

Anchorage's Pandemic Workforce

Present Obstacles and Future
Opportunities

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Table of Contents

| | |
|--|-----------|
| Data Tables | 3 |
| Section I: Taking Stock of the Pandemic Workforce | 4 |
| Section II: Remote Work and Analyzing Online Job Postings | 16 |
| Section III: Looking Forward | 22 |
| Section IV: Recommendations for Optimizing Employment Opportunities | 29 |
| Data Notes | 31 |

Data Tables

| | |
|--|----|
| Table 1: Occupations with the Highest Number of Employees | 4 |
| Table 2: Occupations that Lost the Highest Number of Employees | 5 |
| Table 3: Occupations with Highest Unemployment Rates | 6 |
| Table 4: Occupation by Number Unemployed | 6 |
| Table 5: Occupations that Added the Most Employees in 2020 | 8 |
| Table 6: Occupations with Greatest Positive Annual Growth | 9 |
| Table 7: Education and Qualifications | 11 |
| Table 8: Occupations with Greater than All-Occupations Unemployment Rate by Qualifications | 12 |
| Table 9: Top 25 Occupations by Number Underemployed | 13 |
| Table 10: Top 25 Occupations by Percent Underemployed | 14 |
| Table 11: Top 10 Occupations by Number of Job Postings and Year | 18 |
| Table 12: Top 10 Hiring Employers by Jobs Posted and Year | 19 |
| Table 13: Occupations with “Remote” Job Postings by Location | 21 |
| Table 14: Top 10 Occupations by Projected 1-Year Growth | 22 |
| Table 15: Qualifications, Wages, and Forecast Annual Growth | 23 |
| Table 16: Top 10 Occupations with the Highest Mean Annual Wages | 24 |
| Table 17: Top 10 Occupations with the Lowest Mean Annual Wages | 25 |
| Table 18: Top 10 Occupations by Highest 5-Year Projected Annual Growth | 26 |
| Table 19: Top 10 Occupations by Lowest 5-Year Projected Annual Growth | 26 |
| Table 20: Top 10 Skills by Gap in Qualified Workers | 27 |
| Table 21: Top 10 Certification Gaps | 28 |

Section I: Taking Stock of the Pandemic Workforce

The outbreak of the coronavirus pandemic in March 2020 affected all Alaskans, but it did not affect all workers equally. While some professions successfully transitioned to online work and suffered little unemployment, others faced massive layoffs due to coronavirus-related economic contractions and fundamental changes to their operating procedures. Quantifying how different segments of the Anchorage workforce were impacted by the pandemic is a necessary first step to identifying how those jobs can be expected to rebound, and, more importantly, where opportunities exist to promote a thriving workforce in the recovery period and beyond.

Although every sector except Public Administration shed employees in 2020, the losses were the greatest in service-related industries that would normally benefit from the tourist season and from sit-down patronage. Furthermore, job losses in the most affected industries were not equally distributed among all workers in those industries. The following chapter details the occupations that were hit the hardest by the pandemic and explores the characteristics of the workers who were most vulnerable to pandemic-related unemployment effects.¹

Table 1: Occupations with the Highest Number of Employees

| Occupation | Current Employment | Unemployment Rate | 1-Year Employment Change | 1-Year % Change |
|---|--------------------|-------------------|--------------------------|-----------------|
| Retail Salespersons | 4,908 | 9.1% | -513 | -9.5% |
| Registered Nurses | 3,311 | 2.5% | -6 | -0.2% |
| Fast Food and Counter Workers | 3,154 | 16.5% | -286 | -8.3% |
| Cashiers | 3,093 | 12.1% | -345 | -10.0% |
| Office Clerks, General | 3,066 | 6.9% | -163 | -5.0% |
| General and Operations Managers | 2,923 | 3.8% | -126 | -4.1% |
| Laborers and Freight, Stock, and Material Movers, Hand | 2,721 | 11.8% | -2 | -0.1% |
| Janitors and Cleaners, Except Maids and Housekeeping Cleaners | 2,297 | 8.3% | -177 | -7.1% |
| Secretaries and Administrative Assistants, Except Legal, Medical, and Executive | 2,242 | 6.2% | -105 | -4.5% |
| Customer Service Representatives | 2,118 | 7.1% | -77 | -3.5% |

Source: JobsEQ, data as of 2020Q3

¹ Data used is preliminary and subject to future revision. See the data notes at the end of the report for additional information.

As of 2020Q3, many customer service professions are still among the largest occupations in the municipality despite major reductions in employment compared to 2019. The only professions that didn't see significant reductions in employment were registered nurses, which is both a highly skilled profession and one in high demand due to the demands on the healthcare system as a result of the pandemic, and laborers and freight movers, where increasing cargo traffic likely insulated workers from significant layoffs. Whether or not the pandemic will affect long-term employment prospects in these industries remains to be seen, but it seems unlikely that other occupations would surpass the above in terms of gross employment in 2021, assuming no other major disruptions in the next twelve months.

Table 2: Occupations that Lost the Highest Number of Employees

| Occupation | Current Employment | Unemployment Rate | 1-Year Employment Change | 1-Year % Change |
|---|---------------------------|--------------------------|---------------------------------|------------------------|
| Retail Salespersons | 4,908 | 9.1% | -513 | -9.5% |
| Waiters and Waitresses | 1,933 | 14.2% | -496 | -20.4% |
| Cashiers | 3,093 | 12.1% | -345 | -10.0% |
| Fast Food and Counter Workers | 3,154 | 16.5% | -286 | -8.3% |
| Cooks, Restaurant | 1,227 | 16.9% | -263 | -17.6% |
| Maids and Housekeeping Cleaners | 1,219 | 8.4% | -193 | -13.7% |
| Janitors and Cleaners, Except Maids and Housekeeping Cleaners | 2,297 | 8.3% | -177 | -7.1% |
| Bartenders | 648 | 12.1% | -169 | -20.7% |
| Office Clerks, General | 3,066 | 6.9% | -163 | -5.0% |
| Food Preparation Workers | 1,236 | 16.8% | -156 | -11.2% |

Source: JobsEQ, data as of 2020Q3

Table 3: Occupations with Highest Unemployment Rates

| Occupation | Current Employment | Unemployment Rate | 1-Year Employment Change | 1-Year % Change |
|---|---------------------------|--------------------------|---------------------------------|------------------------|
| Amusement and Recreation Attendants | 240 | 34.8% | -55 | -18.6% |
| Actors | 29 | 34.6% | -2 | -7.0% |
| Ushers, Lobby Attendants, and Ticket Takers | 83 | 34.2% | -43 | -34.2% |
| Pile Driver Operators | 5 | 31.7% | -1 | -10.9% |
| Choreographers | 4 | 31.2% | -2 | -37.1% |
| Locker Room, Coatroom, and Dressing Room Attendants | 17 | 29.8% | -4 | -20.9% |
| Motion Picture Projectionists | 3 | 29.8% | -3 | -55.7% |
| Costume Attendants | 3 | 28.5% | -1 | -18.9% |
| Dancers | 7 | 27.1% | -3 | -30.4% |
| Tour Guides and Escorts | 90 | 25.2% | -43 | -32.5% |

Source: JobsEQ, data as of 2020Q3

Table 4: Occupation by Number Unemployed

| Occupation | Current Employment | Unemployment Rate | 1-Year Employment Change | 1-Year % Change |
|---|---------------------------|--------------------------|---------------------------------|------------------------|
| Fast Food and Counter Workers | 3,154 | 577 | -286 | -8.3% |
| Retail Salespersons | 4,908 | 460 | -513 | -9.5% |
| Cashiers | 3,093 | 394 | -345 | -10.0% |
| Laborers and Freight, Stock, and Material Movers, Hand | 2,721 | 324 | -2 | -0.1% |
| Waiters and Waitresses | 1,933 | 297 | -496 | -20.4% |
| Stockers and Order Fillers | 2,111 | 250 | -81 | -3.7% |
| Cooks, Restaurant | 1,227 | 232 | -263 | -17.6% |
| Food Preparation Workers | 1,236 | 232 | -156 | -11.2% |
| Office Clerks, General | 3,066 | 197 | -163 | -5.0% |
| Janitors and Cleaners, Except Maids and Housekeeping Cleaners | 2,297 | 179 | -177 | -7.1% |

Source: JobsEQ, data as of 2020Q3

Table 2, Table 3, and Table 4 present three perspectives of evaluating which occupations have endured the most severe repercussions from the pandemic. All offer some probative value when evaluating which occupations were most affected by the pandemic, although each metric comes with its own drawbacks and requires contextual analysis. Taken together, however, these tables offer a thorough view of which types of occupations were subject to the greatest pandemic impacts.

When evaluating occupations by the employment change compared to 2019, it does show where most of the job losses in the municipality were concentrated – predictably, in service-oriented occupations where social-distancing mandates disrupted the need for in-person service. However, although the losses are steep on an individual basis, comparing the number of employees lost in 2020 to the current employment figures demonstrates that, although the pandemic had a major impact on employment for certain occupations, it didn't decimate those occupations. Moreover, the gross employment change numbers do not necessarily account for movement between occupations – it is conceivable that, perhaps, an individual employed in 2019 as retail salesperson may have shifted to another field as a result of the pandemic, counting against the employment total for retail salespersons while not remaining unemployed. Of course, this is unlikely to be the case for all workers, and, for the most part, the number of unemployed individuals in most occupations outpaces the number who lost jobs in 2020, suggesting that there may not have been widespread shifts between occupations.

Alternatively, evaluating occupations by their unemployment rate can provide a richer view of which workers are struggling to find work in their preferred and/or specialized occupation, and which occupations have seen an outsized impact on employment. Naturally, smaller occupations are more susceptible to skewed unemployment figures since each unemployed worker represents a higher percentage of the workforce in that profession.

Finally, Table 4 unsurprisingly shares many commonalities with Table 2. Industries with the highest number of job losses compared to 2019 predictably have the highest number of unemployed workers, though it is surprising, in some cases, how many more unemployed workers there are compared to those who were displaced from 2019 to 2020. This perhaps captures which occupations were struggling prior to 2020, and for which the pandemic exacerbated existing trends. In the case of retail salespersons, for example, the shuttering of

brick-and-mortar stores due to increased e-commerce demand has led to reduced employment in that field, not only in Anchorage, but across the nation, for the last few years, and the pandemic, which led to increased e-commerce sales, likely accelerated the reduction of these jobs.

Table 5: Occupations that Added the Most Employees in 2020

| Occupation | Current Employment | Unemployment Rate | 1-Year Employment Change | 1-Year % Change |
|--|---------------------------|--------------------------|---------------------------------|------------------------|
| Personal Care Aides | 2,039 | 6.4% | 27 | 1.3% |
| Emergency Medical Technicians | 235 | 2.4% | 21 | 10.0% |
| Substance Abuse, Behavioral Disorder, and Mental Health Counselors | 432 | 2.6% | 15 | 3.5% |
| Transportation Security Screeners | 270 | 2.6% | 14 | 5.6% |
| Commercial Pilots | 346 | 5.7% | 12 | 3.6% |
| Psychiatric Technicians | 150 | 4.6% | 12 | 8.5% |
| Paramedics | 120 | 2.3% | 9 | 8.4% |
| Nurse Practitioners | 294 | 2.3% | 8 | 2.7% |
| Air Traffic Controllers | 137 | 2.7% | 6 | 4.5% |
| Computer Occupations, All Other | 437 | 3.9% | 5 | 1.3% |

Source: JobsEQ, data as of 2020Q3

Table 6: Occupations with Greatest Positive Annual Growth

| Occupation | Current Employment | Unemployment Rate | 1-Year Employment Change | 1-Year % Change |
|---|---------------------------|--------------------------|---------------------------------|------------------------|
| Emergency Medical Technicians | 235 | 2.4% | 21 | 10.0% |
| Wind Turbine Service Technicians | 8 | n/a | 1 | 9.4% |
| Extruding and Forming Machine Setters, Operators, and Tenders, Synthetic and Glass Fibers | 2 | n/a | 0 | 9.3% |
| Psychiatric Technicians | 150 | 4.6% | 12 | 8.5% |
| Paramedics | 120 | 2.3% | 9 | 8.4% |
| Power Plant Operators | 72 | 3.0% | 5 | 7.0% |
| Textile Winding, Twisting, and Drawing Out Machine Setters, Operators, and Tenders | 1 | n/a | 0 | 6.3% |
| Textile Knitting and Weaving Machine Setters, Operators, and Tenders | 4 | 17.4% | 0 | 5.9% |
| Marriage and Family Therapists | 41 | 2.3% | 2 | 5.6% |
| Transportation Security Screeners | 270 | 2.6% | 14 | 5.6% |

Source: JobsEQ, data as of 2020Q3

Table 5 and Table 6 provide a view into the occupations that grew during 2020, despite the pandemic. The occupations listed in Table 5 reflect how the pandemic led to the creation of jobs in several healthcare occupations, through both direct and indirect channels. For example, the increase in emergency medical technicians and nurse practitioners is likely a direct consequence of the pandemic, in that more of these workers were needed to tend to those afflicted with COVID-19. The rise in psychiatric care workers, meanwhile, likely is an induced effect from the pandemic, arising in response to the well-documented detrimental mental health effects related to the pandemic.

The other occupations listed in Table 5 added employees to counter logistical changes that arose due to the pandemic. Specifically, the addition of workers in the air transportation space is likely a byproduct of the increased cargo traffic at the airport, where volumes grew due

to many factors, including surging e-commerce sales and increased dedicated cargo flights. The increase in transportation security screeners is likely due to the precautions added for passenger flights – specifically with regard to testing. Finally, the increase in computer specialists is a probable byproduct of the transition to remote work by many enterprises and the associated logistical and technical needs created by the transition.

Table 6 has several common occupations with Table 5, for which the reasoning above would still hold. However, some of the entries in Table 6 demonstrate how growth figures for smaller occupations can be easily skewed by the addition of only a few jobs, or in some cases, where the occupation was previously losing jobs, unchanged employment from 2019. Regardless, taken jointly, Table 5 and Table 6 indicate that healthcare professions and logistics-related professions weathered the pandemic relatively well compared to customer service roles.

Another consideration when evaluating professions that did not sustain major employment losses in 2020 is unemployment. There are too many occupations to list that have 0 unemployed workers, but these occupations do have some notable characteristics worth exploring. First, most of these occupations are small; specifically, of the 134 occupations with 0 unemployed persons, only one occupation, optometrists, includes more than 50 workers. In fact, there are only about 900 employees total among all occupations with a 0% unemployment rate, with an average of 7 workers per occupation. Thus, these employees represent only about 1% of the total workforce in the municipality, which is comparable to just the First-Line Supervisors of Food Preparation and Serving Workers occupation.

These workers, however, are well-compensated; the mean average annual wage for workers in occupations with a 0% unemployment rate is \$76,840. Comparatively, the average annual wages for all occupations in the municipality is \$61,700. The mean average annual wage, conversely, for the 10 occupations with the highest number of unemployed workers is just \$32,740, less than half of the mean average annual wage for industries with no unemployed individuals.

Table 7: Education and Qualifications

| Qualifications | Average Unemployment Rate | Current Employment |
|--------------------------------------|----------------------------------|---------------------------|
| Short-term OJT, no exp, no award | 11.5% | 57,830 |
| Moderate-term OJT, no exp, no award | 9.3% | 17,034 |
| Long-term training, no exp, no award | 8.7% | 5,328 |
| Previous work experience, no award | 6.5% | 11,828 |
| 2-year degree or certificate | 5.7% | 13,980 |
| Bachelor's degree | 4.4% | 34,863 |
| Postgraduate degree | 5.5% | 6,421 |

Source: JobsEQ, data as of 2020Q3

Another avenue to investigate is how the workers with various levels of education and job training fared during the pandemic. As demonstrated in Table 7 above, there tends to be an inverse relationship between level of qualification and average unemployment rate, with occupations that require short-term on the job training and that require no higher education or work experience having the highest average unemployment rate, while those with a Bachelor's degree have the lowest average unemployment rate. The only exception to the trend is occupations requiring a Postgraduate degree, which tend to be highly specialized. A possible explanation could be that layoffs in the Educational Services sector, which employs many academics, accounted for this anomaly. Nonetheless, occupations requiring a postgraduate degree still have the second lowest unemployment rate, so, in general, greater education and training implies higher employment.

Table 8: Occupations with Greater than All-Occupations Unemployment Rate by Qualifications

| Qualifications | Occupations with > All-Occupations Unemployment Rate | Total Occupations with Given Qualification | Percentage of Occupations with > All-Occupations Unemployment Rate Given Qualification | Total Workers Employed in Occupations with > All-Occupations Unemployment Rate |
|--------------------------------------|--|---|--|--|
| Short-term OJT, no exp, no award | 110 | 158 | 69.6% | 39,045 |
| Moderate-term OJT, no exp, no award | 115 | 182 | 63.2% | 5,902 |
| Long-term training, no exp, no award | 24 | 54 | 44.4% | 2,369 |
| Previous work experience, no award | 10 | 43 | 23.3% | 3,034 |
| 2-year degree or certificate | 21 | 93 | 22.6% | 2,554 |
| Bachelor's degree | 18 | 174 | 10.3% | 1,804 |
| Postgraduate degree | 38 | 100 | 38.0% | 846 |

Source: JobsEQ, data as of 2020Q3

Table 8 shows how many occupations with a given qualification threshold had an unemployment rate higher than the unemployment rate for all occupations in Anchorage. Of the 336 occupations with a greater than average unemployment rate, the majority required only short or medium-term on the job training with no other education or experience requirements. Similar to the unemployment profile given in Table 7, there appears, generally, to be an inverse relationship between the level of experience and education and unemployment by occupation, with occupations requiring a postgraduate degree as a notable exception.

Finally, it is vital to examine whether labor that is employed is being employed optimally. For example, someone who is employed may not be in a profession that fully utilizes their skills and experience. Moreover, some workers may be working less than they would optimally desire; for example, they may only be able to find part-time employment rather than full-time employment. Such individuals are considered “underemployed” by economists, and while they are generally in a better position than those who are unemployed, an examination of underemployment can reveal inefficiencies in the workforce and suboptimal labor allocation.

Table 9: Top 25 Occupations by Number Underemployed

| Occupation | Underemployed | Current Employment | Percent Underemployed |
|--|----------------------|---------------------------|------------------------------|
| General and Operations Managers | 1,125 | 2,923 | 38% |
| Retail Salespersons | 991 | 4,908 | 20% |
| First-Line Supervisors of Office and Administrative Support Workers | 560 | 1,754 | 32% |
| Office Clerks, General | 529 | 3,066 | 17% |
| Customer Service Representatives | 436 | 2,118 | 21% |
| Secretaries and Administrative Assistants, Except Legal, Medical, and Executive | 433 | 2,242 | 19% |
| First-Line Supervisors of Retail Sales Workers | 314 | 1,346 | 23% |
| Bookkeeping, Accounting, and Auditing Clerks | 312 | 1,839 | 17% |
| Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel | 295 | 648 | 45% |
| Teaching Assistants, Except Postsecondary | 293 | 1,259 | 23% |
| Cashiers | 285 | 3,093 | 9% |
| Human Resources Specialists | 280 | 516 | 54% |
| Fast Food and Counter Workers | 272 | 3,154 | 9% |
| Flight Attendants | 263 | 676 | 39% |
| Waiters and Waitresses | 247 | 1,933 | 13% |
| Personal Care Aides | 221 | 2,039 | 11% |
| Exercise Trainers and Group Fitness Instructors | 210 | 434 | 48% |
| Stockers and Order Fillers | 196 | 2,111 | 9% |
| Executive Secretaries and Executive Administrative Assistants | 184 | 600 | 31% |
| Medical Secretaries and Administrative Assistants | 171 | 1,033 | 17% |
| Computer User Support Specialists | 171 | 434 | 39% |
| Loan Officers | 160 | 344 | 47% |
| Receptionists and Information Clerks | 160 | 1,358 | 12% |
| Laborers and Freight, Stock, and Material Movers, Hand | 151 | 2,721 | 6% |

| | | | |
|-----------------|-----|-------|-----|
| Security Guards | 150 | 1,070 | 14% |
|-----------------|-----|-------|-----|

Source: JobsEQ, data as of 2020Q3

Table 10: Top 25 Occupations by Percent Underemployed

| Occupation | Underemployed | Current Employment | Percent Underemployed |
|--|----------------------|---------------------------|------------------------------|
| Technical Writers | 33 | 51 | 65% |
| Nuclear Medicine Technologists | 15 | 24 | 61% |
| Web Developers and Digital Interface Designers | 52 | 92 | 56% |
| Labor Relations Specialists | 53 | 98 | 55% |
| Human Resources Specialists | 280 | 516 | 54% |
| Music Directors and Composers | 20 | 39 | 53% |
| Legal Support Workers, All Other | 35 | 68 | 51% |
| Advertising Sales Agents | 48 | 94 | 51% |
| Actors | 15 | 29 | 51% |
| Film and Video Editors | 9 | 18 | 51% |
| Detectives and Criminal Investigators | 24 | 48 | 50% |
| Gambling Cage Workers | 3 | 7 | 49% |
| Camera Operators, Television, Video, and Film | 11 | 23 | 49% |
| Exercise Trainers and Group Fitness Instructors | 210 | 434 | 48% |
| Financial Clerks, All Other | 39 | 82 | 47% |
| Credit Counselors | 13 | 28 | 47% |
| Loan Officers | 160 | 344 | 47% |
| Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel | 295 | 648 | 45% |
| Appraisers and Assessors of Real Estate | 27 | 61 | 45% |
| Appraisers of Personal and Business Property | 2 | 4 | 45% |
| Broadcast Announcers and Radio Disc Jockeys | 18 | 39 | 45% |
| Private Detectives and Investigators | 20 | 44 | 45% |
| Coaches and Scouts | 87 | 196 | 45% |
| Tax Examiners and Collectors, and Revenue Agents | 11 | 26 | 44% |
| Photographers | 61 | 142 | 43% |

Source: JobsEQ, data as of 2020Q3

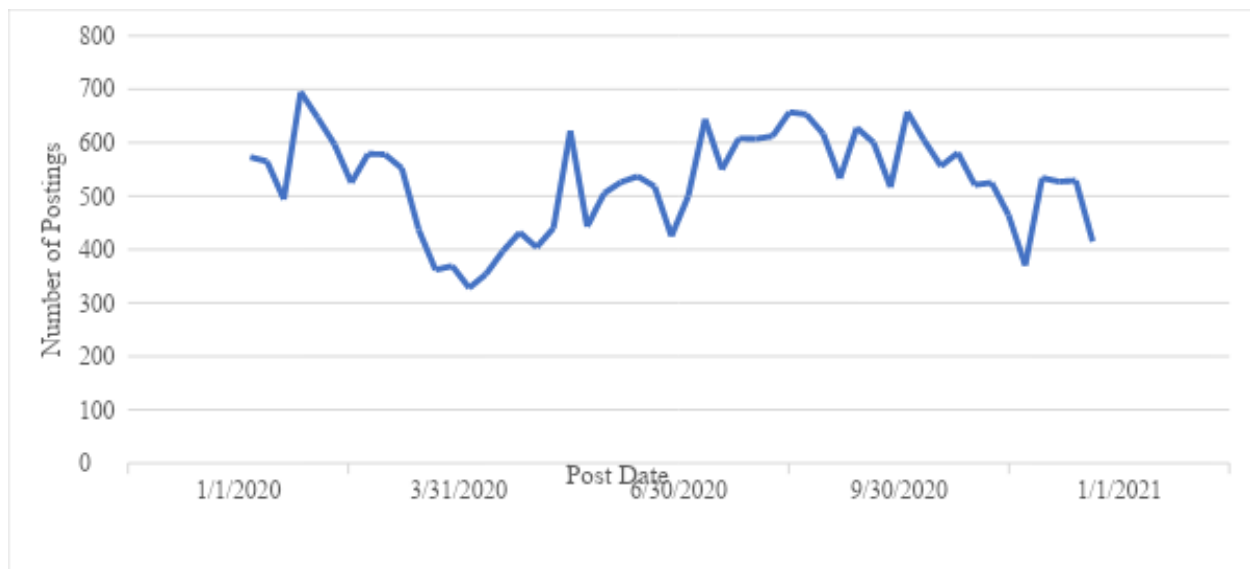
From Table 9, more workers in service-related professions tend to be underemployed more than those in other occupations. Whether or not this is due to overqualification for their position or not being able to work their desired amount of hours is unclear, but this does indicate that there are inefficiencies in the employment of many people in the service industry. Notably, the percentage of workers that are underemployed is generally low for service-related professions, such as cashiers, whereas for professions that were unlikely to experience major disruption prior to the pandemic, such as flight attendants, the percentage of underemployed workers is much higher. The pandemic, as an unpredicted shock to the economy and thus the labor force, is likely preventing these workers from being able to work as much as they optimally would, since it's less likely that those remaining in the occupation have a qualification mismatch with the position.

Table 10 once again demonstrates how percentage figures are easily skewed by small occupations. However, it is striking that the professions with the highest percentage of underemployed individuals are not overwhelmingly concentrated in the hospitality or retail sector where most of the pandemic job losses were concentrated. This could indicate that these professions have chronic underemployment issues, rather than ones caused by the sudden contraction in labor demand as a result of the pandemic and subsequent shutdowns. For example, the underemployment of web developers during a time when many people migrated to online work might seem counterintuitive; yet, these developers may have been working on a competitive freelance basis prior to the pandemic which could have led to long-term underemployment.

Section II: Remote Work and Analyzing Online Job Postings

While unemployment figures provide one avenue of insight into the effects of the pandemic on the workforce, it is equally useful to consider hiring trends to achieve a fuller understanding of the workforce trends. Exploring which occupations were in demand from employers, and which employers continued hiring throughout the pandemic, can indicate the resiliency of certain industries, or can demonstrate deviation from previous trends. Moreover, comparing hiring trends over multiple years provides insight into which effects were due to the pandemic and which are structural.

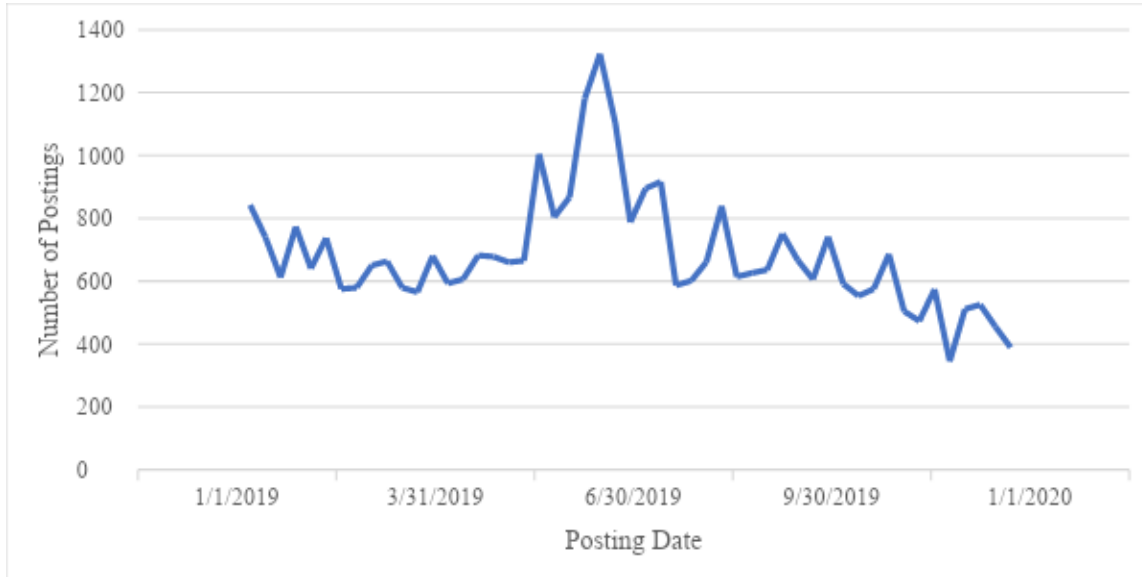
Figure 1: Number of New Job Postings by Date – 2020



Source: JobsEQ

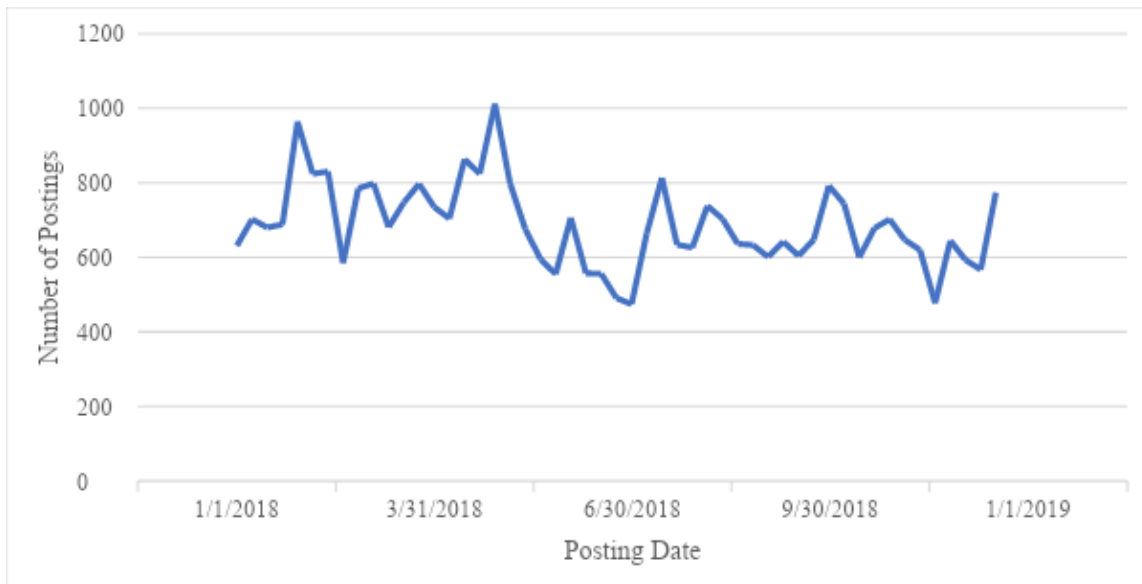
From the chart above, job postings declined significantly beginning in early March 2020, which coincides with the start of social distancing mandates. Postings began to recover in the summer and early fall as local COVID-19 cases stabilized and restrictions relaxed. However, as case numbers began to rise again in the fall, job postings also fell, suggesting a link between case counts and the demand for labor, likely because operating in a pandemic makes it hard to provide normal service.

Figure 2: Number of New Job Postings by Date – 2019



Source: JobsEQ

Figure 3: Number of New Job Postings by Date – 2018



Source: JobsEQ

The figures for 2019 and 2018 foremost demonstrate that there can be significant volatility in job posting numbers. It is interesting that there was a large spike in job postings in summer 2019, while job postings in 2018 actually declined during the summer months – this is an area left open for further inquiry.

Table 11: Top 10 Occupations by Number of Job Postings and Year

| 2020 | | 2019 | | 2018 | |
|---|-----------|---|-----------|---|-----------|
| Occupation | Total Ads | Occupation | Total Ads | Occupation | Total Ads |
| Retail Salespersons | 1,717 | Retail Salespersons | 2,816 | Retail Salespersons | 2,573 |
| Registered Nurses | 1,477 | Stockers and Order Fillers | 1,635 | Secretaries and Administrative Assistants, Except Legal, Medical, and Executive | 1,337 |
| Social and Human Service Assistants | 1,151 | Secretaries and Administrative Assistants, Except Legal, Medical, and Executive | 1,217 | Stockers and Order Fillers | 1,322 |
| Stockers and Order Fillers | 1,125 | Social and Human Service Assistants | 1,169 | Registered Nurses | 1,059 |
| Secretaries and Administrative Assistants, Except Legal, Medical, and Executive | 840 | Registered Nurses | 1,094 | Social and Human Service Assistants | 1,037 |
| First-Line Supervisors of Retail Sales Workers | 778 | First-Line Supervisors of Retail Sales Workers | 935 | Customer Service Representatives | 1,004 |
| Customer Service Representatives | 714 | Customer Service Representatives | 914 | First-Line Supervisors of Retail Sales Workers | 926 |
| Computer User Support Specialists | 687 | Computer User Support Specialists | 802 | Computer User Support Specialists | 784 |
| Medical Secretaries and Administrative Assistants | 666 | Maintenance and Repair Workers, General | 706 | Maintenance and Repair Workers, General | 648 |
| Maintenance and Repair Workers, General | 576 | Fast Food and Counter Workers | 650 | Medical Secretaries and Administrative Assistants | 644 |

Source: JobsEQ

Although there is significant overlap between occupations from the past three years, the order of those occupations varies year to year. Also notable is that while the total number of job postings for the most in-demand occupations grew from 2018 to 2019, postings declined noticeably in 2020, which is consistent with the high amount of unemployment illustrated

previously. In 2020, the top 10 sought occupations posted 9,731 ads, while 11,938 ads and 11,334 ads were posted in 2019 and 2018, respectively.

This phenomenon also aligns with the overall job posting totals. In 2020, job postings declined by 7,620 from 41,463 ads in 2019 to just 33,843 ads in 2020. In 2018, there were 39,347 jobs posted online, so demand for labor, at least as posting data indicates, was trending positively prior to the pandemic.

Table 12: Top 10 Hiring Employers by Jobs Posted and Year

| 2020 | | 2019 | | 2018 | |
|--|-----------|--|-----------|--|-----------|
| Hiring Employer | Total Ads | Hiring Employer | Total Ads | Hiring Employer | Total Ads |
| Providence Health & Services | 1,686 | Providence Health & Services | 1,594 | State of Alaska | 1,932 |
| Alaska Native Tribal Health Consortium | 1,155 | Alaska Native Tribal Health Consortium | 872 | Providence Health & Services | 1,487 |
| The University of Alaska | 547 | State of Alaska | 817 | The University of Alaska | 679 |
| Department of the Air Force | 529 | The University of Alaska | 744 | Alaska Native Tribal Health Consortium | 540 |
| Anchorage School District | 468 | Municipality of Anchorage | 603 | HCA | 481 |
| Humana | 468 | HCA | 555 | Municipality of Anchorage | 423 |
| Municipality of Anchorage | 468 | Workplace Alaska | 509 | Aramark | 417 |
| LOWES | 442 | Anchorage School District | 410 | Department of the Air Force | 394 |
| HCA | 413 | Aramark Food and Support Services Group Inc. | 410 | Anchorage School District | 377 |
| State of Alaska | 396 | Lithia Motors, Inc. | 388 | Swedish Health Services | 364 |

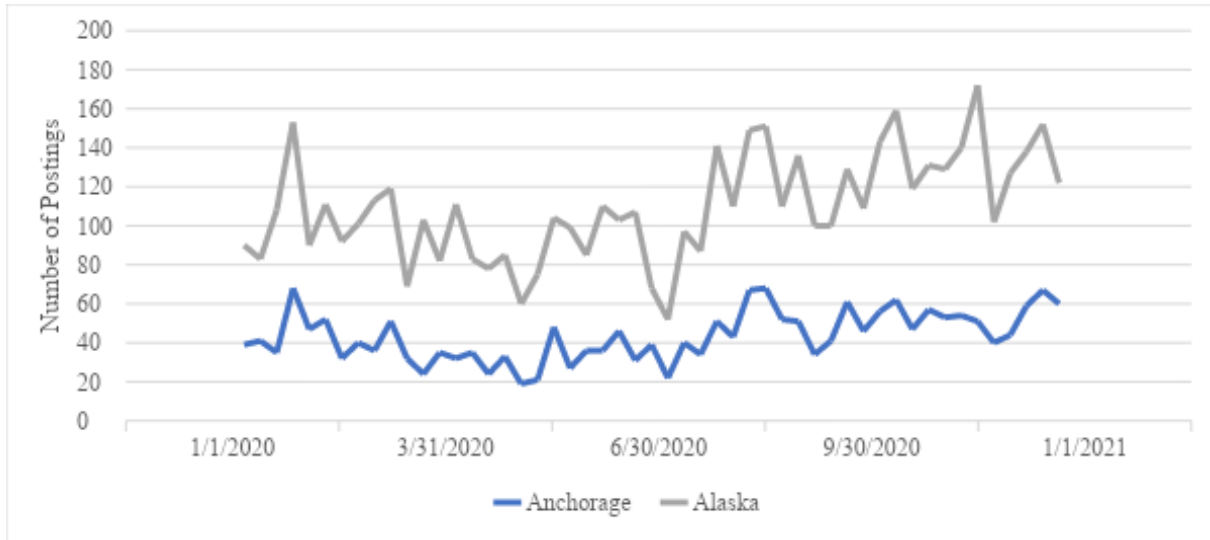
Source: JobsEQ

From Table 12 above, it appears that, even with the pandemic disrupting the labor force, the most prolific employers remained largely constant over the last three years. Specifically, the stabilizing influence of employers in the healthcare and government sectors perhaps demonstrates the sustainability of these industries as a source of labor demand. Conversely, the absence of hiring mainstay Aramark in 2020 could be due to the contraction in the hospitality sector as a result of the pandemic.

One consequence of the pandemic was a shift to remote work for many occupations. Obviously, not every occupation can transition to a digital workspace. This is why layoffs were most severe in industries that typically rely on providing in-person service. Nonetheless, the rise

of this phenomenon and its impact on the Anchorage workforce is worth examining, particularly since telecommuting may become more popular, or even the norm, in the future.

Figure 4: “Remote” Job Postings in 2020



Source: JobsEQ

The chart above tracks the number of new job postings per week featuring the word “remote” in their description. In general, the postings for Alaska and the Municipality of Anchorage follow a similar pattern, which is a natural consequence of Anchorage being the largest population center in the state and thus the largest source of job seekers. Remarkably, the number of postings for remote work did not begin to, generally, trend up until the fall, months after the initial outbreak. Perhaps the significant surge in case counts during the fall months compared to the spring and summer contributed to this trend.

Intriguingly, “remote” job postings in Anchorage did not significantly increase from 2019 to 2020. In 2019, there were 2,368 job postings from non-staffing companies featuring the keyword “remote,” while in 2020 there were 2,683 of those postings, which is not the major increase that might be expected given the widespread transition to remote work. However, this could simply be a consequence of depressed hiring during the pandemic, where fewer new jobs became available and existing jobs merely shifted from in-person work to telework.

Table 13: Occupations with “Remote” Job Postings by Location in 2020

| Anchorage | | Alaska | | USA | |
|--|------------------|--|------------------|--|------------------|
| Occupation | Total Ads | Occupation | Total Ads | Occupation | Total Ads |
| Computer User Support Specialists | 144 | Computer User Support Specialists | 261 | Software Developers | 88,029 |
| Network and Computer Systems Administrators | 112 | Social and Human Service Assistants | 210 | Computer User Support Specialists | 79,950 |
| Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel | 87 | Maintenance and Repair Workers, General | 187 | Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel | 76,510 |
| Customer Service Representatives | 70 | Network and Computer Systems Administrators | 183 | Customer Service Representatives | 51,404 |
| Social and Human Service Assistants | 65 | Software Developers | 174 | Network and Computer Systems Administrators | 44,881 |
| Architectural and Engineering Managers | 57 | Customer Service Representatives | 172 | Management Analysts | 33,188 |
| Maintenance and Repair Workers, General | 56 | Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel | 171 | Computer Systems Engineers/Architects | 26,382 |
| Secretaries and Administrative Assistants, Except Legal, Medical, and Executive | 52 | Forest and Conservation Technicians | 168 | Social and Human Service Assistants | 25,990 |
| Business Operations Specialists, All Other | 47 | Zoologists and Wildlife Biologists | 151 | Insurance Sales Agents | 25,211 |
| Software Developers | 45 | Secretaries and Administrative Assistants, Except Legal, Medical, and Executive | 133 | Marketing Managers | 23,541 |

Source: JobsEQ

Comparing new “remote” job postings in Anchorage to Alaska and the rest of the United States, there are some similarities. Many of the job offerings in 2020 at the local, state, and national levels were directly related to computing; computer user support specialist was a top-three desired occupation at all three levels. The high number of ads posted for customer service representatives or sales representatives were likely related to telephone work.

Section III: Looking Forward

As the economy begins to recover from the shocks caused by the coronavirus pandemic, employment can be expected to rebound as well. Growth is expected to be the strongest for occupations that were hit the hardest by the pandemic and subsequent, necessary shutdown orders for public safety – with the ability to open up and provide service to customers in-person once again, more individuals in these occupations will be able to return to work. With vaccination efforts proceeding in the state and across the nation, it seems likely that the recovery will begin to accelerate in the coming months.

Table 14: Top 10 Occupations by Projected 1-Year Growth

| Occupation | Current Employment | Unemployment Rate | 1-Year Annual % Growth |
|---|---------------------------|--------------------------|-------------------------------|
| Tour Guides and Escorts | 90 | 25.2% | 12.8% |
| Manicurists and Pedicurists | 76 | 12.2% | 11.0% |
| Shampooers | 12 | 11.4% | 10.4% |
| Pressers, Textile, Garment, and Related Materials | 31 | 13.1% | 10.3% |
| Travel Guides | 5 | 18.9% | 9.8% |
| Barbers | 43 | 8.0% | 9.8% |
| Cooks, Restaurant | 1,227 | 16.9% | 9.2% |
| Hairdressers, Hairstylists, and Cosmetologists | 447 | 11.6% | 8.0% |
| Laundry and Dry-Cleaning Workers | 236 | 10.4% | 7.9% |

| | | | |
|--|-----|-------|------|
| Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop | 292 | 14.6% | 7.8% |
|--|-----|-------|------|

Source: JobsEQ, data as of 2020Q3

Although the expected rebound in employment is promising news for many unemployed workers, there is still some uncertainty about how many of their jobs will come back. A return to full, pre-pandemic employment levels may be years away and is difficult to accurately predict due to a variety of factors, including which working conditions and consumer preference changes caused by the pandemic will be long-lasting versus temporary. For example, the rise in e-commerce might prevent some retail jobs from coming back even as more consumers begin to venture out of their homes with regularity.

Thus, it is useful to further analyze which professions are set to be sustainable for the long-term, in case workers may need to shift career paths in the post-pandemic workspace. Moreover, examining which career paths offer the highest wages could offer insight into potential training and educational programs to set displaced workers on a higher-earning career path in the future. The pandemic created many challenges for local workers, but, perhaps, it could also offer some opportunities for career changes in the recovery stages.

Table 15: Qualifications, Wages, and Forecast Annual Growth

| Qualifications | Mean Average Annual Wages | Average Forecast Annual Growth |
|--------------------------------------|----------------------------------|---------------------------------------|
| Short-term OJT, no exp, no award | 40,446 | -1.0% |
| Moderate-term OJT, no exp, no award | 54,003 | -1.1% |
| Long-term training, no exp, no award | 65,435 | -1.1% |
| Previous work experience, no award | 69,584 | -0.7% |
| 2-year degree or certificate | 63,938 | -0.5% |
| Bachelor's degree | 84,862 | -0.6% |

| | | |
|---------------------|---------|-------|
| Postgraduate degree | 121,590 | -0.3% |
|---------------------|---------|-------|

Source: JobsEQ, data as of 2020Q3

As Table 15 indicates, all professions are expected to decline in employment in the long-term. This is symptomatic of broader, structural issues in the Anchorage economy with respect to generating new employment opportunities and stimulating economic growth. That said, jobs requiring more training, education, or experience are almost uniformly expected to experience less contraction than jobs requiring less training and experience. Moreover, as explored in greater depth in Section I, these jobs also typically offer higher wages than jobs requiring fewer credentials.

Table 16: Top 10 Occupations with the Highest Mean Annual Wages

| Occupation | Mean Annual Wages | Current Employment | Unemployment Rate | 5-Year Annual % Growth |
|---|--------------------------|---------------------------|--------------------------|-------------------------------|
| Anesthesiologists | 309,400 | 62 | 1.3% | -0.4% |
| Surgeons, Except Ophthalmologists | 297,900 | 48 | 1.3% | -0.9% |
| Oral and Maxillofacial Surgeons | 282,800 | 6 | n/a | 0.5% |
| Obstetricians and Gynecologists | 276,100 | 35 | n/a | -0.8% |
| Orthodontists | 275,200 | 7 | n/a | 0.6% |
| Prosthodontists | 263,200 | 1 | n/a | 0.4% |
| Physicians, All Other; and Ophthalmologists, Except Pediatric | 255,000 | 570 | 1.2% | -0.3% |
| Dentists, General | 242,500 | 117 | 1.4% | 0.5% |
| Family Medicine Physicians | 242,400 | 217 | 1.3% | 0.1% |
| General Internal Medicine Physicians | 233,100 | 78 | 1.4% | -0.8% |

Source: JobsEQ, data as of 2020Q3

All of the highest wage jobs in Anchorage are situated in the healthcare sector. These occupations typically require an extensive postgraduate education and are also among the smaller professions locally. There are only so many, for example, dentists needed to tend to the people of

any population, which is why current unemployment rates and long-term growth in this sector are also quite low. Therefore, these jobs, while offering the best wages in Anchorage, are not necessarily ideal as a career-change option for many workers who were displaced during the pandemic from their pre-pandemic occupations.

Table 17: Top 10 Occupations with the Lowest Mean Annual Wages

| Occupation | Mean Annual Wages | Current Employment | Unemployment Rate | 5-Year Annual % Growth |
|--|--------------------------|---------------------------|--------------------------|-------------------------------|
| Baggage Porters and Bellhops | 24,000 | 62 | 12.8% | 2.8% |
| Dishwashers | 24,200 | 482 | 24.1% | 1.8% |
| Ushers, Lobby Attendants, and Ticket Takers | 24,400 | 83 | 34.2% | 3.3% |
| Manicurists and Pedicurists | 24,700 | 76 | 12.2% | 3.0% |
| Shampooers | 25,000 | 12 | 11.4% | 2.4% |
| Fast Food and Counter Workers | 25,500 | 3154 | 16.5% | 2.4% |
| Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop | 25,500 | 292 | 14.6% | 2.3% |
| Gambling Dealers | 26,000 | 34 | 13.5% | 2.1% |
| Dining Room and Cafeteria Attendants and Bartender Helpers | 26,100 | 436 | 18.4% | 2.6% |
| Bartenders | 26,700 | 648 | 12.1% | 3.2% |

Source: JobsEQ, data as of 2020Q3

Conversely, the jobs with the lowest mean annual wages are characterized by high current unemployment, lower training requirements, and higher projected long-term growth. Of course,

some of the higher projected growth than the high-wage occupations listed above is due to the expected recovery from the pandemic-induced recession, and isn't fully indicative of the long-term sustainability of these jobs.

Table 18: Top 10 Occupations by Highest 5-Year Projected Annual Growth

| Occupation | Current Employment | Unemployment Rate | 5-Year Annual % Growth |
|---|---------------------------|--------------------------|-------------------------------|
| First-Line Supervisors of Gambling Services Workers | 50 | 9.5% | 4.5% |
| Derrick Operators, Oil and Gas | 24 | 13.7% | 4.3% |
| Exercise Trainers and Group Fitness Instructors | 434 | 24.5% | 4.1% |
| Tour Guides and Escorts | 90 | 25.2% | 4.1% |
| Nurse Practitioners | 294 | 2.3% | 4.0% |
| Wind Turbine Service Technicians | 8 | n/a | 3.9% |
| Helpers--Extraction Workers | 26 | 15.0% | 3.9% |
| Cooks, Restaurant | 1,227 | 16.9% | 3.8% |
| Amusement and Recreation Attendants | 240 | 34.8% | 3.8% |
| Solar Photovoltaic Installers | 9 | 11.8% | 3.7% |

Source: JobsEQ, data as of 2020Q3

Table 19: Top 10 Occupations by Lowest 5-Year Projected Annual Growth

| Occupation | Current Employment | Unemployment Rate | 5-Year Annual % Growth |
|--------------------------------------|---------------------------|--------------------------|-------------------------------|
| Word Processors and Typists | 24 | 6.0% | -5.1% |
| Parking Enforcement Workers | 5 | n/a | -4.8% |
| Telephone Operators | 8 | n/a | -4.0% |
| Watch and Clock Repairers | 3 | n/a | -3.7% |
| Postmasters and Mail Superintendents | 85 | 2.6% | -3.5% |

| | | | |
|--|-----|-------|-------|
| Photographic Process Workers and Processing Machine Operators | 10 | 12.9% | -3.4% |
| Legal Secretaries and Administrative Assistants | 212 | 6.4% | -3.2% |
| Door-to-Door Sales Workers, News and Street Vendors, and Related Workers | 90 | 10.1% | -3.1% |
| Power Plant Operators | 72 | 3.0% | -3.1% |
| Data Entry Keyers | 101 | 6.1% | -3.1% |

Source: JobsEQ, data as of 2020Q3

The occupations projected to grow the most in the next five-years predictably include some industries recovering from pandemic-related employment shocks, but also reflect some trends in the changing economy. First, the expected growth for wind turbine service technicians and solar voltaic instructors could reflect a transition to more green energy production and thus jobs in a burgeoning new industry. Of course, the professions are quite small currently – less than 10 people are employed in each occupation, so any projected growth doesn’t necessarily translate into a significant rise in actual employment, but, regardless, it does indicate a potential sector that could expand and offer further opportunities in the future. Similarly, the expected growth of nurse practitioner jobs is likely a byproduct of an aging population. However, this occupation requires postgraduate education and already has a very low unemployment rate, so transitioning displaced workers into the field could be difficult.

The occupations projected to contract the most over the next five years also reflect economy-wide trends. Specifically, technological innovation and automation are likely to make some of the listed professions obsolete. In particular, typists and telephone operators are likely in lower demand due to widespread changes in technology and the growing technological aptitude of much of the population.

Table 20: Top 10 Skills by Gap in Qualified Workers

| Skill | Candidates | Openings | Gap |
|-------------------------|-------------------|-----------------|------------|
| Cash Handling (Cashier) | 620 | 820 | -200 |
| Teaching/Training, Job | 295 | 451 | -156 |

| | | | |
|-----------------------------------|-------|-------|------|
| Microsoft Excel | 1,109 | 1,243 | -135 |
| Microsoft Office | 1,070 | 1,204 | -134 |
| Microsoft Word | 457 | 573 | -116 |
| Home Health Care | 68 | 162 | -94 |
| Microsoft Outlook | 516 | 606 | -90 |
| Certified Nursing Assistant (CNA) | 109 | 196 | -87 |
| First Aid Certification | 172 | 259 | -86 |
| Mathematics | 299 | 376 | -77 |

Source: JobsEQ, data as of 2020Q3

Table 20 illustrates the gap between employer demand and qualified workers for certain qualifications. Once again, broader economic trends towards more technical work and increased healthcare demands have created some of these gaps. Specifically, proficiency in Microsoft suite tools is highly desired by employers, as well as various nursing and healthcare certifications. Currently, it seems that there are not enough potential job candidates, even in a period when unemployment, and thus the number of job-seekers, is high, indicating that there may be chronic issues with technical and medical qualifications in the Anchorage workforce.

Table 21: Top 10 Certification Gaps

| Certification | Candidates | Openings | Gap |
|--|-------------------|-----------------|------------|
| Certified Nursing Assistant (CNA) | 109 | 196 | -87 |
| First Aid Certification | 172 | 259 | -86 |
| Certification in Cardiopulmonary Resuscitation (CPR) | 289 | 350 | -61 |
| Child Development Associate (CDA) | 5 | 27 | -22 |
| ServSafe Food Protection Manager Certification | 12 | 30 | -18 |
| National Phlebotomy Association Certified Phlebotomist | 7 | 19 | -12 |
| Licensed Practical Nurse (LPN) | 27 | 38 | -10 |
| Certified Research Administrator (CRA) | 1 | 11 | -10 |
| Licensed Clinical Social Worker (LCSW) | 16 | 26 | -10 |

Source: JobsEQ, data as of 2020Q3

Healthcare-related certifications dominate the desired qualifications put forth by employers that are not currently being met by job-seekers. This again indicates that healthcare-related professions, which are expected to grow in the future, are a strong and sustainable option for employment. For many displaced workers to occupy those positions it will require some retraining and additional education.

Section IV: Recommendations for Optimizing Employment Opportunities

Unemployment, pending the continued success of vaccine rollout, should decline in 2021 and many Anchorage workers who found themselves displaced as a result of the pandemic should be able to return to work. That said, the outlook for employment, in the long-term, is less rosy – every segment of the workforce is expected to contract in the future, with workers with less training and experience expected to bear the brunt of the contraction. The following recommendations are meant to begin a dialogue about how to avoid long-term stagnation and displacement in the workforce, and, more importantly, what steps can be taken to position Anchorage’s workers for success during the pandemic recovery period and beyond.

I. Broad Economic Stimulation

The expectation that most occupations are expected to either contract or not grow significantly in the future indicates structural issues in the Anchorage economy. Specifically, it reflects that, overall, most sectors of the Anchorage economy are not primed to expand or thrive in the future, especially as technological innovation and demographic shifts reshape the future economy and labor force. To grow with the national economy rather than be left behind, Anchorage needs to invest in economic development and industrial diversification, particularly in high-wage, high-growth industries. After all, in order to have a workforce, there needs to be a successful economy to hire workers.

The steps needed to stimulate economic development go far beyond the scope of this report, but a few suggested starting points include:

- Industrial analysis to establish a baseline understanding of Anchorage's economy now, and how, if development does not occur, these industries might evolve naturally
- Cluster analysis to determine what opportunities, if any, exist for leveraging the connection of multiple sectors and resources to attract new industries
- National-level growth analysis to project which sectors will expand in the future and what will influence their location decisions so that Anchorage can attract and sustain those high-growth industries

II. Investment in Higher Education

A common theme in the previous sections was that higher-wage jobs required additional qualifications and, often, higher education. To that end, if promoting high-wage jobs is a goal, Anchorage would be well-served to support higher education wherever possible. Furthermore, given the multiplier effects of research activities and other work done by universities, investment in higher education will promote positive spillover effects throughout the economy. A few starting recommendations would be to:

- Promote and expand technical offerings through local universities, community colleges, and vocational schools
- Ensure the affordability of higher education through scholarship programs and reasonable tuition rates
- Make continued learning opportunities, particularly in technical courses, for non-degree seeking learners as accessible as possible
- Promote partnerships with professional schools and/or establish these schools locally

III. Promote Ease and Accessibility for Skill Development

Through skill gap and certification gap analysis, it is clear that Anchorage's workforce could better meet the demand of employers for technically skilled and certified professionals. Expanding access to higher education should ameliorate some of these demands, but there are also other methods available to help Anchorage's workers acquire these skills without additional schooling. A few suggestions are offered below.

- Compile free, online resources for learning Microsoft Excel and other technical skills into a repository for job seekers so that they can develop expertise
- Offer a directory of places and/or methods to become certified in employer-required skills
- Encourage local secondary schools to incorporate some technical training into their curricula

Data Notes

All occupational employment data used from JobsEQ are as of 2020Q3 unless otherwise noted, and are derived from federal sources, like the Bureau of Labor Statistics, with certain imputations and adjustments made where necessary. Occupational wage data is as of 2019 (most recent available data) and is also derived from making necessary imputations and adjustments to Bureau of Labor Statistics data. Underemployment figures are computed by Chmura using a methodology first developed by the NY Federal Reserve.

Forecasts are from JobsEQ and are based on federal projections with adaptations made for regional growth patterns, and, given vaccine rollout, adjusted to account for economic recovery in the wake of the pandemic. The exact specifications of the forecasts are proprietary.

Educational attainment data was retrieved from JobsEQ and is based on US Census Bureau data and Bureau of Labor Statistics data. As with all data retrieved from JobsEQ, it has been adjusted as deemed necessary by Chmura.

Job posting data is from JobsEQ RTI, which is a proprietary data tool. The tool uses a web crawler to count active job listings at various regional levels. For this paper, only job listings posted by non-staffing companies were considered when querying the RTI database.

All of the data used in this report is subject to future revision.

AEDC is a private nonprofit corporation (IRS code 501(c)(6)), operating since 1987. It exists to encourage growth and diversity in the Anchorage economy, promote a favorable business climate and improve the standard of living of Anchorage residents. Funding sources for the corporation are private contributions, municipal and state grants and contracts.



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