 11-9013)	8,752	\$31.81
Registered Nurses (SOC 29-1141)	8,357	\$31.63
Nursing Assistants (SOC 31-1014)	7,910	\$13.61
Assemblers and Fabricators, All Other (SOC 51-2098)	7,383	\$16.40 †
Secretaries, Except Legal, Medical, and Executive (SOC 43-6014)	6,766	\$17.42
Bookkeeping, Accounting, and Auditing Clerks (SOC 43-3031)	6,401	\$18.75
First-Line Supervisors of Food Preparation and Serving Workers (SOC 35-1012)	6,385	\$14.72
Landscaping and Groundskeeping Workers (SOC 37-3011)	6,375	\$14.07
Cooks, Restaurant (SOC 35-2014)	6,155	\$12.04
Construction Laborers (SOC 47-2061)	6,099	\$20.04
Maintenance and Repair Workers, General (SOC 49-9071)	5,887	\$19.32
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products (SOC 41-4012)	5,620	\$27.95
First-Line Supervisors of Retail Sales Workers (SOC 41-1011)	5,583	\$18.52
General and Operations Managers (SOC 11-1021)	5,536	\$46.81
Child Care Workers (SOC 39-9011)	5,461	\$10.65
Maids and Housekeeping Cleaners (SOC 37-2012)	5,343	\$10.85
Food Preparation Workers (SOC 35-2021)	4,978	\$10.81
Truck Drivers, Light or Delivery Services (SOC 53-3033)	4,916	\$15.27
First-Line Supervisors of Office and Administrative Support Workers (SOC 43-1011)	4,903	\$26.43
Accountants and Auditors (SOC 13-2011)	4,851	\$31.58
Sales Representatives, Services, All Other (SOC 41-3091)	4,769	\$25.02
Receptionists and Information Clerks (SOC 43-4171)	4,681	\$13.36
Teacher Assistants (SOC 25-9041)	4,389	▲
Bartenders (SOC 35-3011)	4,352	\$9.45
Security Guards (SOC 33-9032)	4,274	\$13.75
Packers and Packagers, Hand (SOC 53-7064)	4,168	\$12.60
Medical Secretaries (SOC 43-6013)	4,160	\$16.72

† Aggregated statewide wages.

▲ Wage not available due to OES/SOC changes.

Source: Ohio Department of Job and Family Services, Bureau of Labor Market Information, January 2021.

Appendix Table I
Ohio Occupations with at least 1,000 Self-Employed, 2018–2028

Occupational Title	2018 Employment	Self- Employed	Percent Self- Employed
Hairdressers, Hairstylists, and Cosmetologists (SOC 39-5012)	30,282	13,379	44.2%
Construction Laborers (SOC 47-2061)	47,997	13,224	27.6%
First-Line Supervisors of Retail Sales Workers (SOC 41-1011)	53,742	13,115	24.4%
Landscaping and Groundskeeping Workers (SOC 37-3011)	46,641	10,266	22.0%
Child Care Workers (SOC 39-9011)	35,625	8,879	24.9%
Real Estate Sales Agents (SOC 41-9022)	14,252	8,035	56.4%
Carpenters (SOC 47-2031)	26,042	7,040	27.0%
Construction Managers (SOC 11-9021)	15,050	5,985	39.8%
Taxi Drivers and Chauffeurs (SOC 53-3041)	13,407	5,740	42.8%
Truck Drivers, Heavy and Tractor-Trailer (SOC 53-3032)	78,554	4,919	6.3%
First-Line Supervisors of Non-Retail Sales Workers (SOC 41-1012)	13,387	4,916	36.7%
Food Service Managers (SOC 11-9051)	12,869	4,845	37.6%
Property, Real Estate and Community Association Managers (SOC 11-9141)	10,991	4,608	41.9%
Retail Salespersons (SOC 41-2031)	155,997	4,588	2.9%
Lawyers (SOC 23-1011)	22,042	4,411	20.0%
Management Analysts (SOC 13-1111)	24,082	4,283	17.8%
Automotive Service Technicians and Mechanics (SOC 49-3023)	27,471	4,065	14.8%
Janitors and Cleaners, Except Maids and Housekeeping Cleaners (SOC 37-2011)	88,118	3,803	4.3%
Maids and Housekeeping Cleaners (SOC 37-2012)	40,389	3,765	9.3%
Painters, Construction and Maintenance (SOC 47-2141)	9,094	3,411	37.5%
Accountants and Auditors (SOC 13-2011)	50,097	3,330	6.6%
Photographers (SOC 27-4021)	5,128	3,258	63.5%
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers (SOC 37-1012)	6,830	3,189	46.7%
Bookkeeping, Accounting, and Auditing Clerks (SOC 43-3031)	59,540	2,770	4.7%
Self-Enrichment Education Teachers (SOC 25-3021)	12,342	2,744	22.2%
Truck Drivers, Light or Delivery Services (SOC 53-3033)	41,745	2,607	6.2%
Nonfarm Animal Caretakers (SOC 39-2021)	9,806	2,606	26.6%
Musicians and Singers (SOC 27-2042)	6,792	2,558	37.7%
First-Line Supervisors of Housekeeping and Janitorial Workers (SOC 37-1011)	7,065	2,350	33.3%
Writers and Authors (SOC 27-3043)	3,566	2,194	61.5%
Insurance Sales Agents (SOC 41-3021)	18,469	2,129	11.5%
Graphic Designers (SOC 27-1024)	9,127	2,042	22.4%
Personal Financial Advisors (SOC 13-2052)	8,096	2,019	24.9%
First-Line Supervisors of Personal Service Workers (SOC 39-1021)	9,220	1,981	21.5%
Electricians (SOC 47-2111)	26,634	1,675	6.3%
Clinical, Counseling, and School Psychologists (SOC 19-3031)	5,524	1,659	30.0%
Art Directors (SOC 27-1011)	2,657	1,573	59.2%
Merchandise Displayers and Window Trimmers (SOC 27-1026)	6,551	1,552	23.7%
Driver/Sales Workers (SOC 53-3031)	22,931	1,468	6.4%
Personal and Home Care Aides (SOC 39-9021)	46,454	1,462	3.1%
Coaches and Scouts (SOC 27-2022)	13,502	1,449	10.7%
Plumbers, Pipefitters, and Steamfitters (47-2152)	15,146	1,422	9.4%
Nursing Assistants (SOC 31-1014)	67,330	1,398	2.1%
Physicians and Surgeons, All Other (SOC 29-1069)	18,495	1,345	7.3%
Door-to-Door Sales Workers, News and Street Vendors, and Related Workers (SOC 41-9091)	1,556	1,345	86.4%
Home Health Aides (SOC 31-1011)	56,510	1,265	2.2%
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products (SOC 41-4012)	53,482	1,243	2.3%
Laborers and Freight, Stock, and Material Movers, Hand (SOC 53-7062)	119,583	1,231	1.0%
First-Line Supervisors of Construction Trades and Extraction Workers (SOC 47-1011)	15,689	1,220	7.8%
Teachers and Instructors, All Other except Substitute Teachers (SOC 25-3097)	8,165	1,212	14.8%
Chief Executives (SOC 11-1011)	5,648	1,195	21.2%
Brickmasons and Blockmasons (SOC 47-2021)	4,270	1,194	28.0%
Fitness Trainers and Aerobics Instructors (SOC 39-9031)	10,499	1,134	10.8%
Heating, AC, and Refrigeration Mechanics/Installers (SOC 49-9021)	12,260	1,103	9.0%
Roofers (SOC 47-2181)	5,586	1,102	19.7%
Welders, Cutters, Solderers, and Brazers (SOC 51-4121)	19,676	1,100	5.6%
Recreation Workers (SOC 39-9032)	15,299	1,074	7.0%
Massage Therapists (SOC 31-9011)	3,165	1,045	33.0%

Source: Ohio Department of Job and Family Services, Bureau of Labor Market Information, January 2021.

Appendix Table J
Ohio Occupational Employment* Projections Report, 2018–2028

Code	Occupational Title	Employment		Change in Employment		Growth	Annual Openings			Median Wage May 2019
		2018 Annual	2028 Projected	2018-2028	Percent		Exits	Transfers	Total	
00-0000	Total, All Occupations	5,860,006	5,998,703	138,697	2.4%	13,870	256,824	414,566	685,260	\$18.54
11-0000	Management Occupations	362,088	382,300	20,212	5.6%	2,021	12,009	19,948	33,978	\$47.08
11-1011	Chief Executives	5,648	5,164	-484	-8.6%	-48	144	240	336	\$88.94
11-1021	General and Operations Managers	59,888	62,232	2,344	3.9%	234	1,280	4,022	5,536	\$46.81
11-1031	Legislators	2,630	2,652	22	0.8%	2	67	133	202	\$19,700 ††
11-2011	Advertising and Promotions Managers	395	376	-19	-4.8%	-2	8	29	35	\$48.34
11-2021	Marketing Managers	6,836	7,205	369	5.4%	37	143	480	660	\$60.39
11-2022	Sales Managers	11,078	11,375	297	2.7%	30	228	768	1,026	\$59.70
11-2031	Public Relations Managers	1,969	2,076	107	5.4%	11	44	128	183	\$48.26 †
11-3011	Administrative Services Managers	11,573	12,202	629	5.4%	63	327	663	1,053	\$41.31 †
11-3021	Computer and Information Systems Managers	13,670	14,656	986	7.2%	99	243	862	1,204	\$61.65
11-3031	Financial Managers	20,762	23,650	2,888	13.9%	289	480	1,232	2,001	\$58.23
11-3051	Industrial Production Managers	11,832	11,869	37	0.3%	4	255	610	869	\$49.01
11-3061	Purchasing Managers	2,294	2,386	92	4.0%	9	56	139	204	\$55.10
11-3071	Transportation, Storage, and Distribution Managers	5,342	5,768	426	8.0%	43	121	317	481	\$41.35
11-3111	Compensation and Benefits Managers	537	544	7	1.3%	1	14	32	47	\$59.14
11-3121	Human Resources Managers	4,603	4,857	254	5.5%	25	107	293	425	\$54.62
11-3131	Training and Development Managers	866	919	53	6.1%	5	22	57	84	\$51.58
11-9013	Farmers, Ranchers, and Other Agricultural Managers	81,504	85,884	4,380	5.4%	438	5,203	3,111	8,752	\$31.81
11-9021	Construction Managers	15,050	16,339	1,289	8.6%	129	330	799	1,258	\$43.10
11-9031	Education Administrators, Preschool and Childcare Center/Program	2,365	2,518	153	6.5%	15	63	126	204	\$20.77
11-9032	Education Administrators, Elementary and Secondary School	9,602	9,655	53	0.6%	5	248	499	752	\$89,960 ††
11-9033	Education Administrators, Postsecondary	4,827	4,920	93	1.9%	9	126	252	387	\$44.53
11-9039	Education Administrators, All Other	966	1,022	56	5.8%	6	26	52	84	\$42.28
11-9041	Engineering Managers	6,322	6,483	161	2.5%	16	112	350	478	\$62.52
11-9051	Food Service Managers	12,869	13,474	605	4.7%	60	401	1,108	1,569	\$25.23
11-9081	Lodging Managers	1,841	1,892	51	2.8%	5	59	133	197	\$18.95
11-9111	Medical and Health Services Managers	15,545	17,718	2,173	14.0%	217	408	910	1,535	\$44.08
11-9121	Natural Sciences Managers	1,006	1,061	55	5.5%	6	22	69	97	\$58.57
11-9131	Postmasters and Mail Superintendents	472	339	-133	-28.2%	-13	10	20	17	\$37.36
11-9141	Property, Real Estate and Community Association Managers	10,991	11,606	615	5.6%	62	420	449	931	\$24.30
11-9151	Social and Community Service Managers	5,375	6,017	642	11.9%	64	170	326	560	\$31.56
11-9161	Emergency Management Directors	340	353	13	3.8%	1	10	17	28	\$35.93
11-9171	Funeral Home Managers	1,265	1,296	31	2.5%	3	32	65	100	ND
11-9198	Managers, All Other	31,782	33,753	1,971	6.2%	197	830	1,654	2,681	\$47.45
13-0000	Business and Financial Operations Occupations	299,874	313,712	13,838	4.6%	1,384	8,338	20,722	30,444	\$31.36
13-1031	Claims Adjusters, Examiners, and Investigators	12,401	11,835	-566	-4.6%	-57	291	733	967	\$30.81
13-1032	Insurance Appraisers, Auto Damage	517	548	31	6.0%	3	13	32	48	\$27.35
13-1041	Compliance Officers	8,064	8,441	377	4.7%	38	230	493	761	\$30.67
13-1051	Cost Estimators	10,148	10,906	758	7.5%	76	266	772	1,114	\$30.15
13-1071	Human Resource Specialists	24,106	25,056	950	3.9%	95	656	1,809	2,560	\$27.95
13-1075	Labor Relations Specialists	5,772	5,156	-616	-10.7%	-62	146	402	486	\$27.29
13-1081	Logisticians	6,468	6,716	248	3.8%	25	154	473	652	\$34.84
13-1111	Management Analysts	24,082	27,000	2,918	12.1%	292	792	1,613	2,697	\$39.45
13-1121	Meeting and Convention Planners	3,545	3,710	165	4.7%	16	116	297	429	\$22.18
13-1131	Fundraisers	4,671	4,958	287	6.1%	29	158	342	529	\$26.01

Appendix Table J – cont'd.
Ohio Occupational Employment* Projections Report, 2018–2028

Code	Occupational Title	Employment		Change in Employment		Growth	Annual Openings			Median Wage May 2019
		2018 Annual	2028 Projected	2018-2028	Percent		Exits	Transfers	Total	
13-1141	Compensation, Benefits, and Job Analysis Specialists	3,137	3,384	247	7.9%	25	107	202	334	\$28.76
13-1151	Training and Development Specialists	11,099	11,984	885	8.0%	88	344	893	1,325	\$27.17
13-1161	Market Research Analysts and Marketing Specialists	25,271	29,518	4,247	16.8%	425	645	2,155	3,225	\$29.18
13-1198	Business Operations Specialists, All Other	37,895	39,560	1,665	4.4%	166	1,052	2,666	3,884	\$33.81
13-2011	Accountants and Auditors	50,097	51,340	1,243	2.5%	124	1,431	3,296	4,851	\$31.58
13-2021	Appraisers and Assessors of Real Estate	2,302	2,416	114	5.0%	11	80	95	186	\$29.36 †
13-2031	Budget Analyst	1,004	1,039	35	3.5%	4	25	54	83	\$35.77
13-2041	Credit Analysts	2,932	3,103	171	5.8%	17	67	205	289	\$34.65
13-2051	Financial Analysts	9,573	10,119	546	5.7%	55	189	646	890	ND
13-2052	Personal Financial Advisors	8,096	8,738	642	7.9%	64	191	445	700	\$35.41
13-2053	Insurance Underwriters	5,166	4,755	-411	-8.0%	-41	115	297	371	\$32.91
13-2061	Financial Examiners	2,659	2,893	234	8.8%	23	58	151	232	\$32.28
13-2071	Credit Counselors	1,001	1,032	31	3.1%	3	24	61	88	\$22.97
13-2072	Loan Officers	11,848	12,734	886	7.5%	89	294	734	1,117	\$32.57
13-2081	Tax Examiners, Collectors, and Revenue Agents	1,370	1,321	-49	-3.6%	-5	53	59	107	\$30.72
13-2082	Tax Preparers	2,260	2,209	-51	-2.3%	-5	110	144	249	\$18.00
13-2099	Financial Specialists, All Other	5,723	6,033	310	5.4%	31	164	344	539	\$35.74
15-0000	Computer and Mathematical Occupations	155,450	169,343	13,893	8.9%	1,389	2,700	9,158	13,247	\$37.92
15-1132	Software Developers, Applications	35,855	42,813	6,958	19.4%	696	546	2,224	3,466	▲
15-1133	Software Developers, Systems Software	5,586	5,849	263	4.7%	26	79	323	428	▲
15-1134	Web Developers	4,861	5,133	272	5.6%	27	85	294	406	▲
15-1211	Computer Systems Analysts	30,221	31,946	1,725	5.7%	172	591	1,654	2,417	\$40.72
15-1212	Information Security Analysts	3,523	4,540	1,017	28.9%	102	58	229	389	\$44.59
15-1221	Computer and Information Research Scientists	487	527	40	8.2%	4	7	32	43	\$53.56
15-1231	Computer Network Support Specialists	8,498	8,814	316	3.7%	32	159	550	741	\$28.26
15-1232	Computer User Support Specialists	21,148	22,364	1,216	5.7%	122	399	1,384	1,905	\$23.15
15-1241	Computer Network Architects	4,946	4,956	10	0.2%	1	66	279	346	\$48.33
15-1244	Network and Computer Systems Administrators	12,130	12,194	64	0.5%	6	204	645	855	\$33.71
15-1245	Database Administrators	3,708	3,937	229	6.2%	23	74	197	294	▲
15-1251	Computer Programmers	5,391	4,807	-584	-10.8%	-58	82	276	300	\$37.02
15-1299	Computer Occupations, All Other	12,631	13,562	931	7.4%	93	210	740	1,043	\$38.52
15-2011	Actuaries	1,641	2,007	366	22.3%	37	20	89	146	\$46.49
15-2031	Operations Research Analysts	3,826	4,645	819	21.4%	82	99	177	358	\$39.29
15-2041	Statisticians	901	1,139	238	26.4%	24	19	60	103	\$38.46
17-0000	Architecture and Engineering Occupations	100,244	104,223	3,979	4.0%	398	2,373	5,432	8,203	\$36.72
17-1011	Architects, Except Landscape and Naval	3,895	4,111	216	5.5%	22	96	212	330	\$39.51
17-1012	Landscape Architects	926	941	15	1.6%	2	22	49	73	\$30.28
17-1022	Surveyors	1,348	1,394	46	3.4%	5	35	65	105	\$27.98
17-2011	Aerospace Engineers	4,184	4,337	153	3.7%	15	90	184	289	\$55.27
17-2021	Agricultural Engineers	102	102	0	0.0%	0	2	5	7	\$40.53
17-2031	Biomedical Engineers	632	643	11	1.7%	1	14	32	47	\$38.47
17-2041	Chemical Engineers	1,711	1,801	90	5.3%	9	36	74	119	\$46.76
17-2051	Civil Engineers	8,622	8,914	292	3.4%	29	179	504	712	\$38.20
17-2061	Computer Hardware Engineers	1,017	1,067	50	4.9%	5	20	55	80	\$49.34
17-2071	Electrical Engineers	6,834	7,171	337	4.9%	34	141	321	496	\$40.78
17-2072	Electronics Engineers, Except Computer	3,657	3,677	20	0.5%	2	74	168	244	\$46.26

Appendix Table J – cont'd.
Ohio Occupational Employment* Projections Report, 2018–2028

Code	Occupational Title	Employment		Change in Employment		Growth	Annual Openings			Median Wage May 2019
		2018 Annual	2028 Projected	2018-2028	Percent		Exits	Transfers	Total	
17-2081	Environmental Engineers	928	961	33	3.6%	3	26	46	75	\$40.50
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	547	556	9	1.6%	1	11	26	38	\$44.43
17-2112	Industrial Engineers	15,945	17,488	1,543	9.7%	154	337	804	1,295	\$38.77
17-2131	Materials Engineers	2,027	2,045	18	0.9%	2	42	85	129	\$39.25
17-2141	Mechanical Engineers	15,812	16,595	783	5.0%	78	302	794	1,174	\$38.23
17-2151	Mining and Geological Engineers, Including Mining Safety Engineers	161	168	7	4.3%	1	4	10	15	\$40.18
17-2171	Petroleum Engineers	336	333	-3	-0.9%	0	6	19	25	\$54.81
17-2199	Engineers, All Other	7,625	7,923	298	3.9%	30	160	377	567	\$43.64
17-3011	Architectural and Civil Drafters	2,742	2,739	-3	-0.1%	0	91	191	282	\$26.40
17-3012	Electrical and Electronics Drafters	848	871	23	2.7%	2	29	60	91	\$28.57
17-3013	Mechanical Drafters	2,277	2,068	-209	-9.2%	-21	72	152	203	\$26.92
17-3019	Drafters, All Other	1,007	1,034	27	2.7%	3	34	71	108	\$26.78
17-3021	Aerospace Engineering and Operations Technicians	993	1,004	11	1.1%	1	33	64	98	\$32.70
17-3022	Civil Engineering Technicians	1,916	1,965	49	2.6%	5	64	125	194	\$28.33
17-3023	Electrical and Electronic Engineering Technicians	2,921	2,827	-94	-3.2%	-9	95	185	271	\$29.87
17-3024	Electro-Mechanical Technicians	377	392	15	4.0%	2	13	25	40	\$24.24
17-3025	Environmental Engineering Technicians	374	395	21	5.6%	2	13	25	40	\$24.06
17-3026	Industrial Engineering Technicians	3,128	3,184	56	1.8%	6	104	203	313	\$25.45
17-3027	Mechanical Engineering Technicians	2,521	2,577	56	2.2%	6	84	164	254	\$26.51
17-3031	Surveying and Mapping Technicians	1,462	1,525	63	4.3%	6	42	134	182	\$21.08
17-3098	Engineering Technicians, Except Drafters, All Other	2,652	2,710	58	2.2%	6	89	173	268	\$27.87
19-0000	Life, Physical, and Social Science Occupations	44,062	46,240	2,178	4.9%	220	905	3,228	4,353	\$30.36
19-1012	Food Scientists and Technologists	696	738	42	6.0%	4	14	65	83	\$35.68
19-1013	Soil and Plant Scientists	283	285	2	0.7%	0	6	26	32	\$26.74
19-1021	Biochemists and Biophysicists	333	343	10	3.0%	1	5	26	32	\$23.02
19-1022	Microbiologists	499	513	14	2.8%	1	8	38	47	\$29.82
19-1023	Zoologists and Wildlife Biologists	152	152	0	0.0%	0	2	12	14	\$28.43
19-1029	Biological Scientists, All Other	797	855	58	7.3%	6	13	63	82	\$36.77
19-1031	Conservation Scientists	750	757	7	0.9%	1	14	64	79	\$26.63
19-1032	Foresters	197	206	9	4.6%	1	4	17	22	\$29.18
19-1041	Epidemiologists	278	284	6	2.2%	1	4	21	26	\$33.01
19-1042	Medical Scientists, Except Epidemiologists	3,442	3,638	196	5.7%	20	49	266	335	\$34.11
19-1099	Life Scientists, All Other	252	269	17	6.7%	2	4	20	26	\$31.75
19-2012	Physicists	446	489	43	9.6%	4	9	29	42	\$56.69
19-2031	Chemists	4,059	4,138	79	1.9%	8	67	302	377	\$33.75
19-2032	Materials Scientists	642	671	29	4.5%	3	11	48	62	\$49.50
19-2041	Environmental Scientists and Specialists, Including Health	2,054	2,141	87	4.2%	9	39	188	236	\$37.24
19-2042	Geoscientists, Except Hydrologists and Geographers	318	330	12	3.8%	1	6	29	36	\$36.63
19-2043	Hydrologists	249	249	0	0.0%	0	5	22	27	\$38.61
19-2099	Physical Scientists, All Other	608	631	23	3.8%	2	8	45	55	\$52.85
19-3011	Economists	147	155	8	5.4%	1	2	9	12	\$46.49
19-3022	Survey Researchers	140	144	4	2.9%	0	4	12	16	\$29.54
19-3031	Clinical, Counseling, and School Psychologists	5,524	6,211	687	12.4%	69	131	280	480	\$35.86
19-3039	Psychologists, All Other	492	518	26	5.3%	3	11	24	38	\$48.19
19-3051	Urban and Regional Planners	928	999	71	7.7%	7	16	74	97	\$33.97
19-3091	Anthropologists and Archeologists	117	134	17	14.5%	2	4	10	16	\$27.82

Appendix Table J – cont'd.
Ohio Occupational Employment* Projections Report, 2018–2028

Code	Occupational Title	Employment		Change in Employment		Growth	Annual Openings			Median Wage May 2019
		2018 Annual	2028 Projected	2018-2028	Percent		Exits	Transfers	Total	
19-3099	Social Scientists and Related Workers, All Other	1,711	1,754	43	2.5%	4	54	144	202	\$37.19
19-4011	Agricultural and Food Science Technicians	484	504	20	4.1%	2	10	49	61	\$20.14 †
19-4021	Biological Technicians	4,097	4,267	170	4.1%	17	62	377	456	\$21.30
19-4031	Chemical Technicians	3,345	3,373	28	0.8%	3	64	271	338	\$23.08
19-4041	Geological and Petroleum Technicians (split 19-4043 Geo Tech and 19-4044 Hydro Tech for 2018)	130	137	7	5.4%	1	2	12	15	▲
19-4042	Environmental Science and Protection Technicians, Including Health	1,555	1,650	95	6.1%	10	44	146	200	\$21.52
19-4051	Nuclear Technicians	487	446	-41	-8.4%	-4	13	43	52	\$36.65
19-4061	Social Science Research Assistants	389	411	22	5.7%	2	11	36	49	\$21.34
19-4071	Forest and Conservation Technicians	279	280	1	0.4%	0	8	26	34	\$20.31
19-4092	Forensic Science Technicians	439	475	36	8.2%	4	12	42	58	\$32.03
19-4099	Life, Physical, and Social Science Technicians, All Other	1,800	1,858	58	3.2%	6	50	167	223	\$25.54
19-5011	Occupational Health and Safety Specialists	4,559	4,790	231	5.1%	23	107	156	286	\$35.40
19-5012	Occupational Health and Safety Technicians	949	988	39	4.1%	4	22	32	58	\$24.87
21-0000	Community and Social Service Occupations	103,519	112,446	8,927	8.6%	893	3,864	7,573	12,330	\$21.31
21-1012	Educational, Vocational, and School Counselors	10,718	11,237	519	4.8%	52	356	768	1,176	\$25.81
21-1013	Marriage and Family Therapists	513	561	48	9.4%	5	17	38	60	\$22.90
21-1015	Rehabilitation Counselors	5,810	6,501	691	11.9%	69	199	430	698	\$16.33
21-1018	Substance Abuse, Behavioral Disorder, and Mental Health Counselors	8,762	10,307	1,545	17.6%	154	309	667	1,130	\$21.94
21-1019	Counselors, All Other	1,109	1,192	83	7.5%	8	37	80	125	\$23.92
21-1021	Child, Family, and School Social Workers	10,600	11,362	762	7.2%	76	324	748	1,148	\$21.68
21-1022	Medical and Public Health Social Workers	7,365	8,519	1,154	15.7%	115	234	541	890	\$26.77
21-1023	Mental Health and Substance Abuse Social Workers	6,231	7,093	862	13.8%	86	197	454	737	\$20.93
21-1029	Social Workers, All Other	3,067	3,335	268	8.7%	27	94	218	339	\$25.17
21-1091	Health Educators	2,178	2,346	168	7.7%	17	84	171	272	\$26.21
21-1092	Probation Officers and Correctional Treatment Specialists	3,199	3,205	6	0.2%	1	70	200	271	\$24.12
21-1093	Social and Human Service Assistants	15,800	17,482	1,682	10.6%	168	666	1,313	2,147	\$16.36
21-1094	Community Health Workers	1,955	2,125	170	8.7%	17	76	154	247	\$17.80
21-1099	Community and Social Service Specialists, All Other	2,724	2,873	149	5.5%	15	104	212	331	\$20.29
21-2011	Clergy	18,771	19,424	653	3.5%	65	836	1,233	2,134	\$22.08
21-2021	Directors, Religious Activities and Education	2,126	2,208	82	3.9%	8	107	161	276	\$22.68
21-2099	Religious Workers, All Other	2,591	2,676	85	3.3%	8	153	186	347	\$14.84
23-0000	Legal Occupations	38,890	38,837	-53	-0.1%	-5	991	1,580	2,566	\$33.09
23-1011	Lawyers	22,042	21,890	-152	-0.7%	-15	471	581	1,037	\$49.02
23-1012	Judicial Law Clerks	221	221	0	0.0%	0	3	7	10	\$26.07
23-1021	Administrative Law Judges, Adjudicators, and Hearing Officers	537	536	-1	-0.2%	0	12	14	26	\$31.64
23-1022	Arbitrators, Mediators, and Conciliators	225	231	6	2.7%	1	5	6	12	\$24.81
23-1023	Judges, Magistrate Judges, and Magistrates	2,533	2,521	-12	-0.5%	-1	54	67	120	\$40.01
23-2011	Paralegals and Legal Assistants	9,472	9,759	287	3.0%	29	321	696	1,046	\$21.25
23-2093	Title Examiners, Abstractors, and Searchers	2,558	2,350	-208	-8.1%	-21	82	136	197	\$23.30
23-2099	Legal Support Workers, All Other	853	843	-10	-1.2%	-1	28	47	74	\$25.21
25-0000	Education, Training, and Library Occupations	326,316	332,946	6,630	2.0%	663	12,948	15,673	29,284	\$25.97
25-1011	Business Teachers, Postsecondary	3,788	4,185	397	10.5%	40	147	183	370	\$92,010
25-1021	Computer Science Teachers, Postsecondary	1,277	1,280	3	0.2%	0	47	59	106	\$88,070
25-1022	Mathematical Science Teachers, Postsecondary	1,866	1,860	-6	-0.3%	-1	69	86	154	\$75,660
25-1031	Architecture Teachers, Postsecondary	275	280	5	1.8%	0	10	13	23	\$82,630

Appendix Table J – cont'd.
Ohio Occupational Employment* Projections Report, 2018–2028

Code	Occupational Title	Employment		Change in Employment		Growth	Annual Openings			Median Wage May 2019
		2018 Annual	2028 Projected	2018-2028	Percent		Exits	Transfers	Total	
25-1032	Engineering Teachers, Postsecondary	1,486	1,560	74	5.0%	7	56	70	133	\$102,800 ††
25-1042	Biological Science Teachers, Postsecondary	1,797	1,917	120	6.7%	12	68	85	165	\$80,260
25-1051	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	227	226	-1	-0.4%	0	8	10	18	\$87,410
25-1052	Chemistry Teachers, Postsecondary	824	843	19	2.3%	2	31	38	71	\$80,410
25-1054	Physics Teachers, Postsecondary	546	558	12	2.2%	1	20	25	46	\$84,820
25-1061	Anthropology and Archeology Teachers, Postsecondary	167	170	3	1.8%	0	6	8	14	\$86,450
25-1062	Area, Ethnic, and Cultural Studies Teachers, Postsecondary	238	245	7	2.9%	1	9	11	21	\$72,430
25-1063	Economics Teachers, Postsecondary	455	468	13	2.9%	1	17	21	39	\$103,800 ††
25-1064	Geography Teachers, Postsecondary	216	217	1	0.5%	0	8	10	18	\$86,050
25-1065	Political Science Teachers, Postsecondary	512	523	11	2.1%	1	19	24	44	\$80,190
25-1066	Psychology Teachers, Postsecondary	1,383	1,478	95	6.9%	10	53	66	129	\$76,630
25-1067	Sociology Teachers, Postsecondary	605	613	8	1.3%	1	22	28	51	\$78,090
25-1069	Social Sciences Teachers, Postsecondary, All Other	219	215	-4	-1.8%	0	8	10	18	\$72,650
25-1071	Health Specialties Teachers, Postsecondary	10,110	11,866	1,756	17.4%	176	404	504	1,084	\$107,960 ††
25-1072	Nursing Instructors and Teachers, Postsecondary	2,695	3,128	433	16.1%	43	107	134	284	\$73,730 ††
25-1081	Education Teachers, Postsecondary	3,000	3,090	90	3.0%	9	112	140	261	\$63,740 ††
25-1082	Library Science Teachers, Postsecondary	236	239	3	1.3%	0	9	11	20	\$65,220 ††
25-1111	Criminal Justice and Law Enforcement Teachers, Postsecondary	519	538	19	3.7%	2	19	24	45	\$56,830 ††
25-1112	Law Teachers, Postsecondary	708	735	27	3.8%	3	27	33	63	\$112,040 ††
25-1113	Social Work Teachers, Postsecondary	566	577	11	1.9%	1	21	26	48	\$69,070 ††
25-1121	Art, Drama, and Music Teachers, Postsecondary	4,003	4,160	157	3.9%	16	150	187	353	\$70,370 ††
25-1122	Communications Teachers, Postsecondary	1,368	1,383	15	1.1%	2	51	63	116	\$67,520 ††
25-1123	English Language and Literature Teachers, Postsecondary	2,659	2,666	7	0.3%	1	98	122	221	\$66,560 ††
25-1124	Foreign Language and Literature Teachers, Postsecondary	1,018	1,054	36	3.5%	4	38	48	90	\$69,300 ††
25-1125	History Teachers, Postsecondary	852	867	15	1.8%	2	32	39	73	\$74,010 ††
25-1126	Philosophy and Religion Teachers, Postsecondary	999	1,043	44	4.4%	4	38	47	89	\$72,450 ††
25-1192	Family and Consumer Sciences Teachers, Postsecondary (new name 2018)	162	162	0	0.0%	0	6	7	13	\$76,480 †††
25-1193	Recreation and Fitness Studies Teachers, Postsecondary	526	532	6	1.1%	1	20	24	45	\$61,640 ††
25-1194	Vocational Education Teachers, Postsecondary	3,307	3,132	-175	-5.3%	-18	118	148	248	\$29.34
25-2011	Preschool Teachers, Except Special Education	15,839	16,889	1,050	6.6%	105	648	994	1,747	\$13.06
25-2012	Kindergarten Teachers, Except Special Education	2,781	2,770	-11	-0.4%	-1	110	169	278	\$57,460 ††
25-2021	Elementary School Teachers, Except Special Education	49,921	49,463	-458	-0.9%	-46	1,546	2,119	3,619	\$64,470 ††
25-2022	Middle School Teachers, Except Special and Career/Technical Education	30,953	30,722	-231	-0.7%	-23	959	1,315	2,251	\$63,480 ††
25-2023	Vocational Education Teachers, Middle School	133	131	-2	-1.5%	0	4	6	10	\$63,450 ††
25-2031	Secondary School Teachers, Except Special and Career/Technical Education	50,268	50,062	-206	-0.4%	-21	1,394	2,120	3,493	\$64,370 ††
25-2032	Career/Technical Education Teachers, Secondary School	5,160	5,056	-104	-2.0%	-10	142	216	348	\$71,730 ††
25-2051	Special Education Teachers, Preschool	1,067	1,108	41	3.8%	4	36	46	86	\$58,950 ††
25-2052	Special Education Teachers, Kindergarten and Elementary	6,909	6,820	-89	-1.3%	-9	227	289	507	\$56,670 ††
25-2057	Special Education Teachers, Middle School	4,204	4,142	-62	-1.5%	-6	138	176	308	\$59,210 ††
25-2058	Special Education Teachers, Secondary School	6,104	6,167	63	1.0%	6	203	258	467	\$56,720 ††
25-2059	Special Education Teachers, All Other	1,376	1,498	122	8.9%	12	48	60	120	\$38,410 ††
25-3011	Adult Literacy, Remedial Education, and GED Teachers	1,390	1,240	-150	-10.8%	-15	76	74	135	\$23.42
25-3021	Self-Enrichment Education Teachers	12,342	13,387	1,045	8.5%	104	743	724	1,571	\$15.64
25-3031	Substitute Teachers	16,528	17,477	949	5.7%	95	982	956	2,033	\$13.49
25-3097	Teachers and Instructors, All Other, Except Substitute Teachers	8,165	8,660	495	6.1%	50	486	473	1,009	\$39,860 ††
25-4011	Archivists	228	249	21	9.2%	2	11	15	28	\$23.74

Appendix Table J – cont'd.
Ohio Occupational Employment* Projections Report, 2018–2028

Code	Occupational Title	Employment		Change in Employment		Growth	Annual Openings			Median Wage May 2019
		2018 Annual	2028 Projected	2018-2028	Percent		Exits	Transfers	Total	
25-4012	Curators	381	416	35	9.2%	4	18	25	47	\$23.78
25-4013	Museum Technicians and Conservators	371	407	36	9.7%	4	18	25	47	\$19.72
25-4021	Librarians	3,820	3,839	19	0.5%	2	206	175	383	▲
25-4031	Library Technicians	3,826	3,482	-344	-9.0%	-34	326	235	527	\$14.48
25-9031	Instructional Coordinators	4,405	4,613	208	4.7%	21	188	231	440	\$32.00
25-9041	Teacher Assistants	40,269	41,225	956	2.4%	96	2,162	2,131	4,389	▲
25-9099	Education, Training, and Library Workers, All Other	2,710	2,902	192	7.1%	19	117	144	280	\$17.25
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	90,882	89,920	-962	-1.1%	-97	3,745	6,366	10,014	\$20.88
27-1011	Art Directors	2,657	2,549	-108	-4.1%	-11	133	150	272	\$38.46
27-1012	Craft Artists	329	320	-9	-2.7%	-1	17	19	35	\$17.09
27-1013	Fine Artists, Including Painters, Sculptors, and Illustrators	1,595	1,617	22	1.4%	2	82	92	176	\$21.96
27-1014	Multi-Media Artists and Animators	1,299	1,230	-69	-5.3%	-7	65	73	131	\$25.16
27-1021	Commercial and Industrial Designers	1,246	1,250	4	0.3%	0	40	84	124	\$30.75
27-1023	Floral Designers	2,141	1,749	-392	-18.3%	-39	63	131	155	\$11.50
27-1024	Graphic Designers	9,127	8,976	-151	-1.7%	-15	294	609	888	\$23.25
27-1025	Interior Designers	2,803	2,875	72	2.6%	7	92	191	290	\$26.06
27-1026	Merchandise Displayers and Window Trimmers	6,551	6,402	-149	-2.3%	-15	210	436	631	\$15.48
27-1027	Set and Exhibit Designers	479	495	16	3.3%	2	16	33	51	\$23.11
27-1029	Designers, All Other	155	149	-6	-3.9%	-1	5	10	14	\$24.44
27-2011	Actors	929	950	21	2.3%	2	35	76	113	\$13.90
27-2012	Producers and Directors	2,299	2,248	-51	-2.2%	-5	49	174	218	\$25.10
27-2021	Athletes and Sports Competitors	209	217	8	3.8%	1	12	19	32	\$94,300 ††
27-2022	Coaches and Scouts	13,502	13,999	497	3.7%	50	777	1,230	2,057	\$24,630 ††
27-2023	Umpires, Referees, and Other Sports Officials	508	524	16	3.1%	2	29	46	77	\$24,500 ††
27-2031	Dancers	250	245	-5	-2.0%	0	15	28	43	\$17.49 ^^^
27-2032	Choreographers	109	103	-6	-5.5%	-1	7	12	18	\$19.89
27-2041	Music Directors and Composers	2,395	2,381	-14	-0.6%	-1	137	148	284	\$20.72
27-2042	Musicians and Singers	6,792	6,664	-128	-1.9%	-13	386	416	789	\$26.72
27-2099	Entertainers and Performers, Sports and Related Workers, All Other	788	802	14	1.8%	1	34	57	92	\$19.33 †
27-3011	Radio and Television Announcers	1,504	1,316	-188	-12.5%	-19	58	105	144	\$16.05
27-3012	Public Address System and Other Announcers (now in 27-3099 Media and Comm Workers, All Other)	264	271	7	2.7%	1	11	20	32	▲
27-3021	Broadcast News Analyst (changed 2018 to News Analysts, Reporters and Journalists (27-3023 new SOC agg)	134	128	-6	-4.5%	-1	4	12	15	▲
27-3022	Reporters and Correspondents (OLD) moved to 27-3023 News Analysts, Reporters and Journalists	1,272	976	-296	-23.3%	-30	39	99	108	▲
27-3031	Public Relations Specialists	7,458	7,674	216	2.9%	22	224	562	808	\$28.45
27-3041	Editors	2,398	2,186	-212	-8.8%	-21	70	181	230	\$25.99
27-3042	Technical Writers	1,945	1,999	54	2.8%	5	62	130	197	\$30.21
27-3043	Writers and Authors	3,566	3,333	-233	-6.5%	-23	147	212	336	\$24.42
27-3091	Interpreters and Translators	2,374	2,777	403	17.0%	40	114	144	298	\$24.41
27-3092	Court Reporters	449	486	37	8.2%	4	16	26	46	\$24.73
27-3099	Media and Communication Workers, All Other	2,720	2,953	233	8.6%	23	126	159	308	\$18.91
27-4011	Audio and Video Equipment Technicians	1,811	1,907	96	5.3%	10	61	137	208	\$19.40
27-4012	Broadcast Technicians	730	695	-35	-4.8%	-4	24	52	72	\$20.84
27-4014	Sound Engineering Technicians	199	210	11	5.5%	1	7	15	23	\$24.54

Appendix Table J – cont'd.
Ohio Occupational Employment* Projections Report, 2018–2028

Code	Occupational Title	Employment		Change in Employment		Growth	Annual Openings			Median Wage May 2019
		2018 Annual	2028 Projected	2018-2028	Percent		Exits	Transfers	Total	
27-4021	Photographers	5,128	4,350	-778	-15.2%	-78	182	288	392	\$15.60
27-4031	Camera Operators, TV, Video and Motion Picture	578	633	55	9.5%	6	16	43	65	\$24.95
27-4032	Film and Video Editors	507	581	74	14.6%	7	14	39	60	\$26.91
27-4098	Media and Communication Equipment Workers, All Other	319	318	-1	-0.3%	0	10	24	34	\$32.22
29-0000	Healthcare Practitioners and Technical Occupations	367,700	398,488	30,788	8.4%	3,076	10,077	11,594	24,747	\$29.83
29-1011	Chiropractors	1,966	2,004	38	1.9%	4	35	18	57	\$39.19
29-1021	Dentists, General	3,994	3,966	-28	-0.7%	-3	86	34	117	\$88.94
29-1023	Orthodontists	263	260	-3	-1.1%	0	6	2	8	#
29-1029	Dentists, All Other Specialists	123	125	2	1.6%	0	3	1	4	\$60.51
29-1031	Dietitians and Nutritionists	2,518	2,696	178	7.1%	18	85	79	182	\$27.99
29-1041	Optometrists	1,349	1,396	47	3.5%	5	25	15	45	\$55.41
29-1051	Pharmacists	12,404	12,223	-181	-1.5%	-18	291	263	536	\$58.81
29-1071	Physician Assistants	4,503	5,735	1,232	27.4%	123	79	212	414	\$52.09
29-1081	Podiatrists	456	464	8	1.8%	1	11	15	27	\$66.69
29-1122	Occupational Therapists	4,842	5,469	627	12.9%	63	115	174	352	\$40.54
29-1123	Physical Therapists	8,019	9,258	1,239	15.5%	124	158	202	484	\$42.19
29-1124	Radiation Therapists	550	574	24	4.4%	2	8	19	29	\$39.17
29-1125	Recreational Therapists	686	708	22	3.2%	2	14	19	35	\$21.76
29-1126	Respiratory Therapists	6,286	7,511	1,225	19.5%	122	190	175	487	\$27.69
29-1127	Speech-Language Pathologists	5,553	6,835	1,282	23.1%	128	122	209	459	\$35.71
29-1128	Exercise Physiologists	516	544	28	5.4%	3	12	17	32	\$23.33
29-1129	Therapists, All Other	1,088	1,187	99	9.1%	10	26	36	72	\$34.95
29-1131	Veterinarians	3,327	3,841	514	15.4%	51	68	70	189	\$46.65
29-1141	Registered Nurses	127,431	139,681	12,250	9.6%	1,225	3,706	3,426	8,357	\$31.63
29-1151	Nurse Anesthetists	2,553	2,904	351	13.7%	35	43	92	170	\$80.80
29-1161	Nurse Midwives	203	216	13	6.4%	1	4	7	12	\$46.98
29-1171	Nurse Practitioners	7,721	9,624	1,903	24.6%	190	171	292	653	\$49.75
29-1181	Audiologists	529	582	53	10.0%	5	11	12	28	\$33.75
29-1199	Health Diagnosing and Treating Practitioners, All Other	1,157	1,244	87	7.5%	9	34	22	65	▲
29-1211	Anesthesiologists	1,461	1,465	4	0.3%	0	24	19	43	#
29-1215	Family and General Practitioners	4,040	4,353	313	7.7%	31	69	54	154	\$86.64
29-1216	Internists, General	2,272	2,244	-28	-1.2%	-3	37	29	63	\$91.19
29-1218	Obstetricians and Gynecologists	1,088	1,073	-15	-1.4%	-2	18	14	30	#
29-1221	Pediatricians, General	2,240	2,213	-27	-1.2%	-3	36	28	61	\$75.47
29-1223	Psychiatrists	1,341	1,513	172	12.8%	17	23	18	58	#
29-1228	Physicians and Surgeons, All Other	18,495	19,356	861	4.7%	86	310	243	639	#
29-1248	Surgeons	2,222	2,197	-25	-1.1%	-2	36	28	62	#
29-1292	Dental Hygienists	9,035	9,239	204	2.3%	20	382	231	633	\$33.03
29-2010	Clinical Laboratory Technologists and Technicians (Medical and Clinical Laboratory Technologists and Technicians 2011 and 2012)	10,684	11,243	559	5.2%	56	302	389	747	\$25.50
29-2031	Cardiovascular Technologists and Technicians	2,036	2,127	91	4.5%	9	51	63	123	\$25.98
29-2032	Diagnostic Medical Sonographers	2,731	3,148	417	15.3%	42	72	89	203	\$31.75
29-2033	Nuclear Medicine Technologists	793	825	32	4.0%	3	20	24	47	\$34.97
29-2034	Radiologic Technologists	8,120	8,535	415	5.1%	42	205	252	499	\$27.95
29-2035	Magnetic Resonance Imaging Technologists	1,301	1,358	57	4.4%	6	33	40	79	\$32.13
29-2041	Emergency Medical Technicians and Paramedics	10,247	10,310	63	0.6%	6	183	500	689	\$15.57 †

Appendix Table J – cont'd.
Ohio Occupational Employment* Projections Report, 2018–2028

Code	Occupational Title	Employment		Change in Employment		Growth	Annual Openings			Median Wage May 2019
		2018 Annual	2028 Projected	2018-2028	Percent		Exits	Transfers	Total	
29-2051	Dietetic Technicians	1,329	1,361	32	2.4%	3	39	70	112	\$12.72
29-2052	Pharmacy Technicians	15,912	16,762	850	5.3%	85	472	845	1,402	\$14.52
29-2053	Psychiatric Technicians	1,712	1,912	200	11.7%	20	52	94	166	\$15.26
29-2054	Respiratory Therapy Technicians (moved to 29-2099 Health Tech, All Other for 2018)	206	85	-121	-58.7%	-12	6	6	0	▲
29-2055	Surgical Technologists	3,715	3,916	201	5.4%	20	110	197	327	\$22.55
29-2056	Veterinary Technologists and Technicians	3,675	4,280	605	16.5%	60	115	206	381	\$16.40
29-2057	Ophthalmic Medical Technicians	2,230	2,460	230	10.3%	23	68	121	212	\$17.98
29-2061	Licensed Practical and Licensed Vocational Nurses	41,166	43,893	2,727	6.6%	273	1,444	1,797	3,514	\$21.62
29-2071	Medical Records and Health Information Technicians	9,811	10,760	949	9.7%	95	303	352	750	▲
29-2081	Opticians, Dispensing	3,212	3,331	119	3.7%	12	129	129	270	\$20.29
29-2091	Orthotists and Prosthetists	463	555	92	19.9%	9	14	21	44	\$29.94
29-2092	Hearing Aid Specialists	191	219	28	14.7%	3	6	8	17	\$22.17
29-2098	Health Technologists and Technicians, All Other	5,517	6,061	544	9.9%	54	157	235	446	\$31.29
29-9091	Athletic Trainers	1,290	1,430	140	10.9%	14	31	45	90	\$47,660 ††
29-9092	Genetic Counselors	138	166	28	20.3%	3	4	5	12	\$37.77
29-9098	Healthcare Practitioners and Technical Workers, All Other	854	918	64	7.5%	6	20	30	56	\$31.29
31-0000	Healthcare Support Occupations	193,090	222,027	28,937	15.0%	2,894	10,476	13,005	26,375	\$12.85
31-1011	Home Health Aides	56,510	73,764	17,254	30.5%	1,725	3,502	3,798	9,025	\$11.08 †
31-1013	Psychiatric Aides	1,151	1,313	162	14.1%	16	66	72	154	\$17.24
31-1014	Nursing Assistants	67,330	69,668	2,338	3.5%	234	3,682	3,994	7,910	\$13.61
31-1015	Orderlies	2,241	2,313	72	3.2%	7	122	133	262	\$13.69
31-2011	Occupational Therapist Assistants	3,683	4,754	1,071	29.1%	107	182	274	563	\$28.71
31-2012	Occupational Therapy Aides	186	201	15	8.1%	2	8	13	23	\$15.36
31-2021	Physical Therapist Assistants	6,120	7,407	1,287	21.0%	129	291	548	968	\$28.32
31-2022	Physical Therapist Aides	716	807	91	12.7%	9	33	62	104	\$13.19
31-9011	Massage Therapists	3,165	3,874	709	22.4%	71	220	190	481	\$19.43
31-9091	Dental Assistants	10,605	10,880	275	2.6%	28	497	706	1,231	\$18.66
31-9092	Medical Assistants	24,124	28,446	4,322	17.9%	432	1,026	1,869	3,327	\$15.87
31-9093	Medical Equipment Preparers	1,891	1,989	98	5.2%	10	96	125	231	\$17.16
31-9094	Medical Transcriptionists	1,815	1,667	-148	-8.2%	-15	106	137	228	\$18.18
31-9095	Pharmacy Aides	689	622	-67	-9.7%	-7	32	52	77	\$12.00
31-9096	Veterinary Assistants and Laboratory Animal Caretakers	2,903	3,345	442	15.2%	44	170	334	548	\$12.49
31-9097	Phlebotomists	5,740	6,584	844	14.7%	84	230	422	736	\$16.52
31-9099	Healthcare Support Workers, All Other	4,221	4,393	172	4.1%	17	212	278	507	\$20.29
33-0000	Protective Service Occupations	120,483	119,239	-1,244	-1.0%	-124	5,407	7,476	12,759	\$20.54
33-1011	First-Line Supervisors of Correctional Officers	595	534	-61	-10.3%	-6	18	22	34	\$33.30
33-1012	First-Line Supervisors of Police and Detectives	2,811	2,830	19	0.7%	2	68	106	176	\$40.26
33-1021	First-Line Supervisors of Fire Fighting and Prevention Workers	2,587	2,608	21	0.8%	2	64	100	166	\$36.76
33-1099	First-Line Supervisors of Protective Service Workers, All Other	2,708	2,665	-43	-1.6%	-4	97	159	252	\$18.78 †
33-2011	Fire Fighters	19,148	19,321	173	0.9%	17	347	962	1,326	\$23.05
33-2021	Fire Inspectors and Investigators	335	350	15	4.5%	2	14	17	33	\$28.42
33-3011	Bailiffs	1,401	1,342	-59	-4.2%	-6	52	69	115	\$22.70
33-3012	Correctional Officers and Jailers	13,520	12,015	-1,505	-11.1%	-150	486	640	976	\$22.96
33-3021	Detectives and Criminal Investigators	1,983	1,979	-4	-0.2%	0	42	85	127	\$34.74
33-3041	Parking Enforcement Workers	151	92	-59	-39.1%	-6	3	6	3	\$19.32

Appendix Table J – cont'd.
Ohio Occupational Employment* Projections Report, 2018–2028

Code	Occupational Title	Employment		Change in Employment		Growth	Annual Openings			Median Wage May 2019
		2018 Annual	2028 Projected	2018-2028	Percent		Exits	Transfers	Total	
33-3051	Police and Sheriff's Patrol Officers	24,865	25,008	143	0.6%	14	599	1,150	1,763	\$30.19
33-9011	Animal Control Workers	336	341	5	1.5%	0	14	18	32	\$17.71
33-9021	Private Detectives and Investigators	1,332	1,447	115	8.6%	12	47	74	133	\$22.93
33-9031	Gaming Surveillance Officers and Gaming Investigators	301	286	-15	-5.0%	-2	15	23	36	\$28.93
33-9032	Security Guards	33,577	33,283	-294	-0.9%	-29	1,705	2,598	4,274	\$13.75
33-9091	Crossing Guards	2,066	2,097	31	1.5%	3	245	96	344	\$12.62
33-9092	Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	7,134	7,398	264	3.7%	26	956	798	1,780	\$9.49
33-9093	Transportation Security Screeners	802	819	17	2.1%	2	34	43	79	\$19.64
33-9099	Protective Service Workers, All Other	4,513	4,503	-10	-0.2%	-1	593	495	1,087	\$13.99
35-0000	Food Preparation and Serving Related Occupations	506,846	529,450	22,604	4.5%	2,260	36,312	53,486	92,058	\$9.93
35-1011	Chefs and Head Cooks	4,657	4,910	253	5.4%	25	144	481	650	\$21.19
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	39,614	41,526	1,912	4.8%	191	1,768	4,426	6,385	\$14.72
35-2011	Cooks, Fast Food	16,635	14,303	-2,332	-14.0%	-233	821	1,367	1,955	\$10.14
35-2012	Cooks, Institution and Cafeteria	18,928	18,934	6	0.0%	1	1,005	1,673	2,679	\$13.08
35-2013	Cooks, Private Household	765	767	2	0.3%	0	41	68	109	\$18.21 ^^^
35-2014	Cooks, Restaurant	37,076	42,409	5,333	14.4%	533	2,110	3,512	6,155	\$12.04
35-2015	Cooks, Short Order	9,522	8,729	-793	-8.3%	-79	484	806	1,211	\$9.99
35-2019	Cooks, All Other	141	150	9	6.4%	1	8	13	22	\$9.68
35-2021	Food Preparation Workers	27,554	28,690	1,136	4.1%	114	2,061	2,803	4,978	\$10.81
35-3011	Bartenders	24,102	24,703	601	2.5%	60	1,141	3,151	4,352	\$9.45
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	159,368	175,602	16,234	10.2%	1,623	13,354	16,470	31,447	\$9.53 †
35-3022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	16,302	15,754	-548	-3.4%	-55	1,805	1,674	3,424	\$9.53 †
35-3031	Waiters and Waitresses	94,622	94,537	-85	-0.1%	-8	6,564	11,590	18,146	\$9.59
35-3041	Food Servers, Nonrestaurant	14,056	14,290	234	1.7%	23	1,043	1,171	2,237	\$10.37
35-9011	Dining Room and Cafeteria Attendants and Bartender Helpers	11,477	11,924	447	3.9%	45	964	1,035	2,044	\$9.57
35-9021	Dishwashers	15,009	14,519	-490	-3.3%	-49	1,099	1,244	2,294	\$10.00
35-9031	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	15,782	16,426	644	4.1%	64	1,798	1,890	3,752	\$9.51
35-9099	Food Preparation and Serving Related Workers, All Other	1,236	1,277	41	3.3%	4	104	111	219	\$9.51
37-0000	Building and Grounds Cleaning and Maintenance Occupations	193,428	197,877	4,449	2.3%	445	10,962	14,532	25,939	\$12.78
37-1011	First-Line Supervisors of Housekeeping and Janitorial Workers	7,065	7,349	284	4.0%	28	303	515	846	\$20.00
37-1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping	6,830	7,107	277	4.1%	28	240	518	786	\$22.86
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	88,118	90,461	2,343	2.7%	234	5,460	6,298	11,992	\$12.52
37-2012	Maids and Housekeeping Cleaners	40,389	39,817	-572	-1.4%	-57	2,838	2,562	5,343	\$10.85
37-3011	Landscaping and Groundskeeping Workers	46,641	48,671	2,030	4.4%	203	1,952	4,220	6,375	\$14.07
37-3012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	898	891	-7	-0.8%	-1	37	79	115	\$16.37
37-3013	Tree Trimmers and Pruners	1,136	1,192	56	4.9%	6	48	103	157	\$19.50
37-3019	Grounds Maintenance Workers, All Other	146	139	-7	-4.8%	-1	6	13	18	\$13.28
39-0000	Personal Care and Service Occupations	192,783	213,419	20,636	10.7%	2,064	14,180	16,024	32,268	\$11.20
39-1021	First-Line Supervisors of Personal Service Workers	9,220	10,041	821	8.9%	82	386	546	1,014	\$19.68 ^^
39-2011	Animal Trainers	715	781	66	9.2%	7	42	67	116	\$12.58
39-2021	Nonfarm Animal Caretakers	9,806	11,026	1,220	12.4%	122	724	963	1,809	\$10.79
39-3011	Gambling Dealers	1,166	1,022	-144	-12.3%	-14	67	103	156	\$9.59
39-3019	Gambling Service Workers, All Other	130	116	-14	-10.8%	-1	8	12	19	\$11.35
39-3021	Motion Picture Projectionists	231	205	-26	-11.3%	-3	20	22	39	\$11.90
39-3031	Ushers, Lobby Attendants, and Ticket Takers	3,139	3,218	79	2.5%	8	416	358	782	\$9.43
39-3091	Amusement and Recreation Attendants	10,765	11,275	510	4.7%	51	1,172	1,366	2,589	\$9.47

Appendix Table J – cont'd.
Ohio Occupational Employment* Projections Report, 2018–2028

Code	Occupational Title	Employment		Change in Employment		Growth	Annual Openings			Median Wage May 2019
		2018 Annual	2028 Projected	2018-2028	Percent		Exits	Transfers	Total	
39-3093	Locker Room, Coatroom, and Dressing Room Attendants	662	696	34	5.1%	3	72	84	159	\$10.03
39-4011	Embalmers	208	199	-9	-4.3%	-1	19	14	32	\$25.26
39-4021	Funeral Attendants	2,535	2,535	0	0.0%	0	238	169	407	\$13.30
39-4031	Morticians, Undertakers, and Funeral Arrangers (new title 2018)	1,511	1,507	-4	-0.3%	0	76	103	179	\$26.57
39-5012	Hairdressers, Hairstylists, and Cosmetologists	30,282	30,323	41	0.1%	4	1,839	1,936	3,779	\$10.70
39-5092	Manicurists and Pedicurists	3,072	3,103	31	1.0%	3	171	181	355	\$10.75
39-5093	Shampooers	302	304	2	0.7%	0	17	18	35	\$9.65
39-5094	Skin Care Specialists	1,423	1,497	74	5.2%	7	81	86	174	\$16.43
39-6011	Baggage Porters and Bellhops	642	700	58	9.0%	6	35	61	102	\$10.12
39-6012	Concierges	475	480	5	1.1%	0	25	43	68	\$13.62
39-9011	Child Care Workers	35,625	36,467	842	2.4%	84	2,665	2,712	5,461	\$10.65
39-9021	Personal and Home Care Aides	46,454	61,324	14,870	32.0%	1,487	3,982	3,529	8,998	\$11.08 †
39-9031	Fitness Trainers and Aerobics Instructors	10,499	11,353	854	8.1%	85	652	1,163	1,900	\$14.73
39-9032	Recreation Workers	15,299	16,011	712	4.7%	71	934	1,667	2,672	\$11.38
39-9041	Residential Advisors	3,282	3,845	563	17.2%	56	196	346	598	\$13.47
39-9099	Personal Care and Service Workers, All Other	2,277	2,336	59	2.6%	6	144	193	343	\$10.93
41-0000	Sales and Related Occupations	547,659	533,335	-14,324	-2.6%	-1,432	28,849	46,010	73,427	\$13.61
41-1011	First-Line Supervisors of Retail Sales Workers	53,742	51,646	-2,096	-3.9%	-210	1,821	3,972	5,583	\$18.52
41-1012	First-Line Supervisors of Non-Retail Sales Workers	13,387	12,973	-414	-3.1%	-41	426	833	1,218	\$34.72
41-2011	Cashiers	121,962	115,200	-6,762	-5.5%	-676	10,583	11,786	21,693	\$10.29
41-2012	Gaming Change Persons and Booth Cashiers	343	314	-29	-8.5%	-3	29	33	59	\$11.80
41-2021	Counter and Rental Clerks	12,718	12,634	-84	-0.7%	-8	642	984	1,618	\$12.59
41-2022	Parts Salespersons	10,427	10,261	-166	-1.6%	-17	423	822	1,228	\$14.27
41-2031	Retail Salespersons	155,997	149,194	-6,803	-4.4%	-680	8,770	13,520	21,610	\$11.36
41-3011	Advertising Sales Agents	4,281	3,758	-523	-12.2%	-52	127	418	493	\$21.50
41-3021	Insurance Sales Agents	18,469	20,238	1,769	9.6%	177	713	1,168	2,058	\$24.86
41-3031	Securities, Commodities, and Financial Services Sales Agents	14,163	14,829	666	4.7%	67	374	998	1,439	\$26.22
41-3041	Travel Agents	1,506	1,268	-238	-15.8%	-24	81	104	161	\$17.63
41-3091	Sales Representatives, Services, All Other	35,749	37,236	1,487	4.2%	149	1,077	3,543	4,769	\$25.02
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	13,716	13,806	90	0.7%	9	419	1,025	1,453	\$38.21
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	53,482	53,553	71	0.1%	7	1,628	3,985	5,620	\$27.95
41-9011	Demonstrators and Product Promoters	1,093	1,166	73	6.7%	7	114	79	200	\$14.46
41-9021	Real Estate Brokers	1,713	1,804	91	5.3%	9	80	88	177	\$25.75
41-9022	Real Estate Sales Agents	14,252	14,943	691	4.8%	69	660	727	1,456	\$18.22
41-9031	Sales Engineers	2,919	2,897	-22	-0.8%	-2	69	253	320	\$41.73
41-9041	Telemarketers	12,961	11,064	-1,897	-14.6%	-190	578	1,309	1,697	\$11.69
41-9091	Door-to-Door Sales, News and Street Vendors, and Related Workers	1,556	1,255	-301	-19.3%	-30	93	79	142	\$12.54
41-9099	Sales and Related Workers, All Other	3,178	3,251	73	2.3%	7	138	281	426	\$14.03
43-0000	Office and Administrative Support Occupations	755,442	721,775	-33,755	-4.5%	-3,366	35,551	49,630	81,815	\$17.62
43-1011	First-Line Supervisors of Office and Administrative Support Workers	48,545	47,340	-1,205	-2.5%	-120	1,798	3,225	4,903	\$26.43
43-2011	Switchboard Operators, Including Answering Service	3,252	2,450	-802	-24.7%	-80	164	190	274	\$13.89
43-3011	Bill and Account Collectors	11,626	10,703	-923	-7.9%	-92	434	899	1,241	\$16.95
43-3021	Billing and Posting Clerks and Machine Operators	21,490	23,030	1,540	7.2%	154	916	1,501	2,571	\$17.89
43-3031	Bookkeeping, Accounting, and Auditing Clerks	59,540	56,155	-3,385	-5.7%	-338	3,519	3,220	6,401	\$18.75

Appendix Table J – cont'd.
Ohio Occupational Employment* Projections Report, 2018–2028

Code	Occupational Title	Employment		Change in Employment		Growth	Annual Openings			Median Wage May 2019
		2018 Annual	2028 Projected	2018-2028	Percent		Exits	Transfers	Total	
43-3041	Gaming Cage Workers	393	351	-42	-10.7%	-4	18	33	47	\$13.07
43-3051	Payroll and Timekeeping Clerks	5,831	5,459	-372	-6.4%	-37	266	355	584	\$21.38
43-3061	Procurement Clerks	3,471	3,347	-124	-3.6%	-12	116	237	341	\$20.36
43-3071	Tellers	18,437	16,181	-2,256	-12.2%	-226	848	1,238	1,860	\$14.40
43-3099	Financial Clerks, All Other	1,848	1,960	112	6.1%	11	63	143	217	\$20.06
43-4011	Brokerage Clerks	2,457	2,616	159	6.5%	16	120	142	278	\$23.79
43-4021	Correspondence Clerks	234	218	-16	-6.8%	-2	10	17	25	\$17.40
43-4031	Court, Municipal, and License Clerks	9,481	9,561	80	0.8%	8	431	452	891	\$17.93
43-4041	Credit Authorizers, Checkers, and Clerks	1,220	1,154	-66	-5.4%	-7	38	81	112	\$17.29
43-4051	Customer Service Representatives	100,806	96,357	-4,449	-4.4%	-445	4,734	8,404	12,693	\$16.70
43-4061	Eligibility Interviewers, Government Programs	4,728	4,816	88	1.9%	9	184	269	462	\$20.92
43-4071	File Clerks	3,791	3,180	-611	-16.1%	-61	201	229	369	\$16.72
43-4081	Hotel, Motel, and Resort Desk Clerks	6,391	6,100	-291	-4.6%	-29	342	715	1,028	\$10.64
43-4111	Interviewers, Except Eligibility and Loan	8,035	8,089	54	0.7%	5	410	583	998	\$15.11
43-4121	Library Assistants, Clerical	5,065	4,622	-443	-8.7%	-44	385	345	686	\$12.07
43-4131	Loan Interviewers and Clerks	11,430	12,509	1,079	9.4%	108	447	767	1,322	\$19.10
43-4141	New Accounts Clerks	1,528	1,443	-85	-5.6%	-8	62	110	164	\$16.46
43-4151	Order Clerks	8,395	8,097	-298	-3.5%	-30	346	605	921	\$15.51
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	4,857	4,567	-290	-6.0%	-29	172	362	505	\$18.80
43-4171	Receptionists and Information Clerks	34,368	34,752	384	1.1%	38	2,012	2,631	4,681	\$13.36
43-4181	Reservation and Transportation Ticket Agents and Travel Clerks	1,863	1,995	132	7.1%	13	80	139	232	\$20.07
43-4199	Information and Record Clerks, All Other	3,584	3,718	134	3.7%	13	177	245	435	\$20.69
43-5011	Cargo and Freight Agents	3,368	3,531	163	4.8%	16	123	204	343	\$19.93
43-5021	Couriers and Messengers	2,424	2,480	56	2.3%	6	97	137	240	\$13.80
43-5031	Police, Fire, and Ambulance Dispatchers	4,181	4,209	28	0.7%	3	147	250	400	\$22.30
43-5032	Dispatchers, Except Police, Fire, and Ambulance	7,272	7,292	20	0.3%	2	256	433	691	\$19.70
43-5041	Meter Readers, Utilities	1,713	1,508	-205	-12.0%	-20	68	90	138	\$19.52
43-5051	Postal Service Clerks	2,549	2,033	-516	-20.2%	-52	95	80	123	\$23.16
43-5052	Postal Service Mail Carriers	13,095	10,443	-2,652	-20.3%	-265	429	445	609	\$23.31
43-5053	Postal Service Mail Sorters, Processors, and Processing Machine Operators	3,710	2,810	-900	-24.3%	-90	150	120	180	\$24.12
43-5061	Production, Planning, and Expediting Clerks	18,501	19,040	539	2.9%	54	622	1,333	2,009	\$22.92
43-5071	Shipping, Receiving, and Traffic Clerks	38,851	38,127	-724	-1.9%	-72	1,286	2,534	3,748	\$16.27
43-5111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	2,060	2,202	142	6.9%	14	98	145	257	\$17.15
43-6011	Executive Secretaries and Administrative Assistants	16,700	13,049	-3,651	-21.9%	-365	762	903	1,300	\$27.59
43-6012	Legal Secretaries	4,870	3,515	-1,355	-27.8%	-136	215	254	333	\$20.83
43-6013	Medical Secretaries	32,417	35,825	3,408	10.5%	341	1,749	2,070	4,160	\$16.72
43-6014	Secretaries, Except Legal, Medical, and Executive	71,757	63,642	-8,115	-11.3%	-812	3,470	4,108	6,766	\$17.42
43-9011	Computer Operators	1,103	822	-281	-25.5%	-28	47	71	90	▲
43-9021	Data Entry Keyers	6,337	4,756	-1,581	-24.9%	-158	250	390	482	\$15.60
43-9022	Word Processors and Typists	1,473	957	-516	-35.0%	-52	73	75	96	\$18.71
43-9041	Insurance Claims and Policy Processing Clerks	14,620	14,882	262	1.8%	26	545	922	1,493	\$18.27
43-9051	Mail Clerks and Mail Machine Operators, Except Postal Service	3,871	3,563	-308	-8.0%	-31	179	233	381	\$15.42
43-9061	Office Clerks, General	111,111	105,272	-5,839	-5.3%	-584	6,048	6,902	12,366	\$16.49
43-9071	Office Machine Operators, Except Computer	2,879	2,555	-324	-11.3%	-32	163	183	314	\$15.64
43-9111	Statistical Assistants	671	703	32	4.8%	3	29	57	89	\$21.94
43-9199	Office and Administrative Support Workers, All Other	4,789	5,128	339	7.1%	34	209	368	611	\$18.66

Appendix Table J – cont'd.
Ohio Occupational Employment* Projections Report, 2018–2028

Code	Occupational Title	Employment		Change in Employment		Growth	Annual Openings			Median Wage May 2019
		2018 Annual	2028 Projected	2018-2028	Percent		Exits	Transfers	Total	
45-0000	Farming, Fishing, and Forestry Occupations	14,966	15,088	122	0.8%	12	594	1,827	2,433	\$14.57
45-1011	First-Line Supervisors of Farming, Fishing, and Forestry Workers	809	813	4	0.5%	0	29	90	119	\$27.91
45-2011	Agricultural Inspectors	314	312	-2	-0.6%	0	13	32	45	\$24.45
45-2041	Graders and Sorters, Agricultural Products	721	705	-16	-2.2%	-2	29	76	103	\$11.98
45-2091	Agricultural Equipment Operators	1,424	1,539	115	8.1%	12	59	183	254	\$18.63
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	9,388	9,502	114	1.2%	11	375	1,167	1,553	\$11.59
45-2093	Farmworkers, Farm and Ranch Animals	1,400	1,366	-34	-2.4%	-3	55	171	223	\$13.57
45-4022	Logging Equipment Operators	321	290	-31	-9.7%	-3	12	37	46	\$17.75
45-4023	Logging Graders and Scalers	106	96	-10	-9.4%	-1	4	12	15	\$16.25
47-0000	Construction and Extraction Occupations	215,515	233,965	18,450	8.6%	1,844	7,240	17,630	26,714	\$23.67
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	15,689	17,089	1,400	8.9%	140	488	1,215	1,843	\$31.91
47-2011	Boilermakers	670	672	2	0.3%	0	18	50	68	\$35.94
47-2021	Brickmasons and Blockmasons	4,270	4,640	370	8.7%	37	128	317	482	\$26.53
47-2022	Stonemasons	227	249	22	9.7%	2	7	17	26	\$18.14
47-2031	Carpenters	26,042	27,787	1,745	6.7%	174	842	1,944	2,960	\$23.34
47-2041	Carpet Installers	622	605	-17	-2.7%	-2	18	42	58	\$17.25
47-2042	Floor Layers, Except Carpet, Wood, and Hard Tiles	1,113	1,306	193	17.3%	19	34	83	136	\$20.83
47-2044	Tile and Marble Setters	934	1,068	134	14.3%	13	29	69	111	\$19.26
47-2051	Cement Masons and Concrete Finishers	5,296	5,841	545	10.3%	54	163	422	639	\$23.32
47-2061	Construction Laborers	47,997	52,887	4,890	10.2%	489	1,687	3,923	6,099	\$20.04
47-2071	Paving, Surfacing, and Tamping Equipment Operators	1,577	1,735	158	10.0%	16	74	132	222	\$21.86
47-2073	Operating Engineers and Other Construction Equipment Operators	14,794	15,914	1,120	7.6%	112	521	1,249	1,882	\$24.79
47-2081	Drywall and Ceiling Tile Installers	1,518	1,522	4	0.3%	0	44	107	151	\$21.86
47-2082	Tapers	137	148	11	8.0%	1	4	10	15	\$28.31
47-2111	Electricians	26,634	29,234	2,600	9.8%	260	858	2,379	3,497	\$25.43
47-2121	Glaziers	1,575	1,719	144	9.1%	14	54	135	203	\$21.89
47-2131	Insulation Workers, Floor, Ceiling, and Wall	960	979	19	2.0%	2	23	88	113	\$19.81
47-2141	Painters, Construction and Maintenance	9,094	9,569	475	5.2%	48	323	622	993	\$19.98
47-2142	Paperhangers	170	162	-8	-4.7%	-1	6	11	16	\$19.68
47-2151	Pipelayers	925	981	56	6.1%	6	28	78	112	\$22.99
47-2152	Plumbers, Pipefitters, and Steamfitters	15,146	17,099	1,953	12.9%	195	471	1,317	1,983	\$26.58
47-2161	Plasterers and Stucco Masons	175	179	4	2.3%	0	4	12	16	\$24.56
47-2181	Roofers	5,586	6,194	608	10.9%	61	151	457	669	\$19.39
47-2211	Sheet Metal Workers	4,451	4,773	322	7.2%	32	136	363	531	\$26.93
47-2221	Structural Iron and Steel Workers	3,969	4,395	426	10.7%	43	117	377	537	\$28.98
47-3011	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	482	527	45	9.3%	4	17	51	72	\$18.55
47-3012	Helpers--Carpenters	451	480	29	6.4%	3	15	47	65	\$14.36
47-3013	Helpers--Electricians	799	840	41	5.1%	4	27	83	114	\$14.74
47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	862	972	110	12.8%	11	30	93	134	\$14.61
47-3019	Helpers, Construction Trades, All Other	541	597	56	10.4%	6	19	58	83	\$14.90
47-4011	Construction and Building Inspectors	3,163	3,313	150	4.7%	15	178	223	416	\$28.97
47-4021	Elevator Installers and Repairers	543	593	50	9.2%	5	19	45	69	\$43.99
47-4031	Fence Erectors	610	661	51	8.4%	5	25	50	80	\$18.05
47-4041	Hazardous Materials Removal Workers	2,486	2,558	72	2.9%	7	108	209	324	\$22.72
47-4051	Highway Maintenance Workers	7,772	7,829	57	0.7%	6	314	551	871	\$20.15

Appendix Table J – cont'd.
Ohio Occupational Employment* Projections Report, 2018–2028

Code	Occupational Title	Employment		Change in Employment		Growth	Annual Openings			Median Wage May 2019
		2018 Annual	2028 Projected	2018-2028	Percent		Exits	Transfers	Total	
47-4061	Rail-Track Laying and Maintenance Equipment Operators	231	257	26	11.3%	3	8	17	28	\$22.88
47-4071	Septic Tank Servicers and Sewer Pipe Cleaners	1,418	1,540	122	8.6%	12	43	124	179	\$21.30
47-5012	Rotary Drill Operators, Oil and Gas	139	159	20	14.4%	2	4	17	23	\$21.98
47-5013	Service Unit Operators, Oil, Gas, and Mining	801	906	105	13.1%	10	24	97	131	\$24.58
47-5021	Earth Drillers, Except Oil and Gas	490	548	58	11.8%	6	19	50	75	\$21.72 †
47-5022	Excavating and Loading Machine and Dragline Operators	1,048	1,088	40	3.8%	4	39	88	131	\$21.62 †
47-5041	Continuous Mining Machine Operators	729	695	-34	-4.7%	-3	24	64	85	\$26.68
47-5044	Loading and Moving Machine Operators, Underground Mining	178	183	5	2.8%	0	7	15	22	\$19.81
47-5071	Roustabouts, Oil and Gas	436	476	40	9.2%	4	13	47	64	\$18.67
47-5081	Helpers--Extraction Workers	615	697	82	13.3%	8	22	65	95	\$18.05
49-0000	Installation, Maintenance, and Repair Occupations	218,823	224,320	5,497	2.5%	550	6,977	14,620	22,147	\$21.77
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	16,631	17,002	371	2.2%	37	526	1,016	1,579	\$30.99
49-2011	Computer, Automated Teller, and Office Machine Repairers	3,537	3,369	-168	-4.7%	-17	96	271	350	\$17.33
49-2021	Radio Mechanics	270	272	2	0.7%	0	8	22	30	\$27.02
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	8,475	7,898	-577	-6.8%	-58	228	674	844	\$25.20
49-2091	Avionics Technicians	232	250	18	7.8%	2	6	12	20	\$27.69
49-2092	Electric Motor, Power Tool, and Related Repairers	873	890	17	1.9%	2	32	59	93	\$21.45
49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	220	215	-5	-2.3%	0	4	15	19	\$28.54
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	1,993	2,023	30	1.5%	3	35	140	178	\$27.57
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	354	360	6	1.7%	1	6	25	32	\$33.48
49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	178	111	-67	-37.6%	-7	4	13	10	\$17.76
49-2097	Electronic Home Entertainment Equipment Installers and Repairers	1,262	1,176	-86	-6.8%	-9	30	104	125	\$14.57
49-2098	Security and Fire Alarm Systems Installers	2,338	2,496	158	6.8%	16	68	221	305	\$21.59
49-3011	Aircraft Mechanics and Service Technicians	4,529	4,790	261	5.8%	26	125	257	408	\$29.49
49-3021	Automotive Body and Related Repairers	5,671	5,747	76	1.3%	8	183	365	556	\$18.56
49-3022	Automotive Glass Installers and Repairers	1,102	1,120	18	1.6%	2	26	80	108	\$18.07
49-3023	Automotive Service Technicians and Mechanics	27,471	26,537	-934	-3.4%	-93	733	1,896	2,536	\$18.52
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	10,053	10,498	445	4.4%	44	286	665	995	\$22.48
49-3041	Farm Equipment Mechanics	1,245	1,244	-1	-0.1%	0	39	85	124	\$20.70
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	4,227	4,401	174	4.1%	17	135	294	446	\$25.92
49-3043	Rail Car Repairers	190	205	15	7.9%	2	6	14	22	\$22.79
49-3051	Motorboat Mechanics	474	488	14	3.0%	1	19	29	49	\$17.68
49-3052	Motorcycle Mechanics	633	673	40	6.3%	4	26	39	69	\$16.42
49-3053	Outdoor Power Equipment and Other Small Engine Mechanics	1,477	1,526	49	3.3%	5	60	90	155	\$14.90
49-3091	Bicycle Repairers	159	168	9	5.7%	1	5	13	19	\$12.71
49-3092	Recreational Vehicle Service Technicians	446	481	35	7.8%	4	14	37	55	\$16.95
49-3093	Tire Repairers and Changers	3,775	3,610	-165	-4.4%	-16	112	295	391	\$13.82
49-9011	Mechanical Door Repairers	1,264	1,369	105	8.3%	10	33	79	122	\$20.55
49-9012	Control and Valve Installers and Repairers, Except Mechanical Door	1,755	1,781	26	1.5%	3	44	107	154	\$33.05
49-9021	Heating, AC, and Refrigeration Mechanics and Installers	12,260	13,808	1,548	12.6%	155	355	917	1,427	\$22.73
49-9031	Home Appliance Repairers	1,469	1,416	-53	-3.6%	-5	66	89	150	\$20.30
49-9041	Industrial Machinery Mechanics	19,352	20,342	990	5.1%	99	623	1,196	1,918	\$25.66
49-9043	Maintenance Workers, Machinery	3,136	3,312	176	5.6%	18	121	170	309	\$23.11
49-9044	Millwrights	2,734	3,012	278	10.2%	28	80	168	276	\$28.89
49-9051	Electrical Power-Line Installers and Repairers	3,076	3,251	175	5.7%	18	77	189	284	\$34.89
49-9052	Telecommunications Line Installers and Repairers	3,704	3,863	159	4.3%	16	88	334	438	\$20.45

Appendix Table J – cont'd.
Ohio Occupational Employment* Projections Report, 2018–2028

Code	Occupational Title	Employment		Change in Employment		Growth	Annual Openings			Median Wage May 2019
		2018 Annual	2028 Projected	2018-2028	Percent		Exits	Transfers	Total	
49-9062	Medical Equipment Repairers	2,155	2,180	25	1.2%	2	94	134	230	\$22.41
49-9063	Musical Instrument Repairers and Tuners	329	303	-26	-7.9%	-3	14	20	31	\$16.09
49-9064	Watch Repairers	154	104	-50	-32.5%	-5	6	8	9	\$20.44 ^^^
49-9069	Precision Instrument and Equipment Repairers, All Other	571	586	15	2.6%	2	25	36	63	\$26.79
49-9071	Maintenance and Repair Workers, General	57,530	59,618	2,088	3.6%	209	2,054	3,624	5,887	\$19.32
49-9091	Coin, Vending, and Amusement Machine Servicers and Repairers	1,969	1,950	-19	-1.0%	-2	79	149	226	\$17.44
49-9094	Locksmiths and Safe Repairers	559	484	-75	-13.4%	-8	25	31	48	\$20.89
49-9096	Riggers	328	338	10	3.0%	1	7	25	33	\$21.97
49-9098	Helpers--Installation, Maintenance, and Repair Workers	2,037	2,126	89	4.4%	9	111	155	275	\$14.24
49-9099	Installation, Maintenance, and Repair Workers, All Other	6,252	6,576	324	5.2%	32	251	438	721	\$18.63
51-0000	Production Occupations	515,729	487,714	-28,015	-5.4%	-2,802	19,152	38,403	54,753	\$17.60
51-1011	First-Line Supervisors of Production and Operating Workers	32,022	31,948	-74	-0.2%	-7	1,016	2,253	3,262	\$29.27
51-2021	Coil Winders, Tapers, and Finishers	608	497	-111	-18.3%	-11	24	39	52	\$18.85
51-2028	Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers	12,650	12,710	60	0.5%	6	545	896	1,447	\$16.64
51-2031	Engine and Other Machine Assemblers	9,252	7,840	-1,412	-15.3%	-141	205	804	868	\$23.63
51-2041	Structural Metal Fabricators and Fitters	3,711	3,069	-642	-17.3%	-64	82	272	290	\$17.60
51-2051	Fiberglass Laminators and Fabricators	455	474	19	4.2%	2	19	35	56	\$16.65
51-2098	Assemblers and Fabricators, All Other, Including Team Assemblers	75,669	66,629	-9,040	-11.9%	-904	2,914	5,373	7,383	\$16.40 †
51-3011	Bakers	6,965	7,136	171	2.5%	17	408	555	980	\$12.42
51-3021	Butchers and Meat Cutters	4,419	4,496	77	1.7%	8	183	368	559	\$16.09
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	1,875	1,942	67	3.6%	7	78	158	243	\$14.37
51-3023	Slaughterers and Meat Packers	4,057	4,232	175	4.3%	18	170	343	531	\$13.19
51-3091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	459	462	3	0.7%	0	25	38	63	\$14.16
51-3092	Food Batchmakers	5,548	5,552	4	0.1%	0	335	488	823	\$14.65
51-3093	Food Cooking Machine Operators and Tenders	2,427	2,476	49	2.0%	5	157	226	388	\$14.72
51-3099	Food Processing Workers, All Other	2,976	3,030	54	1.8%	5	113	206	324	\$11.95
51-4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	7,845	7,139	-706	-9.0%	-71	213	722	864	\$16.88
51-4022	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	1,108	853	-255	-23.0%	-26	26	67	67	\$19.82
51-4023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	3,553	2,960	-593	-16.7%	-59	87	222	250	\$21.26
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	17,106	15,513	-1,593	-9.3%	-159	617	1,205	1,663	\$16.89
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	834	643	-191	-22.9%	-19	26	52	59	\$19.60
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	7,114	6,356	-758	-10.7%	-76	284	481	689	\$17.28
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2,208	1,900	-308	-13.9%	-31	98	133	200	\$19.79
51-4041	Machinists	27,561	28,104	543	2.0%	54	924	1,902	2,880	\$20.46
51-4051	Metal-Refining Furnace Operators and Tenders	1,524	1,410	-114	-7.5%	-11	52	122	163	\$17.02
51-4052	Pourers and Casters, Metal	627	517	-110	-17.5%	-11	20	47	56	\$17.69
51-4061	Model Makers, Metal and Plastic	318	293	-25	-7.9%	-2	11	21	30	\$18.09
51-4062	Patternmakers, Metal and Plastic	213	184	-29	-13.6%	-3	7	14	18	\$21.11
51-4071	Foundry Mold and Coremakers	2,331	1,984	-347	-14.9%	-35	66	170	201	\$14.85

Appendix Table J – cont'd.
Ohio Occupational Employment* Projections Report, 2018–2028

Code	Occupational Title	Employment		Change in Employment		Growth	Annual Openings			Median Wage May 2019
		2018 Annual	2028 Projected	2018-2028	Percent		Exits	Transfers	Total	
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	16,466	15,014	-1,452	-8.8%	-145	480	1,237	1,572	\$14.51
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	17,151	17,619	468	2.7%	47	604	1,216	1,867	\$17.15
51-4111	Tool and Die Makers	7,214	6,772	-442	-6.1%	-44	256	436	648	\$24.26
51-4121	Welders, Cutters, Solderers, and Brazers	19,676	19,986	310	1.6%	31	508	1,665	2,204	\$19.20
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	2,307	2,103	-204	-8.8%	-20	56	185	221	\$18.56
51-4191	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	1,650	1,490	-160	-9.7%	-16	54	110	148	\$18.40
51-4193	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	3,663	3,268	-395	-10.8%	-40	105	264	329	\$16.08
51-4194	Tool Grinders, Filers, and Sharpeners	576	548	-28	-4.9%	-3	40	41	78	\$17.91
51-4199	Metal Workers and Plastic Workers, All Other	1,158	1,055	-103	-8.9%	-10	38	77	105	\$16.45
51-5111	Prepress Technicians and Workers	1,787	1,397	-390	-21.8%	-39	58	136	155	\$19.81
51-5112	Printing Press Operators and Job Printers	9,500	8,462	-1,038	-10.9%	-104	341	627	864	\$17.99
51-5113	Print Binding and Finishing Workers	2,606	2,187	-419	-16.1%	-42	160	174	292	\$15.11
51-6011	Laundry and Dry-Cleaning Workers	7,760	7,487	-273	-3.5%	-27	474	543	990	\$10.94
51-6021	Pressers, Textile, Garment, and Related Materials	1,509	1,131	-378	-25.0%	-38	72	83	117	\$11.72
51-6031	Sewing Machine Operators	4,118	3,774	-344	-8.4%	-34	230	212	408	\$12.60
51-6041	Shoe and Leather Workers and Repairers	372	332	-40	-10.8%	-4	25	17	38	\$12.39
51-6052	Tailors, Dressmakers, and Custom Sewers	1,141	1,027	-114	-10.0%	-11	89	55	133	\$15.71
51-6062	Textile Cutting Machine Setters, Operators, and Tenders	396	359	-37	-9.3%	-4	16	19	31	\$14.43
51-6063	Textile Knitting and Weaving Machine Setters, Operators, and Tenders	206	181	-25	-12.1%	-2	12	10	20	\$13.32
51-6091	Extruding and Forming Machine Setters, Operators, and Tenders, Synthetic and Glass Fibers	598	563	-35	-5.9%	-4	33	46	75	\$17.00
51-6092	Fabric and Apparel Patternmakers	77	78	1	1.3%	0	4	6	10	\$11.98
51-6093	Upholsterers	508	508	0	0.0%	0	21	32	53	\$16.46
51-6099	Textile, Apparel, and Furnishings Workers, All Other	299	285	-14	-4.7%	-1	17	23	39	\$15.58
51-7011	Cabinetmakers and Bench Carpenters	5,188	5,231	43	0.8%	4	218	322	544	\$17.66
51-7021	Furniture Finishers	1,037	1,050	13	1.3%	1	52	66	119	\$14.94
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	1,222	1,207	-15	-1.2%	-2	35	106	139	\$15.02
51-7042	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	3,862	3,871	9	0.2%	1	208	331	540	\$14.67
51-7099	Woodworkers, All Other	590	606	16	2.7%	2	38	36	76	\$17.16
51-8012	Power Distributors and Dispatchers	889	877	-12	-1.3%	-1	19	64	82	\$42.41
51-8013	Power Plant Operators	1,265	1,220	-45	-3.6%	-4	26	90	112	\$39.50
51-8021	Stationary Engineers and Boiler Operators	989	983	-6	-0.6%	-1	32	72	103	\$27.92
51-8031	Water and Wastewater Treatment Plant and System Operators	4,602	4,217	-385	-8.4%	-38	135	265	362	\$23.87
51-8091	Chemical Plant and System Operators	1,521	1,398	-123	-8.1%	-12	34	127	149	\$31.51
51-8093	Petroleum Pump System Operators, Refinery Operators, and Gaugers	1,104	1,105	1	0.1%	0	26	96	122	\$35.07
51-8099	Plant and System Operators, All Other	396	405	9	2.3%	1	10	35	46	\$26.98
51-9011	Chemical Equipment Operators and Tenders	6,354	6,108	-246	-3.9%	-25	158	557	690	\$23.13
51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	1,771	1,815	44	2.5%	4	46	160	210	\$29.93
51-9021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	1,644	1,538	-106	-6.4%	-11	48	137	174	\$19.11
51-9022	Grinding and Polishing Workers, Hand	1,762	1,408	-354	-20.1%	-35	48	136	149	\$14.51
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	7,462	7,378	-84	-1.1%	-8	224	639	855	\$18.56
51-9031	Cutters and Trimmers, Hand	307	213	-94	-30.6%	-9	11	21	23	\$13.67
51-9032	Cutting and Slicing Machine Setters, Operators, and Tenders	3,497	3,347	-150	-4.3%	-15	142	279	406	\$17.80

Appendix Table J – cont'd.
Ohio Occupational Employment* Projections Report, 2018–2028

Code	Occupational Title	Employment		Change in Employment		Growth	Annual Openings			Median Wage May 2019
		2018 Annual	2028 Projected	2018-2028	Percent		Exits	Transfers	Total	
51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	7,044	6,756	-288	-4.1%	-29	269	479	719	\$15.67
51-9051	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	1,129	1,111	-18	-1.6%	-2	50	70	118	\$18.06
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	33,499	27,634	-5,865	-17.5%	-586	1,213	2,553	3,180	\$18.97
51-9071	Jewelers and Precious Stone and Metal Workers	926	870	-56	-6.0%	-6	54	60	108	\$16.35
51-9081	Dental Laboratory Technicians	1,222	1,313	91	7.4%	9	56	100	165	\$20.20
51-9082	Medical Appliance Technicians	1,145	1,280	135	11.8%	14	54	96	164	\$19.05
51-9083	Ophthalmic Laboratory Technicians	1,266	1,367	101	8.0%	10	59	104	173	\$14.99
51-9111	Packaging and Filling Machine Operators and Tenders	15,986	16,186	200	1.3%	20	710	1,158	1,888	\$15.19
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	5,807	5,754	-53	-0.9%	-5	174	455	624	▲
51-9122	Painters, Transportation Equipment	1,410	1,455	45	3.2%	4	43	113	160	▲
51-9123	Cooling and Freezing Equipment Operators and Tenders	273	272	-1	-0.4%	0	8	21	29	\$14.78
51-9141	Semiconductor Processors	695	642	-53	-7.6%	-5	25	52	72	\$18.58
51-9151	Photographic Process Workers and Processing Machine Operators	623	448	-175	-28.1%	-18	24	58	64	\$14.96
51-9161	Computer Numerically Controlled Tool Operators	14,558	13,299	-1,259	-8.6%	-126	399	1,031	1,304	\$19.17
51-9162	Computer Numerically Controlled Tool Programmers	1,769	2,097	328	18.5%	33	55	143	231	\$24.47
51-9191	Adhesive Bonding Machine Operators and Tenders	867	832	-35	-4.0%	-4	28	83	107	\$16.57
51-9192	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	1,446	1,470	24	1.7%	2	93	134	229	\$16.56
51-9193	Cooling and Freezing Equipment Operators and Tenders	904	962	58	6.4%	6	35	73	114	\$18.38
51-9194	Etchers and Engravers	774	782	8	1.0%	1	40	54	95	\$16.14
51-9195	Molders, Shapers, and Casters, Except Metal and Plastic	2,885	2,893	8	0.3%	1	115	206	322	\$15.85
51-9196	Paper Goods Machine Setters, Operators, and Tenders	5,072	4,779	-293	-5.8%	-29	153	381	505	\$19.08
51-9197	Tire Builders	659	599	-60	-9.1%	-6	12	52	58	\$17.40
51-9198	Helpers--Production Workers	16,999	18,135	1,136	6.7%	114	934	1,655	2,703	\$15.17
51-9199	Production Workers, All Other	13,848	14,102	254	1.8%	25	523	1,094	1,642	\$15.34
53-0000	Transportation and Material Moving Occupations	496,844	512,708	15,864	3.2%	1,587	23,199	40,700	65,486	\$15.09
53-1041	Aircraft Cargo Handling Supervisors	179	190	11	6.1%	1	6	14	21	\$25.03
53-1048	First-Line Supervisors of Transportation Workers, All Other	14,612	15,323	711	4.9%	71	475	1,122	1,668	\$25.80
53-2011	Airline Pilots, Copilots, and Flight Engineers	961	992	31	3.2%	3	27	72	102	\$98,990 ††
53-2012	Commercial Pilots	1,808	1,880	72	4.0%	7	51	136	194	\$98,940 ††
53-2021	Air Traffic Controllers	714	734	20	2.8%	2	17	50	69	\$66.23
53-2022	Airfield Operations Specialists	136	140	4	2.9%	0	3	10	13	\$23.77
53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	800	825	25	3.1%	2	45	78	125	\$12.09
53-3022	Bus Drivers, School	10,456	11,252	796	7.6%	80	842	527	1,449	▲
53-3031	Driver/Sales Workers	22,931	20,728	-2,203	-9.6%	-220	899	1,583	2,262	\$9.80
53-3032	Truck Drivers, Heavy and Tractor-Trailer	78,554	82,994	4,440	5.7%	444	3,326	5,858	9,628	\$21.66
53-3033	Truck Drivers, Light or Delivery Services	41,745	42,820	1,075	2.6%	108	1,741	3,067	4,916	\$15.27
53-3041	Taxi Drivers and Chauffeurs	13,407	16,842	3,435	25.6%	344	812	826	1,982	▲
53-3052	Bus Drivers, Transit and Intercity	5,189	5,299	110	2.1%	11	407	255	673	\$19.63
53-3099	Motor Vehicle Operators, All Other	4,221	4,390	169	4.0%	17	436	287	740	\$12.44
53-4021	Railroad Brake, Signal, and Switch Operators	153	158	5	3.3%	0	3	12	15	▲
53-5011	Sailors and Marine Oilers	372	363	-9	-2.4%	-1	11	35	45	\$18.48
53-5021	Captains, Mates, and Pilots of Water Vessels	323	323	0	0.0%	0	8	22	30	\$23.26
53-6011	Bridge and Lock Tenders	137	146	9	6.6%	1	5	10	16	\$24.20
53-6021	Parking Lot Attendants	4,545	4,428	-117	-2.6%	-12	231	455	674	\$10.43
53-6031	Service Station Attendants	3,834	3,920	86	2.2%	9	172	400	581	\$11.45

Appendix Table J – cont'd.
Ohio Occupational Employment* Projections Report, 2018–2028

Code	Occupational Title	Employment		Change in Employment		Growth	Annual Openings			Median Wage May 2019
		2018 Annual	2028 Projected	2018-2028	Percent		Exits	Transfers	Total	
53-6041	Traffic Technicians	110	111	1	0.9%	0	4	8	12	\$25.13
53-6051	Transportation Inspectors	788	823	35	4.4%	4	24	57	85	\$23.68
53-6061	Transportation Attendants, Except Flight Attendants	285	313	28	9.8%	3	23	16	42	\$12.79
53-6098	Transportation Workers, All Other	687	772	85	12.4%	8	25	52	85	\$16.14
53-7011	Conveyor Operators and Tenders	815	809	-6	-0.7%	-1	27	69	95	\$19.60
53-7021	Crane and Tower Operators	1,768	1,801	33	1.9%	3	56	152	211	\$22.15
53-7041	Hoist and Winch Operators	146	140	-6	-4.1%	-1	5	12	16	\$18.56
53-7051	Industrial Truck and Tractor Operators	30,814	32,151	1,337	4.3%	134	943	2,599	3,676	\$17.32
53-7061	Cleaners of Vehicles and Equipment	13,110	13,470	360	2.7%	36	662	1,273	1,971	\$12.02
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	119,583	125,581	5,998	5.0%	600	5,536	11,490	17,626	\$14.43
53-7063	Machine Feeders and Offbearers	2,323	2,351	28	1.2%	3	118	191	312	\$16.75
53-7064	Packers and Packagers, Hand	30,044	29,108	-936	-3.1%	-94	1,770	2,492	4,168	\$12.60
53-7065	Stock Clerks and Order Fillers	78,683	78,498	-185	-0.2%	-18	3,978	6,484	10,444	\$12.57
53-7071	Gas Compressor and Gas Pumping Station Operators	187	183	-4	-2.1%	0	6	16	22	\$36.46
53-7072	Pump Operators, Except Wellhead Pumps	120	128	8	6.7%	1	4	11	16	\$20.20
53-7073	Wellhead Pumpers	481	493	12	2.5%	1	16	42	59	\$18.09
53-7081	Refuse and Recyclable Material Collectors	4,528	4,804	276	6.1%	28	254	390	672	\$18.54
53-7121	Tank Car, Truck, and Ship Loaders	368	363	-5	-1.4%	0	18	28	46	\$18.05
53-7199	Material Moving Workers, All Other	303	301	-2	-0.7%	0	14	24	38	\$14.81

* Occupations with 100 or more workers.

^^ National aggregate wages.

^^^ National hourly wages.

ND Wages not disclosed.

† Aggregated statewide wages.

†† Certain occupations only report wages at the annual level - for elementary and secondary teachers this typically reflects a 9 1/2-month school year.

††† Annual National Wages

Wages above max.

▲ Wage not available due to OES/SOC changes.

Source: Ohio Department of Job and Family Services, Bureau of Labor Market Information, January 2021.

Appendix Table K
Ohio Occupational Education and Training Classification

Code	Occupational Title*	Typical Education Needed for Entry	Work Experience in a Related Occupation	Typical On-The-Job Training Needed to Attain Competency in the Occupation	Median Wage May 2019
00-0000	Total, All Occupations				\$18.54
11-0000	Management Occupations				\$47.08
11-1011	Chief Executives	Bachelor's degree	5 years or more	None	\$88.94
11-1021	General and Operations Managers	Bachelor's degree	5 years or more	None	\$46.81
11-1031	Legislators	Bachelor's degree	Less than 5 years	None	\$19,700 ††
11-2011	Advertising and Promotions Managers	Bachelor's degree	Less than 5 years	None	\$48.34
11-2021	Marketing Managers	Bachelor's degree	5 years or more	None	\$60.39
11-2022	Sales Managers	Bachelor's degree	Less than 5 years	None	\$59.70
11-2031	Public Relations Managers	Bachelor's degree	5 years or more	None	\$48.26 †
11-3011	Administrative Services Managers	Bachelor's degree	Less than 5 years	None	\$41.31 †
11-3021	Computer and Information Systems Managers	Bachelor's degree	5 years or more	None	\$61.65
11-3031	Financial Managers	Bachelor's degree	5 years or more	None	\$58.23
11-3051	Industrial Production Managers	Bachelor's degree	5 years or more	None	\$49.01
11-3061	Purchasing Managers	Bachelor's degree	5 years or more	None	\$55.10
11-3071	Transportation, Storage, and Distribution Managers	High school diploma or equivalent	5 years or more	None	\$41.35
11-3111	Compensation and Benefits Managers	Bachelor's degree	5 years or more	None	\$59.14
11-3121	Human Resources Managers	Bachelor's degree	5 years or more	None	\$54.62
11-3131	Training and Development Managers	Bachelor's degree	5 years or more	None	\$51.58
11-9013	Farmers, Ranchers, and Other Agricultural Managers	High school diploma or equivalent	5 years or more	None	\$31.81
11-9021	Construction Managers	Bachelor's degree	None	Moderate-term on-the-job training	\$43.10
11-9031	Education Administrators, Preschool and Childcare Center/Program	Bachelor's degree	Less than 5 years	None	\$20.77
11-9032	Education Administrators, Elementary and Secondary School	Master's degree	5 years or more	None	\$89,960 ††
11-9033	Education Administrators, Postsecondary	Master's degree	Less than 5 years	None	\$44.53
11-9039	Education Administrators, All Other	Bachelor's degree	Less than 5 years	None	\$42.28
11-9041	Engineering Managers	Bachelor's degree	5 years or more	None	\$62.52
11-9051	Food Service Managers	High school diploma or equivalent	Less than 5 years	None	\$25.23
11-9081	Lodging Managers	High school diploma or equivalent	Less than 5 years	None	\$18.95
11-9111	Medical and Health Services Managers	Bachelor's degree	Less than 5 years	None	\$44.08
11-9121	Natural Sciences Managers	Bachelor's degree	5 years or more	None	\$58.57
11-9131	Postmasters and Mail Superintendents	High school diploma or equivalent	Less than 5 years	Moderate-term on-the-job training	\$37.36
11-9141	Property, Real Estate and Community Association Managers	High school diploma or equivalent	Less than 5 years	None	\$24.30
11-9151	Social and Community Service Managers	Bachelor's degree	Less than 5 years	None	\$31.56
11-9161	Emergency Management Directors	Bachelor's degree	5 years or more	None	\$35.93
11-9171	Funeral Home Managers	Associate's degree	Less than 5 years	None	ND
11-9198	Managers, All Other	Bachelor's degree	Less than 5 years	None	\$47.45
13-0000	Business and Financial Operations Occupations				\$31.36
13-1031	Claims Adjusters, Examiners, and Investigators	High school diploma or equivalent	None	Long-term on-the-job training	\$30.81
13-1032	Insurance Appraisers, Auto Damage	Postsecondary non-degree award	None	Moderate-term on-the-job training	\$27.35
13-1041	Compliance Officers	Bachelor's degree	None	Moderate-term on-the-job training	\$30.67
13-1051	Cost Estimators	Bachelor's degree	None	Moderate-term on-the-job training	\$30.15
13-1071	Human Resource Specialists	Bachelor's degree	None	None	\$27.95
13-1075	Labor Relations Specialists	Bachelor's degree	Less than 5 years	None	\$27.29
13-1081	Logisticians	Bachelor's degree	None	None	\$34.84
13-1111	Management Analysts	Bachelor's degree	Less than 5 years	None	\$39.45
13-1121	Meeting and Convention Planners	Bachelor's degree	None	None	\$22.18
13-1131	Fundraisers	Bachelor's degree	None	None	\$26.01

Appendix Table K – cont'd.
Ohio Occupational Education and Training Classification

Code	Occupational Title*	Typical Education Needed for Entry	Work Experience in a Related Occupation	Typical On-The-Job Training Needed to Attain Competency in the Occupation	Median Wage May 2019
13-1141	Compensation, Benefits, and Job Analysis Specialists	Bachelor's degree	Less than 5 years	None	\$28.76
13-1151	Training and Development Specialists	Bachelor's degree	Less than 5 years	None	\$27.17
13-1161	Market Research Analysts and Marketing Specialists	Bachelor's degree	None	None	\$29.18
13-1198	Business Operations Specialists, All Other	Bachelor's degree	None	None	\$33.81
13-2011	Accountants and Auditors	Bachelor's degree	None	None	\$31.58
13-2021	Appraisers and Assessors of Real Estate	Bachelor's degree	None	Long-term on-the-job training	\$29.36 †
13-2031	Budget Analyst	Bachelor's degree	None	None	\$35.77
13-2041	Credit Analysts	Bachelor's degree	None	None	\$34.65
13-2051	Financial Analysts	Bachelor's degree	None	None	ND
13-2052	Personal Financial Advisors	Bachelor's degree	None	Long-term on-the-job training	\$35.41
13-2053	Insurance Underwriters	Bachelor's degree	None	Moderate-term on-the-job training	\$32.91
13-2061	Financial Examiners	Bachelor's degree	None	Long-term on-the-job training	\$32.28
13-2071	Credit Counselors	Bachelor's degree	None	Moderate-term on-the-job training	\$22.97
13-2072	Loan Officers	Bachelor's degree	None	Moderate-term on-the-job training	\$32.57
13-2081	Tax Examiners, Collectors, and Revenue Agents	Bachelor's degree	None	Moderate-term on-the-job training	\$30.72
13-2082	Tax Preparers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$18.00
13-2099	Financial Specialists, All Other	Bachelor's degree	None	Moderate-term on-the-job training	\$35.74
15-0000	Computer and Mathematical Occupations				\$37.92
15-1132	Software Developers, Applications	Bachelor's degree	None	None	▲
15-1133	Software Developers, Systems Software	Bachelor's degree	None	None	▲
15-1134	Web Developers	Associate's degree	None	None	▲
15-1211	Computer Systems Analysts	Bachelor's degree	None	None	\$40.72
15-1212	Information Security Analysts	Bachelor's degree	Less than 5 years	None	\$44.59
15-1221	Computer and Information Research Scientists	Master's degree	None	None	\$53.56
15-1231	Computer Network Support Specialists	Associate's degree	None	None	\$28.26
15-1232	Computer User Support Specialists	Some college, no degree	None	None	\$23.15
15-1241	Computer Network Architects	Bachelor's degree	5 years or more	None	\$48.33
15-1244	Network and Computer Systems Administrators	Bachelor's degree	None	None	\$33.71
15-1245	Database Administrators	Bachelor's degree	None	None	▲
15-1251	Computer Programmers	Bachelor's degree	None	None	\$37.02
15-1299	Computer Occupations, All Other	Bachelor's degree	None	None	\$38.52
15-2011	Actuaries	Bachelor's degree	None	Long-term on-the-job training	\$46.49
15-2031	Operations Research Analysts	Bachelor's degree	None	None	\$39.29
15-2041	Statisticians	Master's degree	None	None	\$38.46
17-0000	Architecture and Engineering Occupations				\$36.72
17-1011	Architects, Except Landscape and Naval	Bachelor's degree	None	Internship/residency	\$39.51
17-1012	Landscape Architects	Bachelor's degree	None	Internship/residency	\$30.28
17-1022	Surveyors	Bachelor's degree	None	Internship/residency	\$27.98
17-2011	Aerospace Engineers	Bachelor's degree	None	None	\$55.27
17-2021	Agricultural Engineers	Bachelor's degree	None	None	\$40.53
17-2031	Biomedical Engineers	Bachelor's degree	None	None	\$38.47
17-2041	Chemical Engineers	Bachelor's degree	None	None	\$46.76
17-2051	Civil Engineers	Bachelor's degree	None	None	\$38.20
17-2061	Computer Hardware Engineers	Bachelor's degree	None	None	\$49.34
17-2071	Electrical Engineers	Bachelor's degree	None	None	\$40.78
17-2072	Electronics Engineers, Except Computer	Bachelor's degree	None	None	\$46.26

Appendix Table K – cont'd.
Ohio Occupational Education and Training Classification

Code	Occupational Title*	Typical Education Needed for Entry	Work Experience in a Related Occupation	Typical On-The-Job Training Needed to Attain Competency in the Occupation	Median Wage May 2019
17-2081	Environmental Engineers	Bachelor's degree	None	None	\$40.50
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	Bachelor's degree	None	None	\$44.43
17-2112	Industrial Engineers	Bachelor's degree	None	None	\$38.77
17-2131	Materials Engineers	Bachelor's degree	None	None	\$39.25
17-2141	Mechanical Engineers	Bachelor's degree	None	None	\$38.23
17-2151	Mining and Geological Engineers, Including Mining Safety Engineers	Bachelor's degree	None	None	\$40.18
17-2171	Petroleum Engineers	Bachelor's degree	None	None	\$54.81
17-2199	Engineers, All Other	Bachelor's degree	None	None	\$43.64
17-3011	Architectural and Civil Drafters	Associate's degree	None	None	\$26.40
17-3012	Electrical and Electronics Drafters	Associate's degree	None	None	\$28.57
17-3013	Mechanical Drafters	Associate's degree	None	None	\$26.92
17-3019	Drafters, All Other	Associate's degree	None	None	\$26.78
17-3021	Aerospace Engineering and Operations Technicians	Associate's degree	None	None	\$32.70
17-3022	Civil Engineering Technicians	Associate's degree	None	None	\$28.33
17-3023	Electrical and Electronic Engineering Technicians	Associate's degree	None	None	\$29.87
17-3024	Electro-Mechanical Technicians	Associate's degree	None	None	\$24.24
17-3025	Environmental Engineering Technicians	Associate's degree	None	None	\$24.06
17-3026	Industrial Engineering Technicians	Associate's degree	None	None	\$25.45
17-3027	Mechanical Engineering Technicians	Associate's degree	None	None	\$26.51
17-3031	Surveying and Mapping Technicians	High school diploma or equivalent	None	Moderate-term on-the-job training	\$21.08
17-3098	Engineering Technicians, Except Drafters, All Other	Associate's degree	None	None	\$27.87
19-0000	Life, Physical, and Social Science Occupations				\$30.36
19-1012	Food Scientists and Technologists	Bachelor's degree	None	None	\$35.68
19-1013	Soil and Plant Scientists	Bachelor's degree	None	None	\$26.74
19-1021	Biochemists and Biophysicists	Doctoral or professional degree	None	None	\$23.02
19-1022	Microbiologists	Bachelor's degree	None	None	\$29.82
19-1023	Zoologists and Wildlife Biologists	Bachelor's degree	None	None	\$28.43
19-1029	Biological Scientists, All Other	Bachelor's degree	None	None	\$36.77
19-1031	Conservation Scientists	Bachelor's degree	None	None	\$26.63
19-1032	Foresters	Bachelor's degree	None	None	\$29.18
19-1041	Epidemiologists	Master's degree	None	None	\$33.01
19-1042	Medical Scientists, Except Epidemiologists	Doctoral or professional degree	None	None	\$34.11
19-1099	Life Scientists, All Other	Bachelor's degree	None	None	\$31.75
19-2012	Physicists	Doctoral or professional degree	None	None	\$56.69
19-2031	Chemists	Bachelor's degree	None	None	\$33.75
19-2032	Materials Scientists	Bachelor's degree	None	None	\$49.50
19-2041	Environmental Scientists and Specialists, Including Health	Bachelor's degree	None	None	\$37.24
19-2042	Geoscientists, Except Hydrologists and Geographers	Bachelor's degree	None	None	\$36.63
19-2043	Hydrologists	Bachelor's degree	None	None	\$38.61
19-2099	Physical Scientists, All Other	Bachelor's degree	None	None	\$52.85
19-3011	Economists	Master's degree	None	None	\$46.49
19-3022	Survey Researchers	Master's degree	None	None	\$29.54
19-3031	Clinical, Counseling, and School Psychologists	Doctoral or professional degree	None	Internship/residency	\$35.86
19-3039	Psychologists, All Other	Master's degree	None	Internship/residency	\$48.19
19-3051	Urban and Regional Planners	Master's degree	None	None	\$33.97
19-3091	Anthropologists and Archeologists	Master's degree	None	None	\$27.82

Appendix Table K – cont'd.
Ohio Occupational Education and Training Classification

Code	Occupational Title*	Typical Education Needed for Entry	Work Experience in a Related Occupation	Typical On-The-Job Training Needed to Attain Competency in the Occupation	Median Wage May 2019
19-3099	Social Scientists and Related Workers, All Other	Bachelor's degree	None	None	\$37.19
19-4011	Agricultural and Food Science Technicians	Associate's degree	None	Moderate-term on-the-job training	\$20.14 †
19-4021	Biological Technicians	Bachelor's degree	None	None	\$21.30
19-4031	Chemical Technicians	Associate's degree	None	Moderate-term on-the-job training	\$23.08
19-4041	Geological and Petroleum Technicians (split 19-4043 Geo Tech and 19-4044 Hydro Tech for 2018)	Associate's degree	None	Moderate-term on-the-job training	▲
19-4042	Environmental Science and Protection Technicians, Including Health	Associate's degree	None	None	\$21.52
19-4051	Nuclear Technicians	Associate's degree	None	Moderate-term on-the-job training	\$36.65
19-4061	Social Science Research Assistants	Bachelor's degree	None	None	\$21.34
19-4071	Forest and Conservation Technicians	Associate's degree	None	None	\$20.31
19-4092	Forensic Science Technicians	Bachelor's degree	None	Moderate-term on-the-job training	\$32.03
19-4099	Life, Physical, and Social Science Technicians, All Other	Associate's degree	None	None	\$25.54
19-5011	Occupational Health and Safety Specialists	Bachelor's degree	None	None	\$35.40
19-5012	Occupational Health and Safety Technicians	High school diploma or equivalent	None	Moderate-term on-the-job training	\$24.87
21-0000	Community and Social Service Occupations				\$21.31
21-1012	Educational, Vocational, and School Counselors	Master's degree	None	None	\$25.81
21-1013	Marriage and Family Therapists	Master's degree	None	Internship/residency	\$22.90
21-1015	Rehabilitation Counselors	Master's degree	None	None	\$16.33
21-1018	Substance Abuse, Behavioral Disorder, and Mental Health Counselors	Bachelor's degree	None	None	\$21.94
21-1019	Counselors, All Other	Master's degree	None	None	\$23.92
21-1021	Child, Family, and School Social Workers	Bachelor's degree	None	None	\$21.68
21-1022	Medical and Public Health Social Workers	Master's degree	None	Internship/residency	\$26.77
21-1023	Mental Health and Substance Abuse Social Workers	Master's degree	None	Internship/residency	\$20.93
21-1029	Social Workers, All Other	Bachelor's degree	None	None	\$25.17
21-1091	Health Educators	Bachelor's degree	None	None	\$26.21
21-1092	Probation Officers and Correctional Treatment Specialists	Bachelor's degree	None	Short-term on-the-job training	\$24.12
21-1093	Social and Human Service Assistants	High school diploma or equivalent	None	Short-term on-the-job training	\$16.36
21-1094	Community Health Workers	High school diploma or equivalent	None	Short-term on-the-job training	\$17.80
21-1099	Community and Social Service Specialists, All Other	Bachelor's degree	None	None	\$20.29
21-2011	Clergy	Bachelor's degree	None	Moderate-term on-the-job training	\$22.08
21-2021	Directors, Religious Activities and Education	Bachelor's degree	Less than 5 years	None	\$22.68
21-2099	Religious Workers, All Other	Bachelor's degree	None	None	\$14.84
23-0000	Legal Occupations				\$33.09
23-1011	Lawyers	Doctoral or professional degree	None	None	\$49.02
23-1012	Judicial Law Clerks	Doctoral or professional degree	None	None	\$26.07
23-1021	Administrative Law Judges, Adjudicators, and Hearing Officers	Doctoral or professional degree	5 years or more	Short-term on-the-job training	\$31.64
23-1022	Arbitrators, Mediators, and Conciliators	Bachelor's degree	Less than 5 years	Moderate-term on-the-job training	\$24.81
23-1023	Judges, Magistrate Judges, and Magistrates	Doctoral or professional degree	5 years or more	Short-term on-the-job training	\$40.01
23-2011	Paralegals and Legal Assistants	Associate's degree	None	None	\$21.25
23-2093	Title Examiners, Abstractors, and Searchers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$23.30
23-2099	Legal Support Workers, All Other	Associate's degree	None	None	\$25.21
25-0000	Education, Training, and Library Occupations				\$25.97
25-1011	Business Teachers, Postsecondary	Doctoral or professional degree	None	None	\$92,010
25-1021	Computer Science Teachers, Postsecondary	Doctoral or professional degree	None	None	\$88,070
25-1022	Mathematical Science Teachers, Postsecondary	Doctoral or professional degree	None	None	\$75,660
25-1031	Architecture Teachers, Postsecondary	Doctoral or professional degree	None	None	\$82,630

Appendix Table K – cont'd.
Ohio Occupational Education and Training Classification

Code	Occupational Title*	Typical Education Needed for Entry	Work Experience in a Related Occupation	Typical On-The-Job Training Needed to Attain Competency in the Occupation	Median Wage May 2019
25-1032	Engineering Teachers, Postsecondary	Doctoral or professional degree	None	None	\$102,800 ††
25-1042	Biological Science Teachers, Postsecondary	Doctoral or professional degree	None	None	\$80,260
25-1051	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	Doctoral or professional degree	None	None	\$87,410
25-1052	Chemistry Teachers, Postsecondary	Doctoral or professional degree	None	None	\$80,410
25-1054	Physics Teachers, Postsecondary	Doctoral or professional degree	None	None	\$84,820
25-1061	Anthropology and Archeology Teachers, Postsecondary	Doctoral or professional degree	None	None	\$86,450
25-1062	Area, Ethnic, and Cultural Studies Teachers, Postsecondary	Doctoral or professional degree	None	None	\$72,430
25-1063	Economics Teachers, Postsecondary	Doctoral or professional degree	None	None	\$103,800 ††
25-1064	Geography Teachers, Postsecondary	Doctoral or professional degree	None	None	\$86,050
25-1065	Political Science Teachers, Postsecondary	Doctoral or professional degree	None	None	\$80,190
25-1066	Psychology Teachers, Postsecondary	Doctoral or professional degree	None	None	\$76,630
25-1067	Sociology Teachers, Postsecondary	Doctoral or professional degree	None	None	\$78,090
25-1069	Social Sciences Teachers, Postsecondary, All Other	Doctoral or professional degree	None	None	\$72,650
25-1071	Health Specialties Teachers, Postsecondary	Doctoral or professional degree	Less than 5 years	None	\$107,960 ††
25-1072	Nursing Instructors and Teachers, Postsecondary	Doctoral or professional degree	Less than 5 years	None	\$73,730 ††
25-1081	Education Teachers, Postsecondary	Doctoral or professional degree	Less than 5 years	None	\$63,740 ††
25-1082	Library Science Teachers, Postsecondary	Doctoral or professional degree	None	None	\$65,220 ††
25-1111	Criminal Justice and Law Enforcement Teachers, Postsecondary	Doctoral or professional degree	None	None	\$56,830 ††
25-1112	Law Teachers, Postsecondary	Doctoral or professional degree	Less than 5 years	None	\$112,040 ††
25-1113	Social Work Teachers, Postsecondary	Doctoral or professional degree	None	None	\$69,070 ††
25-1121	Art, Drama, and Music Teachers, Postsecondary	Master's degree	None	None	\$70,370 ††
25-1122	Communications Teachers, Postsecondary	Doctoral or professional degree	None	None	\$67,520 ††
25-1123	English Language and Literature Teachers, Postsecondary	Doctoral or professional degree	None	None	\$66,560 ††
25-1124	Foreign Language and Literature Teachers, Postsecondary	Doctoral or professional degree	None	None	\$69,300 ††
25-1125	History Teachers, Postsecondary	Doctoral or professional degree	None	None	\$74,010 ††
25-1126	Philosophy and Religion Teachers, Postsecondary	Doctoral or professional degree	None	None	\$72,450 ††
25-1192	Family and Consumer Sciences Teachers, Postsecondary (new name 2018)	Master's degree	None	None	\$76,480 †††
25-1193	Recreation and Fitness Studies Teachers, Postsecondary	Doctoral or professional degree	None	None	\$61,640 ††
25-1194	Vocational Education Teachers, Postsecondary	Bachelor's degree	Less than 5 years	None	\$29.34
25-2011	Preschool Teachers, Except Special Education	Associate's degree	None	None	\$13.06
25-2012	Kindergarten Teachers, Except Special Education	Bachelor's degree	None	None	\$57,460 ††
25-2021	Elementary School Teachers, Except Special Education	Bachelor's degree	None	None	\$64,470 ††
25-2022	Middle School Teachers, Except Special and Career/Technical Education	Bachelor's degree	None	None	\$63,480 ††
25-2023	Vocational Education Teachers, Middle School	Bachelor's degree	Less than 5 years	None	\$63,450 ††
25-2031	Secondary School Teachers, Except Special and Career/Technical Education	Bachelor's degree	None	None	\$64,370 ††
25-2032	Career/Technical Education Teachers, Secondary School	Bachelor's degree	Less than 5 years	None	\$71,730 ††
25-2051	Special Education Teachers, Preschool	Bachelor's degree	None	None	\$58,950 ††
25-2052	Special Education Teachers, Kindergarten and Elementary	Bachelor's degree	None	None	\$56,670 ††
25-2057	Special Education Teachers, Middle School	Bachelor's degree	None	None	\$59,210 ††
25-2058	Special Education Teachers, Secondary School	Bachelor's degree	None	None	\$56,720 ††
25-2059	Special Education Teachers, All Other	Bachelor's degree	None	None	\$38,410 ††
25-3011	Adult Literacy, Remedial Education, and GED Teachers	Bachelor's degree	None	None	\$23.42
25-3021	Self-Enrichment Education Teachers	High school diploma or equivalent	Less than 5 years	None	\$15.64
25-3031	Substitute Teachers	Bachelor's degree	None	None	\$13.49
25-3097	Teachers and Instructors, All Other, Except Substitute Teachers	Bachelor's degree	None	None	\$39,860 ††
25-4011	Archivists	Master's degree	None	None	\$23.74

Appendix Table K – cont'd.
Ohio Occupational Education and Training Classification

Code	Occupational Title*	Typical Education Needed for Entry	Work Experience in a Related Occupation	Typical On-The-Job Training Needed to Attain Competency in the Occupation	Median Wage May 2019
25-4012	Curators	Master's degree	None	None	\$23.78
25-4013	Museum Technicians and Conservators	Bachelor's degree	None	None	\$19.72
25-4021	Librarians	Master's degree	None	None	▲
25-4031	Library Technicians	Postsecondary non-degree award	None	None	\$14.48
25-9031	Instructional Coordinators	Master's degree	5 years or more	None	\$32.00
25-9041	Teacher Assistants	Some college, no degree	None	None	▲
25-9099	Education, Training, and Library Workers, All Other	Bachelor's degree	None	None	\$17.25
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations				\$20.88
27-1011	Art Directors	Bachelor's degree	5 years or more	None	\$38.46
27-1012	Craft Artists	No formal educational credential	None	Long-term on-the-job training	\$17.09
27-1013	Fine Artists, Including Painters, Sculptors, and Illustrators	Bachelor's degree	None	Long-term on-the-job training	\$21.96
27-1014	Multi-Media Artists and Animators	Bachelor's degree	None	None	\$25.16
27-1021	Commercial and Industrial Designers	Bachelor's degree	None	None	\$30.75
27-1023	Floral Designers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$11.50
27-1024	Graphic Designers	Bachelor's degree	None	None	\$23.25
27-1025	Interior Designers	Bachelor's degree	None	None	\$26.06
27-1026	Merchandise Displayers and Window Trimmers	High school diploma or equivalent	None	Short-term on-the-job training	\$15.48
27-1027	Set and Exhibit Designers	Bachelor's degree	None	None	\$23.11
27-1029	Designers, All Other	Bachelor's degree	None	None	\$24.44
27-2011	Actors	Some college, no degree	None	Long-term on-the-job training	\$13.90
27-2012	Producers and Directors	Bachelor's degree	Less than 5 years	None	\$25.10
27-2021	Athletes and Sports Competitors	No formal educational credential	None	Long-term on-the-job training	\$94,300 ††
27-2022	Coaches and Scouts	Bachelor's degree	None	None	\$24,630 ††
27-2023	Umpires, Referees, and Other Sports Officials	High school diploma or equivalent	None	Moderate-term on-the-job training	\$24,500 ††
27-2031	Dancers	No formal educational credential	None	Long-term on-the-job training	\$17.49 ^^^
27-2032	Choreographers	High school diploma or equivalent	5 years or more	Long-term on-the-job training	\$19.89
27-2041	Music Directors and Composers	Bachelor's degree	Less than 5 years	None	\$20.72
27-2042	Musicians and Singers	No formal educational credential	None	Long-term on-the-job training	\$26.72
27-2099	Entertainers and Performers, Sports and Related Workers, All Other	No formal educational credential	None	Short-term on-the-job training	\$19.33 †
27-3011	Radio and Television Announcers	Bachelor's degree	None	None	\$16.05
27-3012	Public Address System and Other Announcers (now in 27-3099 Media and Comm Workers, All Other)	High school diploma or equivalent	None	Short-term on-the-job training	▲
27-3021	Broadcast News Analyst (changed 2018 to News Analysts, Reporters and Journalists (27-3023 new SOC agg)	Bachelor's degree	None	None	▲
27-3022	Reporters and Correspondents (OLD) moved to 27-3023 News Analysts, Reporters and Journalists	Bachelor's degree	None	None	▲
27-3031	Public Relations Specialists	Bachelor's degree	None	None	\$28.45
27-3041	Editors	Bachelor's degree	Less than 5 years	None	\$25.99
27-3042	Technical Writers	Bachelor's degree	Less than 5 years	Short-term on-the-job training	\$30.21
27-3043	Writers and Authors	Bachelor's degree	None	Long-term on-the-job training	\$24.42
27-3091	Interpreters and Translators	Bachelor's degree	None	None	\$24.41
27-3092	Court Reporters	Postsecondary non-degree award	None	Short-term on-the-job training	\$24.73
27-3099	Media and Communication Workers, All Other	High school diploma or equivalent	None	Short-term on-the-job training	\$18.91
27-4011	Audio and Video Equipment Technicians	Postsecondary non-degree award	None	Short-term on-the-job training	\$19.40
27-4012	Broadcast Technicians	Associate's degree	None	Short-term on-the-job training	\$20.84
27-4014	Sound Engineering Technicians	Postsecondary non-degree award	None	Short-term on-the-job training	\$24.54

Appendix Table K – cont'd.
Ohio Occupational Education and Training Classification

Code	Occupational Title*	Typical Education Needed for Entry	Work Experience in a Related Occupation	Typical On-The-Job Training Needed to Attain Competency in the Occupation	Median Wage May 2019
27-4021	Photographers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$15.60
27-4031	Camera Operators, TV, Video and Motion Picture	Bachelor's degree	None	None	\$24.95
27-4032	Film and Video Editors	Bachelor's degree	None	None	\$26.91
27-4098	Media and Communication Equipment Workers, All Other	High school diploma or equivalent	None	Short-term on-the-job training	\$32.22
29-0000	Healthcare Practitioners and Technical Occupations				\$29.83
29-1011	Chiropractors	Doctoral or professional degree	None	None	\$39.19
29-1021	Dentists, General	Doctoral or professional degree	None	None	\$88.94
29-1023	Orthodontists	Doctoral or professional degree	None	Internship/residency	#
29-1029	Dentists, All Other Specialists	Doctoral or professional degree	None	Internship/residency	\$60.51
29-1031	Dietitians and Nutritionists	Bachelor's degree	None	Internship/residency	\$27.99
29-1041	Optometrists	Doctoral or professional degree	None	None	\$55.41
29-1051	Pharmacists	Doctoral or professional degree	None	None	\$58.81
29-1071	Physician Assistants	Master's degree	None	None	\$52.09
29-1081	Podiatrists	Doctoral or professional degree	None	Internship/residency	\$66.69
29-1122	Occupational Therapists	Master's degree	None	None	\$40.54
29-1123	Physical Therapists	Doctoral or professional degree	None	None	\$42.19
29-1124	Radiation Therapists	Associate's degree	None	None	\$39.17
29-1125	Recreational Therapists	Bachelor's degree	None	None	\$21.76
29-1126	Respiratory Therapists	Associate's degree	None	None	\$27.69
29-1127	Speech-Language Pathologists	Master's degree	None	Internship/residency	\$35.71
29-1128	Exercise Physiologists	Bachelor's degree	None	None	\$23.33
29-1129	Therapists, All Other	Bachelor's degree	None	None	\$34.95
29-1131	Veterinarians	Doctoral or professional degree	None	None	\$46.65
29-1141	Registered Nurses	Bachelor's degree	None	None	\$31.63
29-1151	Nurse Anesthetists	Master's degree	None	None	\$80.80
29-1161	Nurse Midwives	Master's degree	None	None	\$46.98
29-1171	Nurse Practitioners	Master's degree	None	None	\$49.75
29-1181	Audiologists	Doctoral or professional degree	None	None	\$33.75
29-1199	Health Diagnosing and Treating Practitioners, All Other	Master's degree	None	None	▲
29-1211	Anesthesiologists	Doctoral or professional degree	None	Internship/residency	#
29-1215	Family and General Practitioners	Doctoral or professional degree	None	Internship/residency	\$86.64
29-1216	Internists, General	Doctoral or professional degree	None	Internship/residency	\$91.19
29-1218	Obstetricians and Gynecologists	Doctoral or professional degree	None	Internship/residency	#
29-1221	Pediatricians, General	Doctoral or professional degree	None	Internship/residency	\$75.47
29-1223	Psychiatrists	Doctoral or professional degree	None	Internship/residency	#
29-1228	Physicians and Surgeons, All Other	Doctoral or professional degree	None	Internship/residency	#
29-1248	Surgeons	Doctoral or professional degree	None	Internship/residency	#
29-1292	Dental Hygienists	Associate's degree	None	None	\$33.03
29-2010	Clinical Laboratory Technologists and Technicians (Medical and Clinical Laboratory Technologists and Technicians 2011 and 2012)	Bachelor's degree	None	None	\$25.50
29-2031	Cardiovascular Technologists and Technicians	Associate's degree	None	None	\$25.98
29-2032	Diagnostic Medical Sonographers	Associate's degree	None	None	\$31.75
29-2033	Nuclear Medicine Technologists	Associate's degree	None	None	\$34.97
29-2034	Radiologic Technologists	Associate's degree	None	None	\$27.95
29-2035	Magnetic Resonance Imaging Technologists	Associate's degree	Less than 5 years	None	\$32.13
29-2041	Emergency Medical Technicians and Paramedics	Postsecondary non-degree award	None	None	\$15.57 †

Appendix Table K – cont'd.
Ohio Occupational Education and Training Classification

Code	Occupational Title*	Typical Education Needed for Entry	Work Experience in a Related Occupation	Typical On-The-Job Training Needed to Attain Competency in the Occupation	Median Wage May 2019
29-2051	Dietetic Technicians	Associate's degree	None	None	\$12.72
29-2052	Pharmacy Technicians	High school diploma or equivalent	None	Moderate-term on-the-job training	\$14.52
29-2053	Psychiatric Technicians	Postsecondary non-degree award	Less than 5 years	Short-term on-the-job training	\$15.26
29-2054	Respiratory Therapy Technicians (moved to 29-2099 Health Tech, All Other for 2018)	Associate's degree	None	None	▲
29-2055	Surgical Technologists	Postsecondary non-degree award	None	None	\$22.55
29-2056	Veterinary Technologists and Technicians	Associate's degree	None	None	\$16.40
29-2057	Ophthalmic Medical Technicians	Postsecondary non-degree award	None	None	\$17.98
29-2061	Licensed Practical and Licensed Vocational Nurses	Postsecondary non-degree award	None	None	\$21.62
29-2071	Medical Records and Health Information Technicians	Postsecondary non-degree award	None	None	▲
29-2081	Opticians, Dispensing	High school diploma or equivalent	None	Long-term on-the-job training	\$20.29
29-2091	Orthotists and Prosthetists	Master's degree	None	Internship/residency	\$29.94
29-2092	Hearing Aid Specialists	High school diploma or equivalent	None	Moderate-term on-the-job training	\$22.17
29-2098	Health Technologists and Technicians, All Other	Postsecondary non-degree award	None	None	\$31.29
29-9091	Athletic Trainers	Bachelor's degree	None	None	\$47,660 ††
29-9092	Genetic Counselors	Master's degree	None	None	\$37.77
29-9098	Healthcare Practitioners and Technical Workers, All Other	Postsecondary non-degree award	None	None	\$31.29
31-0000	Healthcare Support Occupations				\$12.85
31-1011	Home Health Aides	High school diploma or equivalent	None	Short-term on-the-job training	\$11.08 †
31-1013	Psychiatric Aides	High school diploma or equivalent	None	Short-term on-the-job training	\$17.24
31-1014	Nursing Assistants	Postsecondary non-degree award	None	None	\$13.61
31-1015	Orderlies	High school diploma or equivalent	None	Short-term on-the-job training	\$13.69
31-2011	Occupational Therapist Assistants	Associate's degree	None	None	\$28.71
31-2012	Occupational Therapy Aides	High school diploma or equivalent	None	Short-term on-the-job training	\$15.36
31-2021	Physical Therapist Assistants	Associate's degree	None	None	\$28.32
31-2022	Physical Therapist Aides	High school diploma or equivalent	None	Short-term on-the-job training	\$13.19
31-9011	Massage Therapists	Postsecondary non-degree award	None	None	\$19.43
31-9091	Dental Assistants	Postsecondary non-degree award	None	None	\$18.66
31-9092	Medical Assistants	Postsecondary non-degree award	None	None	\$15.87
31-9093	Medical Equipment Preparers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$17.16
31-9094	Medical Transcriptionists	Postsecondary non-degree award	None	None	\$18.18
31-9095	Pharmacy Aides	High school diploma or equivalent	None	Short-term on-the-job training	\$12.00
31-9096	Veterinary Assistants and Laboratory Animal Caretakers	High school diploma or equivalent	None	Short-term on-the-job training	\$12.49
31-9097	Phlebotomists	Postsecondary non-degree award	None	None	\$16.52
31-9099	Healthcare Support Workers, All Other	High school diploma or equivalent	None	None	\$20.29
33-0000	Protective Service Occupations				\$20.54
33-1011	First-Line Supervisors of Correctional Officers	High school diploma or equivalent	Less than 5 years	None	\$33.30
33-1012	First-Line Supervisors of Police and Detectives	High school diploma or equivalent	Less than 5 years	Moderate-term on-the-job training	\$40.26
33-1021	First-Line Supervisors of Fire Fighting and Prevention Workers	Postsecondary non-degree award	Less than 5 years	Moderate-term on-the-job training	\$36.76
33-1099	First-Line Supervisors of Protective Service Workers, All Other	High school diploma or equivalent	Less than 5 years	None	\$18.78 †
33-2011	Fire Fighters	Postsecondary non-degree award	None	Long-term on-the-job training	\$23.05
33-2021	Fire Inspectors and Investigators	Postsecondary non-degree award	5 years or more	Moderate-term on-the-job training	\$28.42
33-3011	Bailiffs	High school diploma or equivalent	None	Moderate-term on-the-job training	\$22.70
33-3012	Correctional Officers and Jailers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$22.96
33-3021	Detectives and Criminal Investigators	High school diploma or equivalent	Less than 5 years	Moderate-term on-the-job training	\$34.74
33-3041	Parking Enforcement Workers	High school diploma or equivalent	None	Short-term on-the-job training	\$19.32

Appendix Table K – cont'd.
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Code	Occupational Title*	Typical Education Needed for Entry	Work Experience in a Related Occupation	Typical On-The-Job Training Needed to Attain Competency in the Occupation	Median Wage May 2019
33-3051	Police and Sheriff's Patrol Officers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$30.19
33-9011	Animal Control Workers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$17.71
33-9021	Private Detectives and Investigators	High school diploma or equivalent	Less than 5 years	Moderate-term on-the-job training	\$22.93
33-9031	Gaming Surveillance Officers and Gaming Investigators	High school diploma or equivalent	Less than 5 years	Moderate-term on-the-job training	\$28.93
33-9032	Security Guards	High school diploma or equivalent	None	Short-term on-the-job training	\$13.75
33-9091	Crossing Guards	No formal educational credential	None	Short-term on-the-job training	\$12.62
33-9092	Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	No formal educational credential	None	Short-term on-the-job training	\$9.49
33-9093	Transportation Security Screeners	High school diploma or equivalent	None	Short-term on-the-job training	\$19.64
33-9099	Protective Service Workers, All Other	High school diploma or equivalent	None	Short-term on-the-job training	\$13.99
35-0000	Food Preparation and Serving Related Occupations				\$9.93
35-1011	Chefs and Head Cooks	High school diploma or equivalent	5 years or more	None	\$21.19
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	High school diploma or equivalent	Less than 5 years	None	\$14.72
35-2011	Cooks, Fast Food	No formal educational credential	None	Short-term on-the-job training	\$10.14
35-2012	Cooks, Institution and Cafeteria	No formal educational credential	None	Short-term on-the-job training	\$13.08
35-2013	Cooks, Private Household	Postsecondary non-degree award	Less than 5 years	None	\$18.21 ^^^
35-2014	Cooks, Restaurant	No formal educational credential	Less than 5 years	Moderate-term on-the-job training	\$12.04
35-2015	Cooks, Short Order	No formal educational credential	None	Short-term on-the-job training	\$9.99
35-2019	Cooks, All Other	No formal educational credential	None	Moderate-term on-the-job training	\$9.68
35-2021	Food Preparation Workers	No formal educational credential	None	Short-term on-the-job training	\$10.81
35-3011	Bartenders	No formal educational credential	None	Short-term on-the-job training	\$9.45
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	No formal educational credential	None	Short-term on-the-job training	\$9.53 †
35-3022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	No formal educational credential	None	Short-term on-the-job training	\$9.53 †
35-3031	Waiters and Waitresses	No formal educational credential	None	Short-term on-the-job training	\$9.59
35-3041	Food Servers, Nonrestaurant	No formal educational credential	None	Short-term on-the-job training	\$10.37
35-9011	Dining Room and Cafeteria Attendants and Bartender Helpers	No formal educational credential	None	Short-term on-the-job training	\$9.57
35-9021	Dishwashers	No formal educational credential	None	Short-term on-the-job training	\$10.00
35-9031	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	No formal educational credential	None	Short-term on-the-job training	\$9.51
35-9099	Food Preparation and Serving Related Workers, All Other	No formal educational credential	None	Short-term on-the-job training	\$9.51
37-0000	Building and Grounds Cleaning and Maintenance Occupations				\$12.78
37-1011	First-Line Supervisors of Housekeeping and Janitorial Workers	High school diploma or equivalent	Less than 5 years	None	\$20.00
37-1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping	High school diploma or equivalent	Less than 5 years	None	\$22.86
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	No formal educational credential	None	Short-term on-the-job training	\$12.52
37-2012	Maids and Housekeeping Cleaners	No formal educational credential	None	Short-term on-the-job training	\$10.85
37-3011	Landscaping and Groundskeeping Workers	No formal educational credential	None	Short-term on-the-job training	\$14.07
37-3012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	High school diploma or equivalent	None	Moderate-term on-the-job training	\$16.37
37-3013	Tree Trimmers and Pruners	High school diploma or equivalent	None	Short-term on-the-job training	\$19.50
37-3019	Grounds Maintenance Workers, All Other	No formal educational credential	None	Short-term on-the-job training	\$13.28
39-0000	Personal Care and Service Occupations				\$11.20
39-1021	First-Line Supervisors of Personal Service Workers	High school diploma or equivalent	Less than 5 years	None	\$19.68 ^^
39-2011	Animal Trainers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$12.58
39-2021	Nonfarm Animal Caretakers	High school diploma or equivalent	None	Short-term on-the-job training	\$10.79
39-3011	Gambling Dealers	High school diploma or equivalent	None	Short-term on-the-job training	\$9.59
39-3019	Gambling Service Workers, All Other	High school diploma or equivalent	None	Short-term on-the-job training	\$11.35
39-3021	Motion Picture Projectionists	No formal educational credential	None	Short-term on-the-job training	\$11.90
39-3031	Ushers, Lobby Attendants, and Ticket Takers	No formal educational credential	None	Short-term on-the-job training	\$9.43
39-3091	Amusement and Recreation Attendants	No formal educational credential	None	Short-term on-the-job training	\$9.47

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Ohio Occupational Education and Training Classification

Code	Occupational Title*	Typical Education Needed for Entry	Work Experience in a Related Occupation	Typical On-The-Job Training Needed to Attain Competency in the Occupation	Median Wage May 2019
39-3093	Locker Room, Coatroom, and Dressing Room Attendants	High school diploma or equivalent	None	Short-term on-the-job training	\$10.03
39-4011	Embalmers	Associate's degree	None	Long-term on-the-job training	\$25.26
39-4021	Funeral Attendants	High school diploma or equivalent	None	Short-term on-the-job training	\$13.30
39-4031	Morticians, Undertakers, and Funeral Arrangers (new title 2018)	Associate's degree	None	Long-term on-the-job training	\$26.57
39-5012	Hairdressers, Hairstylists, and Cosmetologists	Postsecondary non-degree award	None	None	\$10.70
39-5092	Manicurists and Pedicurists	Postsecondary non-degree award	None	None	\$10.75
39-5093	Shampooers	No formal educational credential	None	Short-term on-the-job training	\$9.65
39-5094	Skin Care Specialists	Postsecondary non-degree award	None	None	\$16.43
39-6011	Baggage Porters and Bellhops	High school diploma or equivalent	None	Short-term on-the-job training	\$10.12
39-6012	Concierges	High school diploma or equivalent	None	Moderate-term on-the-job training	\$13.62
39-9011	Child Care Workers	High school diploma or equivalent	None	Short-term on-the-job training	\$10.65
39-9021	Personal and Home Care Aides	High school diploma or equivalent	None	Short-term on-the-job training	\$11.08 †
39-9031	Fitness Trainers and Aerobics Instructors	High school diploma or equivalent	None	Short-term on-the-job training	\$14.73
39-9032	Recreation Workers	High school diploma or equivalent	None	Short-term on-the-job training	\$11.38
39-9041	Residential Advisors	High school diploma or equivalent	None	Short-term on-the-job training	\$13.47
39-9099	Personal Care and Service Workers, All Other	High school diploma or equivalent	None	Short-term on-the-job training	\$10.93
41-0000	Sales and Related Occupations				\$13.61
41-1011	First-Line Supervisors of Retail Sales Workers	High school diploma or equivalent	Less than 5 years	None	\$18.52
41-1012	First-Line Supervisors of Non-Retail Sales Workers	High school diploma or equivalent	Less than 5 years	None	\$34.72
41-2011	Cashiers	No formal educational credential	None	Short-term on-the-job training	\$10.29
41-2012	Gaming Change Persons and Booth Cashiers	No formal educational credential	None	Short-term on-the-job training	\$11.80
41-2021	Counter and Rental Clerks	No formal educational credential	None	Short-term on-the-job training	\$12.59
41-2022	Parts Salespersons	No formal educational credential	None	Moderate-term on-the-job training	\$14.27
41-2031	Retail Salespersons	No formal educational credential	None	Short-term on-the-job training	\$11.36
41-3011	Advertising Sales Agents	High school diploma or equivalent	None	Moderate-term on-the-job training	\$21.50
41-3021	Insurance Sales Agents	High school diploma or equivalent	None	Moderate-term on-the-job training	\$24.86
41-3031	Securities, Commodities, and Financial Services Sales Agents	Bachelor's degree	None	Moderate-term on-the-job training	\$26.22
41-3041	Travel Agents	High school diploma or equivalent	None	Moderate-term on-the-job training	\$17.63
41-3091	Sales Representatives, Services, All Other	High school diploma or equivalent	None	Moderate-term on-the-job training	\$25.02
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	Bachelor's degree	None	Moderate-term on-the-job training	\$38.21
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	High school diploma or equivalent	None	Moderate-term on-the-job training	\$27.95
41-9011	Demonstrators and Product Promoters	No formal educational credential	None	Short-term on-the-job training	\$14.46
41-9021	Real Estate Brokers	High school diploma or equivalent	Less than 5 years	None	\$25.75
41-9022	Real Estate Sales Agents	High school diploma or equivalent	None	Moderate-term on-the-job training	\$18.22
41-9031	Sales Engineers	Bachelor's degree	None	Moderate-term on-the-job training	\$41.73
41-9041	Telemarketers	No formal educational credential	None	Short-term on-the-job training	\$11.69
41-9091	Door-to-Door Sales, News and Street Vendors, and Related Workers	No formal educational credential	None	Short-term on-the-job training	\$12.54
41-9099	Sales and Related Workers, All Other	High school diploma or equivalent	None	None	\$14.03
43-0000	Office and Administrative Support Occupations				\$17.62
43-1011	First-Line Supervisors of Office and Administrative Support Workers	High school diploma or equivalent	Less than 5 years	None	\$26.43
43-2011	Switchboard Operators, Including Answering Service	High school diploma or equivalent	None	Short-term on-the-job training	\$13.89
43-3011	Bill and Account Collectors	High school diploma or equivalent	None	Moderate-term on-the-job training	\$16.95
43-3021	Billing and Posting Clerks and Machine Operators	High school diploma or equivalent	None	Moderate-term on-the-job training	\$17.89
43-3031	Bookkeeping, Accounting, and Auditing Clerks	Some college, no degree	None	Moderate-term on-the-job training	\$18.75

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Code	Occupational Title*	Typical Education Needed for Entry	Work Experience in a Related Occupation	Typical On-The-Job Training Needed to Attain Competency in the Occupation	Median Wage May 2019
43-3041	Gaming Cage Workers	High school diploma or equivalent	None	Short-term on-the-job training	\$13.07
43-3051	Payroll and Timekeeping Clerks	High school diploma or equivalent	None	Moderate-term on-the-job training	\$21.38
43-3061	Procurement Clerks	High school diploma or equivalent	None	Moderate-term on-the-job training	\$20.36
43-3071	Tellers	High school diploma or equivalent	None	Short-term on-the-job training	\$14.40
43-3099	Financial Clerks, All Other	High school diploma or equivalent	None	Short-term on-the-job training	\$20.06
43-4011	Brokerage Clerks	High school diploma or equivalent	None	Moderate-term on-the-job training	\$23.79
43-4021	Correspondence Clerks	High school diploma or equivalent	None	Short-term on-the-job training	\$17.40
43-4031	Court, Municipal, and License Clerks	High school diploma or equivalent	None	Long-term on-the-job training	\$17.93
43-4041	Credit Authorizers, Checkers, and Clerks	High school diploma or equivalent	None	Moderate-term on-the-job training	\$17.29
43-4051	Customer Service Representatives	High school diploma or equivalent	None	Short-term on-the-job training	\$16.70
43-4061	Eligibility Interviewers, Government Programs	High school diploma or equivalent	None	Moderate-term on-the-job training	\$20.92
43-4071	File Clerks	High school diploma or equivalent	None	Short-term on-the-job training	\$16.72
43-4081	Hotel, Motel, and Resort Desk Clerks	High school diploma or equivalent	None	Short-term on-the-job training	\$10.64
43-4111	Interviewers, Except Eligibility and Loan	High school diploma or equivalent	None	Short-term on-the-job training	\$15.11
43-4121	Library Assistants, Clerical	High school diploma or equivalent	None	Short-term on-the-job training	\$12.07
43-4131	Loan Interviewers and Clerks	High school diploma or equivalent	None	Short-term on-the-job training	\$19.10
43-4141	New Accounts Clerks	High school diploma or equivalent	None	Moderate-term on-the-job training	\$16.46
43-4151	Order Clerks	Some college, no degree	None	Short-term on-the-job training	\$15.51
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	Associate's degree	None	None	\$18.80
43-4171	Receptionists and Information Clerks	High school diploma or equivalent	None	Short-term on-the-job training	\$13.36
43-4181	Reservation and Transportation Ticket Agents and Travel Clerks	High school diploma or equivalent	None	Short-term on-the-job training	\$20.07
43-4199	Information and Record Clerks, All Other	High school diploma or equivalent	None	Short-term on-the-job training	\$20.69
43-5011	Cargo and Freight Agents	High school diploma or equivalent	None	Short-term on-the-job training	\$19.93
43-5021	Couriers and Messengers	High school diploma or equivalent	None	Short-term on-the-job training	\$13.80
43-5031	Police, Fire, and Ambulance Dispatchers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$22.30
43-5032	Dispatchers, Except Police, Fire, and Ambulance	High school diploma or equivalent	None	Moderate-term on-the-job training	\$19.70
43-5041	Meter Readers, Utilities	High school diploma or equivalent	None	Short-term on-the-job training	\$19.52
43-5051	Postal Service Clerks	High school diploma or equivalent	None	Short-term on-the-job training	\$23.16
43-5052	Postal Service Mail Carriers	High school diploma or equivalent	None	Short-term on-the-job training	\$23.31
43-5053	Postal Service Mail Sorters, Processors, and Processing Machine Operators	High school diploma or equivalent	None	Short-term on-the-job training	\$24.12
43-5061	Production, Planning, and Expediting Clerks	High school diploma or equivalent	None	Moderate-term on-the-job training	\$22.92
43-5071	Shipping, Receiving, and Traffic Clerks	High school diploma or equivalent	None	Short-term on-the-job training	\$16.27
43-5111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	High school diploma or equivalent	None	Short-term on-the-job training	\$17.15
43-6011	Executive Secretaries and Administrative Assistants	High school diploma or equivalent	Less than 5 years	None	\$27.59
43-6012	Legal Secretaries	High school diploma or equivalent	None	Moderate-term on-the-job training	\$20.83
43-6013	Medical Secretaries	High school diploma or equivalent	None	Moderate-term on-the-job training	\$16.72
43-6014	Secretaries, Except Legal, Medical, and Executive	High school diploma or equivalent	None	Short-term on-the-job training	\$17.42
43-9011	Computer Operators	High school diploma or equivalent	None	Moderate-term on-the-job training	▲
43-9021	Data Entry Keyers	High school diploma or equivalent	None	Short-term on-the-job training	\$15.60
43-9022	Word Processors and Typists	High school diploma or equivalent	None	Short-term on-the-job training	\$18.71
43-9041	Insurance Claims and Policy Processing Clerks	High school diploma or equivalent	None	Moderate-term on-the-job training	\$18.27
43-9051	Mail Clerks and Mail Machine Operators, Except Postal Service	High school diploma or equivalent	None	Short-term on-the-job training	\$15.42
43-9061	Office Clerks, General	High school diploma or equivalent	None	Short-term on-the-job training	\$16.49
43-9071	Office Machine Operators, Except Computer	High school diploma or equivalent	None	Short-term on-the-job training	\$15.64
43-9111	Statistical Assistants	Bachelor's degree	None	None	\$21.94
43-9199	Office and Administrative Support Workers, All Other	High school diploma or equivalent	None	Short-term on-the-job training	\$18.66

Appendix Table K – cont'd.
Ohio Occupational Education and Training Classification

Code	Occupational Title*	Typical Education Needed for Entry	Work Experience in a Related Occupation	Typical On-The-Job Training Needed to Attain Competency in the Occupation	Median Wage May 2019
45-0000	Farming, Fishing, and Forestry Occupations				\$14.57
45-1011	First-Line Supervisors of Farming, Fishing, and Forestry Workers	High school diploma or equivalent	Less than 5 years	None	\$27.91
45-2011	Agricultural Inspectors	Bachelor's degree	None	Moderate-term on-the-job training	\$24.45
45-2041	Graders and Sorters, Agricultural Products	No formal educational credential	None	Short-term on-the-job training	\$11.98
45-2091	Agricultural Equipment Operators	No formal educational credential	None	Moderate-term on-the-job training	\$18.63
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	No formal educational credential	None	Short-term on-the-job training	\$11.59
45-2093	Farmworkers, Farm and Ranch Animals	No formal educational credential	None	Short-term on-the-job training	\$13.57
45-4022	Logging Equipment Operators	High school diploma or equivalent	None	Moderate-term on-the-job training	\$17.75
45-4023	Logging Graders and Scalers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$16.25
47-0000	Construction and Extraction Occupations				\$23.67
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	High school diploma or equivalent	5 years or more	None	\$31.91
47-2011	Boilermakers	High school diploma or equivalent	None	Apprenticeship	\$35.94
47-2021	Brickmasons and Blockmasons	High school diploma or equivalent	None	Apprenticeship	\$26.53
47-2022	Stonemasons	High school diploma or equivalent	None	Apprenticeship	\$18.14
47-2031	Carpenters	High school diploma or equivalent	None	Apprenticeship	\$23.34
47-2041	Carpet Installers	No formal educational credential	None	Short-term on-the-job training	\$17.25
47-2042	Floor Layers, Except Carpet, Wood, and Hard Tiles	No formal educational credential	None	Moderate-term on-the-job training	\$20.83
47-2044	Tile and Marble Setters	No formal educational credential	None	Long-term on-the-job training	\$19.26
47-2051	Cement Masons and Concrete Finishers	No formal educational credential	None	Moderate-term on-the-job training	\$23.32
47-2061	Construction Laborers	No formal educational credential	None	Short-term on-the-job training	\$20.04
47-2071	Paving, Surfacing, and Tamping Equipment Operators	High school diploma or equivalent	None	Moderate-term on-the-job training	\$21.86
47-2073	Operating Engineers and Other Construction Equipment Operators	High school diploma or equivalent	None	Moderate-term on-the-job training	\$24.79
47-2081	Drywall and Ceiling Tile Installers	No formal educational credential	None	Moderate-term on-the-job training	\$21.86
47-2082	Tapers	No formal educational credential	None	Moderate-term on-the-job training	\$28.31
47-2111	Electricians	High school diploma or equivalent	None	Apprenticeship	\$25.43
47-2121	Glaziers	High school diploma or equivalent	None	Apprenticeship	\$21.89
47-2131	Insulation Workers, Floor, Ceiling, and Wall	No formal educational credential	None	Short-term on-the-job training	\$19.81
47-2141	Painters, Construction and Maintenance	No formal educational credential	None	Moderate-term on-the-job training	\$19.98
47-2142	Paperhangers	No formal educational credential	None	Long-term on-the-job training	\$19.68
47-2151	Pipelayers	No formal educational credential	None	Short-term on-the-job training	\$22.99
47-2152	Plumbers, Pipefitters, and Steamfitters	High school diploma or equivalent	None	Apprenticeship	\$26.58
47-2161	Plasterers and Stucco Masons	No formal educational credential	None	Long-term on-the-job training	\$24.56
47-2181	Roofers	No formal educational credential	None	Moderate-term on-the-job training	\$19.39
47-2211	Sheet Metal Workers	High school diploma or equivalent	None	Apprenticeship	\$26.93
47-2221	Structural Iron and Steel Workers	High school diploma or equivalent	None	Apprenticeship	\$28.98
47-3011	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	No formal educational credential	None	Short-term on-the-job training	\$18.55
47-3012	Helpers--Carpenters	No formal educational credential	None	Short-term on-the-job training	\$14.36
47-3013	Helpers--Electricians	High school diploma or equivalent	None	Short-term on-the-job training	\$14.74
47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	High school diploma or equivalent	None	Short-term on-the-job training	\$14.61
47-3019	Helpers, Construction Trades, All Other	No formal educational credential	None	Short-term on-the-job training	\$14.90
47-4011	Construction and Building Inspectors	High school diploma or equivalent	5 years or more	Moderate-term on-the-job training	\$28.97
47-4021	Elevator Installers and Repairers	High school diploma or equivalent	None	Apprenticeship	\$43.99
47-4031	Fence Erectors	No formal educational credential	None	Moderate-term on-the-job training	\$18.05
47-4041	Hazardous Materials Removal Workers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$22.72
47-4051	Highway Maintenance Workers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$20.15

Appendix Table K – cont'd.
Ohio Occupational Education and Training Classification

Code	Occupational Title*	Typical Education Needed for Entry	Work Experience in a Related Occupation	Typical On-The-Job Training Needed to Attain Competency in the Occupation	Median Wage May 2019
47-4061	Rail-Track Laying and Maintenance Equipment Operators	High school diploma or equivalent	None	Moderate-term on-the-job training	\$22.88
47-4071	Septic Tank Servicers and Sewer Pipe Cleaners	High school diploma or equivalent	None	Moderate-term on-the-job training	\$21.30
47-5012	Rotary Drill Operators, Oil and Gas	No formal educational credential	None	Moderate-term on-the-job training	\$21.98
47-5013	Service Unit Operators, Oil, Gas, and Mining	No formal educational credential	None	Moderate-term on-the-job training	\$24.58
47-5021	Earth Drillers, Except Oil and Gas	High school diploma or equivalent	None	Moderate-term on-the-job training	\$21.72 †
47-5022	Excavating and Loading Machine and Dragline Operators	High school diploma or equivalent	Less than 5 years	Moderate-term on-the-job training	\$21.62 †
47-5041	Continuous Mining Machine Operators	No formal educational credential	None	Moderate-term on-the-job training	\$26.68
47-5044	Loading and Moving Machine Operators, Underground Mining	No formal educational credential	None	Short-term on-the-job training	\$19.81
47-5071	Roustabouts, Oil and Gas	No formal educational credential	None	Moderate-term on-the-job training	\$18.67
47-5081	Helpers--Extraction Workers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$18.05
49-0000	Installation, Maintenance, and Repair Occupations				\$21.77
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	High school diploma or equivalent	Less than 5 years	None	\$30.99
49-2011	Computer, Automated Teller, and Office Machine Repairers	Some college, no degree	None	Short-term on-the-job training	\$17.33
49-2021	Radio Mechanics	Associate's degree	None	Moderate-term on-the-job training	\$27.02
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	Postsecondary non-degree award	None	Moderate-term on-the-job training	\$25.20
49-2091	Avionics Technicians	Associate's degree	None	None	\$27.69
49-2092	Electric Motor, Power Tool, and Related Repairers	High school diploma or equivalent	Less than 5 years	Moderate-term on-the-job training	\$21.45
49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	Postsecondary non-degree award	None	Long-term on-the-job training	\$28.54
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	Postsecondary non-degree award	None	Long-term on-the-job training	\$27.57
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	Postsecondary non-degree award	Less than 5 years	Moderate-term on-the-job training	\$33.48
49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	High school diploma or equivalent	None	Moderate-term on-the-job training	\$17.76
49-2097	Electronic Home Entertainment Equipment Installers and Repairers	Postsecondary non-degree award	None	Short-term on-the-job training	\$14.57
49-2098	Security and Fire Alarm Systems Installers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$21.59
49-3011	Aircraft Mechanics and Service Technicians	Postsecondary non-degree award	None	None	\$29.49
49-3021	Automotive Body and Related Repairers	High school diploma or equivalent	None	Long-term on-the-job training	\$18.56
49-3022	Automotive Glass Installers and Repairers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$18.07
49-3023	Automotive Service Technicians and Mechanics	Postsecondary non-degree award	None	Short-term on-the-job training	\$18.52
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	High school diploma or equivalent	None	Long-term on-the-job training	\$22.48
49-3041	Farm Equipment Mechanics	High school diploma or equivalent	None	Long-term on-the-job training	\$20.70
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	High school diploma or equivalent	None	Long-term on-the-job training	\$25.92
49-3043	Rail Car Repairers	High school diploma or equivalent	None	Long-term on-the-job training	\$22.79
49-3051	Motorboat Mechanics	High school diploma or equivalent	None	Long-term on-the-job training	\$17.68
49-3052	Motorcycle Mechanics	Postsecondary non-degree award	None	Short-term on-the-job training	\$16.42
49-3053	Outdoor Power Equipment and Other Small Engine Mechanics	High school diploma or equivalent	None	Moderate-term on-the-job training	\$14.90
49-3091	Bicycle Repairers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$12.71
49-3092	Recreational Vehicle Service Technicians	High school diploma or equivalent	None	Long-term on-the-job training	\$16.95
49-3093	Tire Repairers and Changers	High school diploma or equivalent	None	Short-term on-the-job training	\$13.82
49-9011	Mechanical Door Repairers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$20.55
49-9012	Control and Valve Installers and Repairers, Except Mechanical Door	High school diploma or equivalent	None	Moderate-term on-the-job training	\$33.05
49-9021	Heating, AC, and Refrigeration Mechanics and Installers	Postsecondary non-degree award	None	Long-term on-the-job training	\$22.73
49-9031	Home Appliance Repairers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$20.30
49-9041	Industrial Machinery Mechanics	High school diploma or equivalent	None	Long-term on-the-job training	\$25.66
49-9043	Maintenance Workers, Machinery	High school diploma or equivalent	None	Long-term on-the-job training	\$23.11
49-9044	Millwrights	High school diploma or equivalent	None	Apprenticeship	\$28.89
49-9051	Electrical Power-Line Installers and Repairers	High school diploma or equivalent	None	Long-term on-the-job training	\$34.89

Appendix Table K – cont'd.
Ohio Occupational Education and Training Classification

Code	Occupational Title*	Typical Education Needed for Entry	Work Experience in a Related Occupation	Typical On-The-Job Training Needed to Attain Competency in the Occupation	Median Wage May 2019
49-9052	Telecommunications Line Installers and Repairers	High school diploma or equivalent	None	Long-term on-the-job training	\$20.45
49-9062	Medical Equipment Repairers	Associate's degree	None	Moderate-term on-the-job training	\$22.41
49-9063	Musical Instrument Repairers and Tuners	High school diploma or equivalent	None	Apprenticeship	\$16.09
49-9064	Watch Repairers	High school diploma or equivalent	None	Long-term on-the-job training	\$20.44 ^^^
49-9069	Precision Instrument and Equipment Repairers, All Other	High school diploma or equivalent	None	Long-term on-the-job training	\$26.79
49-9071	Maintenance and Repair Workers, General	High school diploma or equivalent	None	Moderate-term on-the-job training	\$19.32
49-9091	Coin, Vending, and Amusement Machine Servicers and Repairers	High school diploma or equivalent	None	Short-term on-the-job training	\$17.44
49-9094	Locksmiths and Safe Repairers	High school diploma or equivalent	None	Long-term on-the-job training	\$20.89
49-9096	Riggers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$21.97
49-9098	Helpers--Installation, Maintenance, and Repair Workers	High school diploma or equivalent	None	Short-term on-the-job training	\$14.24
49-9099	Installation, Maintenance, and Repair Workers, All Other	High school diploma or equivalent	None	Moderate-term on-the-job training	\$18.63
51-0000	Production Occupations				\$17.60
51-1011	First-Line Supervisors of Production and Operating Workers	High school diploma or equivalent	Less than 5 years	None	\$29.27
51-2021	Coil Winders, Tapers, and Finishers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$18.85
51-2028	Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$16.64
51-2031	Engine and Other Machine Assemblers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$23.63
51-2041	Structural Metal Fabricators and Fitters	High school diploma or equivalent	None	Moderate-term on-the-job training	\$17.60
51-2051	Fiberglass Laminators and Fabricators	High school diploma or equivalent	None	Moderate-term on-the-job training	\$16.65
51-2098	Assemblers and Fabricators, All Other, Including Team Assemblers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$16.40 †
51-3011	Bakers	No formal educational credential	None	Long-term on-the-job training	\$12.42
51-3021	Butchers and Meat Cutters	No formal educational credential	None	Long-term on-the-job training	\$16.09
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	No formal educational credential	None	Short-term on-the-job training	\$14.37
51-3023	Slaughterers and Meat Packers	No formal educational credential	None	Short-term on-the-job training	\$13.19
51-3091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	No formal educational credential	None	Moderate-term on-the-job training	\$14.16
51-3092	Food Batchmakers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$14.65
51-3093	Food Cooking Machine Operators and Tenders	High school diploma or equivalent	None	Moderate-term on-the-job training	\$14.72
51-3099	Food Processing Workers, All Other	No formal educational credential	None	Moderate-term on-the-job training	\$11.95
51-4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	None	Moderate-term on-the-job training	\$16.88
51-4022	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	None	Moderate-term on-the-job training	\$19.82
51-4023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	None	Moderate-term on-the-job training	\$21.26
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	None	Moderate-term on-the-job training	\$16.89
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	None	Moderate-term on-the-job training	\$19.60
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	None	Moderate-term on-the-job training	\$17.28
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	None	Moderate-term on-the-job training	\$19.79
51-4041	Machinists	High school diploma or equivalent	None	Long-term on-the-job training	\$20.46
51-4051	Metal-Refining Furnace Operators and Tenders	High school diploma or equivalent	None	Moderate-term on-the-job training	\$17.02
51-4052	Pourers and Casters, Metal	High school diploma or equivalent	None	Moderate-term on-the-job training	\$17.69
51-4061	Model Makers, Metal and Plastic	High school diploma or equivalent	None	Moderate-term on-the-job training	\$18.09
51-4062	Patternmakers, Metal and Plastic	High school diploma or equivalent	None	Moderate-term on-the-job training	\$21.11
51-4071	Foundry Mold and Coremakers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$14.85

Appendix Table K – cont'd.
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Code	Occupational Title*	Typical Education Needed for Entry	Work Experience in a Related Occupation	Typical On-The-Job Training Needed to Attain Competency in the Occupation	Median Wage May 2019
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	None	Moderate-term on-the-job training	\$14.51
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	None	Moderate-term on-the-job training	\$17.15
51-4111	Tool and Die Makers	Postsecondary non-degree award	None	Long-term on-the-job training	\$24.26
51-4121	Welders, Cutters, Solderers, and Brazers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$19.20
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	Moderate-term on-the-job training	\$18.56
51-4191	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	None	Moderate-term on-the-job training	\$18.40
51-4193	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	None	Moderate-term on-the-job training	\$16.08
51-4194	Tool Grinders, Filers, and Sharpeners	High school diploma or equivalent	None	Moderate-term on-the-job training	\$17.91
51-4199	Metal Workers and Plastic Workers, All Other	High school diploma or equivalent	None	Moderate-term on-the-job training	\$16.45
51-5111	Prepress Technicians and Workers	Postsecondary non-degree award	None	None	\$19.81
51-5112	Printing Press Operators and Job Printers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$17.99
51-5113	Print Binding and Finishing Workers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$15.11
51-6011	Laundry and Dry-Cleaning Workers	No formal educational credential	None	Short-term on-the-job training	\$10.94
51-6021	Pressers, Textile, Garment, and Related Materials	No formal educational credential	None	Short-term on-the-job training	\$11.72
51-6031	Sewing Machine Operators	No formal educational credential	None	Short-term on-the-job training	\$12.60
51-6041	Shoe and Leather Workers and Repairers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$12.39
51-6052	Tailors, Dressmakers, and Custom Sewers	No formal educational credential	None	Moderate-term on-the-job training	\$15.71
51-6062	Textile Cutting Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	Moderate-term on-the-job training	\$14.43
51-6063	Textile Knitting and Weaving Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	Short-term on-the-job training	\$13.32
51-6091	Extruding and Forming Machine Setters, Operators, and Tenders, Synthetic and Glass Fibers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$17.00
51-6092	Fabric and Apparel Patternmakers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$11.98
51-6093	Upholsterers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$16.46
51-6099	Textile, Apparel, and Furnishings Workers, All Other	High school diploma or equivalent	None	Short-term on-the-job training	\$15.58
51-7011	Cabinetmakers and Bench Carpenters	High school diploma or equivalent	None	Moderate-term on-the-job training	\$17.66
51-7021	Furniture Finishers	High school diploma or equivalent	None	Short-term on-the-job training	\$14.94
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	High school diploma or equivalent	None	Moderate-term on-the-job training	\$15.02
51-7042	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	High school diploma or equivalent	None	Moderate-term on-the-job training	\$14.67
51-7099	Woodworkers, All Other	High school diploma or equivalent	None	Moderate-term on-the-job training	\$17.16
51-8012	Power Distributors and Dispatchers	High school diploma or equivalent	None	Long-term on-the-job training	\$42.41
51-8013	Power Plant Operators	High school diploma or equivalent	None	Long-term on-the-job training	\$39.50
51-8021	Stationary Engineers and Boiler Operators	High school diploma or equivalent	None	Long-term on-the-job training	\$27.92
51-8031	Water and Wastewater Treatment Plant and System Operators	High school diploma or equivalent	None	Long-term on-the-job training	\$23.87
51-8091	Chemical Plant and System Operators	High school diploma or equivalent	None	Moderate-term on-the-job training	\$31.51
51-8093	Petroleum Pump System Operators, Refinery Operators, and Gaugers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$35.07
51-8099	Plant and System Operators, All Other	High school diploma or equivalent	None	Moderate-term on-the-job training	\$26.98
51-9011	Chemical Equipment Operators and Tenders	High school diploma or equivalent	None	Moderate-term on-the-job training	\$23.13
51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	Moderate-term on-the-job training	\$29.93
51-9021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	Moderate-term on-the-job training	\$19.11
51-9022	Grinding and Polishing Workers, Hand	No formal educational credential	None	Moderate-term on-the-job training	\$14.51
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	Moderate-term on-the-job training	\$18.56
51-9031	Cutters and Trimmers, Hand	No formal educational credential	None	Short-term on-the-job training	\$13.67
51-9032	Cutting and Slicing Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	Moderate-term on-the-job training	\$17.80

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Code	Occupational Title*	Typical Education Needed for Entry	Work Experience in a Related Occupation	Typical On-The-Job Training Needed to Attain Competency in the Occupation	Median Wage May 2019
51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	Moderate-term on-the-job training	\$15.67
51-9051	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	High school diploma or equivalent	None	Moderate-term on-the-job training	\$18.06
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$18.97
51-9071	Jewelers and Precious Stone and Metal Workers	High school diploma or equivalent	None	Long-term on-the-job training	\$16.35
51-9081	Dental Laboratory Technicians	High school diploma or equivalent	None	Moderate-term on-the-job training	\$20.20
51-9082	Medical Appliance Technicians	High school diploma or equivalent	None	Moderate-term on-the-job training	\$19.05
51-9083	Ophthalmic Laboratory Technicians	High school diploma or equivalent	None	Moderate-term on-the-job training	\$14.99
51-9111	Packaging and Filling Machine Operators and Tenders	High school diploma or equivalent	None	Moderate-term on-the-job training	\$15.19
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	Moderate-term on-the-job training	▲
51-9122	Painters, Transportation Equipment	High school diploma or equivalent	None	Moderate-term on-the-job training	▲
51-9123	Cooling and Freezing Equipment Operators and Tenders	No formal educational credential	None	Moderate-term on-the-job training	\$14.78
51-9141	Semiconductor Processors	High school diploma or equivalent	None	Moderate-term on-the-job training	\$18.58
51-9151	Photographic Process Workers and Processing Machine Operators	High school diploma or equivalent	None	Short-term on-the-job training	\$14.96
51-9161	Computer Numerically Controlled Tool Operators	High school diploma or equivalent	None	Moderate-term on-the-job training	\$19.17
51-9162	Computer Numerically Controlled Tool Programmers	Postsecondary non-degree award	None	Moderate-term on-the-job training	\$24.47
51-9191	Adhesive Bonding Machine Operators and Tenders	High school diploma or equivalent	None	Moderate-term on-the-job training	\$16.57
51-9192	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	High school diploma or equivalent	None	Moderate-term on-the-job training	\$16.56
51-9193	Cooling and Freezing Equipment Operators and Tenders	High school diploma or equivalent	None	Moderate-term on-the-job training	\$18.38
51-9194	Etchers and Engravers	High school diploma or equivalent	None	Moderate-term on-the-job training	\$16.14
51-9195	Molders, Shapers, and Casters, Except Metal and Plastic	High school diploma or equivalent	None	Long-term on-the-job training	\$15.85
51-9196	Paper Goods Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	Moderate-term on-the-job training	\$19.08
51-9197	Tire Builders	High school diploma or equivalent	None	Moderate-term on-the-job training	\$17.40
51-9198	Helpers--Production Workers	High school diploma or equivalent	None	Short-term on-the-job training	\$15.17
51-9199	Production Workers, All Other	High school diploma or equivalent	None	Moderate-term on-the-job training	\$15.34
53-0000	Transportation and Material Moving Occupations				\$15.09
53-1041	Aircraft Cargo Handling Supervisors	High school diploma or equivalent	Less than 5 years	None	\$25.03
53-1048	First-Line Supervisors of Transportation Workers, All Other	High school diploma or equivalent	Less than 5 years	None	\$25.80
53-2011	Airline Pilots, Copilots, and Flight Engineers	Bachelor's degree	Less than 5 years	Moderate-term on-the-job training	\$98,990 ††
53-2012	Commercial Pilots	High school diploma or equivalent	None	Moderate-term on-the-job training	\$98,940 ††
53-2021	Air Traffic Controllers	Associate's degree	None	Long-term on-the-job training	\$66.23
53-2022	Airfield Operations Specialists	High school diploma or equivalent	None	Long-term on-the-job training	\$23.77
53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	High school diploma or equivalent	None	Moderate-term on-the-job training	\$12.09
53-3022	Bus Drivers, School	High school diploma or equivalent	None	Short-term on-the-job training	▲
53-3031	Driver/Sales Workers	High school diploma or equivalent	None	Short-term on-the-job training	\$9.80
53-3032	Truck Drivers, Heavy and Tractor-Trailer	Postsecondary non-degree award	None	Short-term on-the-job training	\$21.66
53-3033	Truck Drivers, Light or Delivery Services	High school diploma or equivalent	None	Short-term on-the-job training	\$15.27
53-3041	Taxi Drivers and Chauffeurs	No formal educational credential	None	Short-term on-the-job training	▲
53-3052	Bus Drivers, Transit and Intercity	High school diploma or equivalent	None	Moderate-term on-the-job training	\$19.63
53-3099	Motor Vehicle Operators, All Other	No formal educational credential	None	Short-term on-the-job training	\$12.44
53-4021	Railroad Brake, Signal, and Switch Operators	High school diploma or equivalent	None	Moderate-term on-the-job training	▲
53-5011	Sailors and Marine Oilers	No formal educational credential	None	Moderate-term on-the-job training	\$18.48
53-5021	Captains, Mates, and Pilots of Water Vessels	Postsecondary non-degree award	Less than 5 years	None	\$23.26
53-6011	Bridge and Lock Tenders	High school diploma or equivalent	None	Short-term on-the-job training	\$24.20
53-6021	Parking Lot Attendants	No formal educational credential	None	Short-term on-the-job training	\$10.43
53-6031	Service Station Attendants	No formal educational credential	None	Short-term on-the-job training	\$11.45

Appendix Table K – cont'd.
Ohio Occupational Education and Training Classification

Code	Occupational Title*	Typical Education Needed for Entry	Work Experience in a Related Occupation	Typical On-The-Job Training Needed to Attain Competency in the Occupation	Median Wage May 2019
53-6041	Traffic Technicians	High school diploma or equivalent	None	Moderate-term on-the-job training	\$25.13
53-6051	Transportation Inspectors	High school diploma or equivalent	None	Moderate-term on-the-job training	\$23.68
53-6061	Transportation Attendants, Except Flight Attendants	High school diploma or equivalent	None	Short-term on-the-job training	\$12.79
53-6098	Transportation Workers, All Other	High school diploma or equivalent	None	Short-term on-the-job training	\$16.14
53-7011	Conveyor Operators and Tenders	No formal educational credential	None	Short-term on-the-job training	\$19.60
53-7021	Crane and Tower Operators	High school diploma or equivalent	Less than 5 years	Moderate-term on-the-job training	\$22.15
53-7041	Hoist and Winch Operators	No formal educational credential	None	Short-term on-the-job training	\$18.56
53-7051	Industrial Truck and Tractor Operators	No formal educational credential	None	Short-term on-the-job training	\$17.32
53-7061	Cleaners of Vehicles and Equipment	No formal educational credential	None	Short-term on-the-job training	\$12.02
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	No formal educational credential	None	Short-term on-the-job training	\$14.43
53-7063	Machine Feeders and Offbearers	No formal educational credential	None	Short-term on-the-job training	\$16.75
53-7064	Packers and Packagers, Hand	No formal educational credential	None	Short-term on-the-job training	\$12.60
53-7065	Stock Clerks and Order Fillers	High school diploma or equivalent	None	Short-term on-the-job training	\$12.57
53-7071	Gas Compressor and Gas Pumping Station Operators	High school diploma or equivalent	None	Moderate-term on-the-job training	\$36.46
53-7072	Pump Operators, Except Wellhead Pumps	High school diploma or equivalent	None	Moderate-term on-the-job training	\$20.20
53-7073	Wellhead Pumpers	High school diploma or equivalent	Less than 5 years	Moderate-term on-the-job training	\$18.09
53-7081	Refuse and Recyclable Material Collectors	No formal educational credential	None	Short-term on-the-job training	\$18.54
53-7121	Tank Car, Truck, and Ship Loaders	No formal educational credential	None	Short-term on-the-job training	\$18.05
53-7199	Material Moving Workers, All Other	No formal educational credential	None	Short-term on-the-job training	\$14.81

* Occupations with 100 or more workers.

^^ National aggregate wages.

^^^ National hourly wages.

ND Wages not disclosed.

† Aggregated statewide wages.

†† Certain occupations only report wages at the annual level - for elementary and secondary teachers this typically reflects a 9 1/2-month school year.

††† Annual National Wages

Wages above max.

▲ Wage not available due to OES/SOC changes.

Source: Ohio Department of Job and Family Services, Bureau of Labor Market Information, January 2021.

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