

OCTOBER 2020

PROMISING CREDENTIALS IN HAWAII

A report to identify high-value industry credentials that prepare students for careers in Hawai'i.

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PROMISING CREDENTIALS IN HAWAII

Final Report
October 2020

TABLE OF CONTENTS

EXECUTIVE SUMMARY	3
OUR CHALLENGE	3
OUR PROCESS	3
OUR OPPORTUNITY	4
OUR CALL TO ACTION	4
ABOUT PROMISING CREDENTIALS PROJECT TEAM	5
PROMISING CREDENTIALS	6
INDUSTRY FEEDBACK KEY FINDINGS	11
INDUSTRY DEMAND FOR EMPLOYABILITY SKILLS IN ADDITION TO TECHNICAL SKILLS	11
INDUSTRY IS WILLING TO SUPPORT TRAINING FOR EMPLOYEES	11
INDUSTRY DESIRE TO EXPAND WORK OPPORTUNITIES FOR STUDENTS	12
EMPLOYER IDENTIFIED OCCUPATIONS FOR WORKFORCE DEVELOPMENT	12
LACK OF AWARENESS REGARDING CAREER OPPORTUNITIES	13
GROWING NEED FOR TECH AND CROSS SECTOR SKILLS	13
COVID-19 RESPONSE AND IMPLICATIONS	13
RECOMMENDATIONS	15
APPENDIX A: TABLES FOR REFERENCE	17
APPENDIX B: METHODOLOGY	32
APPENDIX C: SURVEY INSTRUMENT	39
APPENDIX D: FOCUS GROUP DISCUSSION QUESTIONS	44
APPENDIX E: DATA SOURCES	45
APPENDIX F: GLOSSARY	46

EXECUTIVE SUMMARY

Students in Hawai'i can earn hundreds of industry-recognized credentials right now. Thousands of students are investing time and resources to achieve these credentials with the hope they will lead to a career that enables them to live and thrive in Hawai'i. But how effective are these programs at preparing Hawai'i students for future careers and long-term success? **Promising Credentials in Hawai'i, a first-of-its-kind analysis for our state, looks at whether the credentials students can earn actually matter in the real world to local employers.**

Our Challenge

Identifying the right credentials to offer students matters now more than ever. Our state must make sure we are preparing students for **jobs that are forecasted to increase in demand, pay a family sustaining wage, and have a promising career ladder**. The number of households in our state classified as “asset limited, income constrained, and employed” (ALICE), or living at or below the poverty level, jumped from 42% in 2018 to 59% in June 2020¹. The need to connect students with credentials that matter and lead to career success has never been more urgent.

It is estimated that more than **80% of good jobs today require a post-secondary credential**², either an industry-recognized credential, post-secondary certificate, Associate or Bachelor's degree. Those with a high school diploma or less often face significant gaps in opportunity. That is why Hawai'i has adopted a **55 by '25 goal** to have 55% of adults earn a post-secondary credential or college degree by 2025³.

National data shows only 18% of credentials earned by K-12 students in the US hold real value to employers.⁴ How does Hawai'i compare and what changes can we make to better match student preparation with workforce demand?

Our Process

Through intensive labor market analysis and outreach to local Hawai'i businesses, this project has identified **137 Promising Credentials** that are associated with in-demand, living wage occupations throughout the state. The process began with identifying **274 Promising Occupations** that met wage and demand thresholds. A list of corresponding credentials for the 274 occupations was then compiled using job postings data. Finally, Hawai'i employers from across the state completed surveys and participated in focus groups to assist in our understanding of local credential value and challenges. The combined analysis of the labor market data and outreach feedback helped narrow the list of nearly 2,000 credentials down to the 137 credentials that matter most when making hiring and promotion decisions.

Our Opportunity

Ensuring that Hawai'i residents are prepared for promising occupations across the state requires a combination of academic and technical preparation. To assist learners and educators in understanding both the academic and technical training needed for these occupations, the Promising Credentials list groups credentials into four broad categories associated with the typical entry level education that is most commonly requested alongside these technical credentials.

Foundational credentials prepare learners with essential knowledge and skills for a range of priority occupations, including workplace safety. They are requested across a range of occupations and are often coupled with other credentials.

Springboard credentials signal proficiency in industry-specific skills for priority occupations that often do not require a postsecondary certificate or degree.

Door opener credentials signal proficiency in industry-specific skills for priority occupations that require some post-secondary education, including certificates and associate degrees.

Advanced credentials signal proficiency in industry-specific skills for priority occupations that may also require a Bachelor's degree. Within these broad organizational categories, we acknowledge that educational training may be more nuanced for specific occupations.

Our Call to Action

Having a list of credentials valued by Hawai'i employers is just the beginning. The next phase of work will require a committed partnership between K-12, postsecondary, workforce development and industry leaders to take action.

Education leaders, this report is a springboard for future analysis and discussion to shape our state's educational offerings, so that curriculum and credentials align to workforce demand. We also have a great need for student-level data collection so we know which credentials are being attained and by whom so access to credentials can be equitable.

Parents and students, we hope this report empowers you to use job demand and labor data to make smart career pathway decisions. Resource Sheets have been created for each Promising Credential and are available at www.HawaiiCareerPathways.org/promising-credentials. We hope you use these tools to take a deeper dive into credentials of interest and when choosing a career technical education (CTE) Program of Study.

State leaders, equipped with this data can now focus CTE investments and consider ways to incentivize schools to provide training programs that lead to high value credential attainment.

Employers, continue to use attainment of these credentials as a proxy to validate that students have the skills you are looking for. Participate in the education experience by offering internships and other work-based learning activities.

This research was collected in the midst of the COVID-19 pandemic and we have proactively adjusted our research framework to address the short- and long-term impacts on Hawai'i's economy and the global economy. Though the results provide a framework to move forward today, the research should be updated regularly to account for the shifting workforce needs that affect credential demand.

This Promising Credentials in Hawai'i report provides a foundation for future work by our state's leaders. Coupled with the Talent Roadmap to Support Economic Recovery in Hawai'i⁵, we are now equipped with data and insights to hone in on industries, strategies and credentials that will enable us to fill Hawai'i jobs with local, highly skilled workers for a more resilient economy

About Promising Credentials Project Team

Promising Credentials in Hawai'i is a collaboration between Chamber of Commerce Hawai'i, Harold K.L. Castle Foundation, Hawai'i P-20 Partnerships for Education and Kamehameha Schools. This project has been advised by an Executive Advisory Committee comprised of Hawai'i industry, public sector and philanthropy leaders. The project was also supported by a Department of Education CTE advisory group. Our consultant partners were Education Strategy Group (ESG), national leaders in the credential analysis process, and Hawai'i-based SMS Research. Mahalo to our consultant partners for guiding the process.



- 1: [Aloha United Way, ALICE Report 2020.](#)
- 2: Georgetown Center on Education and the Workforce (2018).
- 3: [55 by 25, Hawai'i P20 Partnership for Education.](#)
- 4: [Credentials Matter 2.0, ExcelinEd and Burning Glass Technologies.](#)
- 5: [Talent Roadmap for Recovery, Hawai'i Executive Collaborative \(2020\).](#)

PROMISING CREDENTIALS

The resulting list of credentials below was identified through labor market data analysis and employer feedback. Each credential is shown with the corresponding number of occupations and unduplicated count of annual job postings that referenced that credential. There are 137 credentials listed in total. Unique resource pages are available for all Promising Credentials at www.HawaiiCareerPathways.org/promising-credentials.¹

Credentials are listed in four categories; foundational, springboard, door opener and advanced. These categories are based on the education level commonly associated with the occupations requesting or requiring that credential. Not all of the associated occupations fall into these education categories, but most.

Table 1. Promising Credentials, Total Occupations, and Job Postings

Foundational Credentials		
Cross-cutting knowledge and skills: These credentials prepare learners with essential knowledge and skills for a range of priority occupations across industries and are often coupled with other credentials.		
Credential	Total Occupations	Total Job Postings
Advanced Life Support	31	3219
Alcohol Certification	14	1507
Certified First Responder	51	2404
Food Safety Certification	25	3209
HAZWOPER Certification	16	346
Professional Rescuer CPR	4	90

Springboard Credentials		
Jobs requiring a high school diploma: These credentials signal proficiency in industry-specific skills for priority occupations that do not require a postsecondary certificate or degree.		
Credential	Total Occupations	Total Job Postings
Airline Transport Pilot License	13	383
ASE A1 Engine Repair	32	28170
ASE A2 Automatic Transmission/Transaxle	32	28170
ASE A3 Manual Drive Train & Axles	32	28170
ASE A4 Suspension & Steering	32	28170
ASE A5 Brakes	32	28170
ASE A6 Electrical/Electronic Systems	32	28170
ASE A7 Heating & Air Conditioning	32	28170
ASE A8 Engine Performance	32	28170

¹ There are 137 Promising Credentials and 112 credential resource sheets available. The number of resource sheets developed is slightly smaller due to the grouping of some credentials, such as ASE Type A and NCCER credentials. These credentials were grouped on the resource pages because they often had identical labor market data and similar references for additional information.

Credential	Total Occupations	Total Job Postings
ASE A9 Light Vehicle Diesel Engines	32	28170
ASE Parts Specialist	32	28170
ASNT Non-Destructive Tester	10	242
Certified Arborist	14	381
Certified Flight Instructor	9	253
Certified Forklift Operator	71	6570
Certified Fraud Examiner	20	1694
Certified Payroll Professional	4	495
Certified Pharmacy Technician	18	17043
Certified Phlebotomy Technician	6	472
Certified Professional Coder	34	3451
Certified Registered Central Service Technician (CRCST)	3	1020
Certified Welding Inspector	11	346
Commercial Driver's License (CDL)	145	285241
Commercial Pilot License	9	215
CompTIA Network+	17	3442
Cosmetology License	9	1153
EPA 608 Universal Certification	31	4545
EPA Type II Certification	3	278
Flagger Certification	14	202
Food Handler's Card	37	7643
Food Protection Manager Certification	6	217
Food Safety Manager Certification	5	95
HVAC Certification	20	3715
Journeyman Electrician	13	800
Journeyman Lineman	8	850
Licensed Massage Therapist	3	561
NATE Certification (North American Technician Excellence)	5	659
National Apprenticeship Certificate	15	235
NCCER Carpentry, Level 1	22	377
NCCER Construction Technology	22	377
NCCER Core Curriculum	22	377
NCCER Electrical, Level 1	22	377
NCCER Electronic Systems Technician, Level 1	22	377
NCCER Industrial Maintenance Mechanic, Level 1	22	377
NCCER Instrumentation, Level 1	22	377
NCCER Masonry, Level 1	22	377
NCCER Millwright, Level 1	22	377
NCCER Painting/Commercial and Residential, Level 1	22	377
NCCER Pipefitting, Level 1	22	377
NCCER Plumbing, Level 1	22	377

Credential	Total Occupations	Total Job Postings
NCCER Sheet Metal, Level 1	22	377
NCCER Weatherization, Level 1	22	377
NCCER Welding, Level 1	22	377
Occupational Hygiene and Safety Technologist (OHST)	5	204
Peace Officer Certification	9	737
Pesticide Applicator License	26	1601
Physical Security Professional	3	60
Registered Health Information Technician	7	3203
ServSafe Certification	25	9464
System Operator Certification	13	250
Traffic Control Supervisor	6	155
Transportation Worker Identification Credential (TWIC) Card	62	10822
Wastewater Operator Certification	6	384
Water Safety Instructor Certification	6	452

Door Opener Credentials		
Jobs requiring certificates or associate degrees: These credentials signal proficiency in industry-specific skills for priority occupations that require some post-secondary education, including certificates and associate degrees.		
Credential	Total Occupations	Total Job Postings
ACI Concrete Field Testing Technician	4	141
Advanced Emergency Medical Technician (AEMT)	7	366
Certified Clinical Medical Assistant	3	1330
Certified Hemodialysis Technician	5	1271
Certified Medical Assistant	18	6534
Certified Medication Technician	3	315
Certified Occupational Therapy Assistant	7	852
Certified Surgical Technologist	6	2662
Certified Veterinary Technician	6	2342
CompTIA A+	10	1972
DoD Information Assurance (IA) Certification	10	1412
Emergency Nurse Pediatric Course (ENPC)	5	2902
IV (Intravenous) Certification	10	1045
Medical Technologist	24	8482
National Council Licensure Examination, RN (Registered Nurse)	8	2010
National Registry Emergency Medical Technician	12	1294
Patient Care Technician	16	6225
Radiologic Technologist	13	9035
Radiology Certification	8	713
Registered Dental Assistant	3	657
Registered Diagnostic Cardiac Sonographer	3	827

Credential	Total Occupations	Total Job Postings
Registered Diagnostic Medical Sonographer	3	922
Registered Polysomnographic Technologist	2	516
Registered Respiratory Therapist	9	5292
Registered Technologist	4	499
Registered Vascular Technologist	6	1393

Advanced Credentials		
Jobs requiring a bachelor's degree: These credentials signal proficiency in industry-specific skills for priority occupations that may also require a bachelor's degree		
Credential	Total Occupations	Total Job Postings
APICS Certified Supply Chain Professional	7	566
AWS Certified Solutions Architect	3	463
Certified Case Manager	10	2347
Certified Coding Specialist	5	3162
Certified Diabetes Educator	20	368
Certified in Production and Inventory Management	14	1618
Certified Information Security Manager	12	2245
Certified Information System Auditor (CISA)	23	5375
Certified Information Systems Security Professional	34	9623
Certified Internal Auditor	35	5916
Certified Nursing Assistant	53	51667
Certified Plant Engineer	26	1234
Certified Power Quality Professional	11	1369
Certified Quality Auditor	9	241
Certified Regulatory Compliance Manager	6	611
Certified Safety Professional	29	1531
Certified Scrum Master	10	3230
Cisco Certified Internetwork Expert	7	1973
Cisco Certified Network Associate	23	8358
Cisco Certified Network Professional	12	5222
CompTIA Security+	31	9780
CompTIA Security+ CE	5	1012
DoD IAT Level II Certification	13	4643
GIAC Security Essentials Certification	6	894
Immunization Certification	3	1916
ITIL Foundation Certification	9	3250
LEED Accredited Professional (AP)	16	2608

Credential	Total Occupations	Total Job Postings
Microsoft Certified Systems Administrator (MCSA)* ²	12	3879
Microsoft Certified Systems Engineer*	15	6098
National Council Licensure Examination, PN (Practical Nurse)	51	74446
Personal Trainer Certification	10	1360
Project Management Professional Certification	60	24467
Registered Health Information Administrator	5	2856
Salesforce Certified Administrator	8	1516
Society for Human Resource Management Certified Professional	8	2319
Society for Human Resource Management Senior Certified Professional	7	1397
Six Sigma Black Belt Certification	15	940
Six Sigma Green Belt Certification	21	1577
Systems Security Certified Practitioner	6	1390
Teaching English As A Foreign Language	4	1802
VMware Certified Professional (VCP)	4	1690

² Listed Microsoft credentials are retired and no longer being issued. They were included in the promising credentials list as when and if new credentials from Microsoft become available, attention should be given to potential equivalent credentials to those listed here.

*For an in-depth analysis of healthcare credentials and pathways in Hawaii, see the Healthcare Association of Hawaii's Health Workforce Initiative Report at <https://www.hah.org/health-workforce-initiative>.

INDUSTRY FEEDBACK KEY FINDINGS

Over a two-month period, there were a total of 177 survey responses from 93 different businesses and an additional 33 business executives participated in industry specific focus groups. The feedback received through industry surveys and focus groups had both multiple points of consensus and some distinct variations by industry. Included below are the combined results and key takeaways from an industry perspective.

Industry Demand for Employability Skills in addition to Technical Skills

Almost all employers stressed the importance of employability, “the attributes of a person that makes that person able to gain and maintain employment³.” Based on feedback these attributes include soft skills such as professional behavior, integrity, and initiative. Some employers mentioned even the basic ability to show up on time ready to work. Many considered technical skills a definite plus, but employers were willing to “up-skill” or “re-skill” new hires for entry level employment, but found certain qualities, including work ethic, teachability, and flexibility to be foundational requirements for a candidate to be successful in their organizations.

Industry is Willing to Support Training for Employees

Nearly 71% of employers surveyed reported providing training they considered necessary to employees once hired. Some of the training programs mentioned were general company trainings, but many also included trainings related to specific formal credentials. The most common training and certifications offered to employees by Hawai'i employers are listed below. Many are considered foundational certifications.

1. Cardiopulmonary Resuscitation (CPR) / First Aid
2. OSHA / Safety Training
3. Basic Computer or Software Training
4. Chainsaw Safety
5. Commercial Driver License (CDL)

Industries with the highest rate of training support included Agriculture, Food, and Natural Resources, Law and Public Safety, and Manufacturing at more than 90 percent. Many of the certifications supported are foundational certifications that span many industries and are not considered highly technical or industry specific. This signals that these certifications may be valuable as a transferable and useful baseline for many occupations. However, since many employers are willing to offer these certifications to new employees, they are less likely to be a determining factor in employment.

³ Defined by Wikipedia.

Industry Desire to Expand Work Opportunities for Students

Employers overwhelmingly indicated their interest and willingness to engage further with K-12 schools to expand opportunities for students to gain valuable work and field experience. Employers stressed the importance of work experience as a prerequisite to full-time hire because it demonstrates that those employees better understand workplace expectations and challenges. Some employers expressed concern with the misalignment between school curriculum and work, but all agreed that the only way to bridge this gap was through more collaboration across school and work silos.

Employers also highlighted the burdens of locating and managing interns or other workplace learning experiences. Those who have had success in this area attribute it to project-based hires, meaning hiring interns that have the skills to make valuable contributions to a specific project the organization is working on. This strategy not only allows students to work on real life content and problems in the field but also benefits the employers with support and results on real projects.

Employer Identified Occupations for Workforce Development

Nearly 40% of Hawai'i employers surveyed felt there was a shortage of qualified candidates within their industry. The Health Science and Construction industries reported the highest shortage of qualified candidates, at 70% and 67% respectively.

Employers highlighted the occupations that they struggle to fill with local talent and may be in need of additional workforce development. The most named job titles are listed below. Most of these occupations were also identified in the labor market analysis as meeting demand and wage thresholds. However, the forestry and anthropology related positions were highlighted by the survey and focus group participants but were not identified in the labor market analysis data due to a lower number of positions in the state within those occupations. It is likely that due to the specialized nature of these positions there are simply not enough qualified candidates even for the smaller number of available positions.

1. Administrative Support Professionals
2. Anthropologists and Cultural Experts
3. Certified Nurse Aides
4. Finance and Accounting Professionals
5. Forestry and Wildlife Professionals
6. Licensed Engineers
7. Marketing Specialists
8. Registered Nurses
9. Teachers
10. Water and Wastewater Treatment Plant and System Operators

Lack of Awareness regarding Career Opportunities

Industry leaders consistently believe students and the wider community were unaware of career opportunities and pay levels within many of their fields. This was particularly true within trade and fieldwork industries including Construction, Transportation, Energy, and Agriculture. In Agriculture, for example, employers felt the community perception is that the only available career is “farmer.” However, beyond the farmer, available positions include executives, sales, distributors, agriculture tech specialists, accountants, and more. Industry members believe that a lack of interest in certain industries is due to potential employees not understanding what types of positions may be available, many of which pay very well.

Growing Need for Tech and Cross Sector Skills

The increasing role technology now plays in business across all industries is evident. All industries expressed technology skills as a growing requirement. Generally, most positions require basic computer skills, and this is likely to increase with many sectors planning on increased reliance on programs and applications to track clientele, sales, patients or other data.

Industries reported there has been a growing need for broad cross sector skills or hybrid skillsets, meaning skills that employees demonstrate that can transfer between industries. This means skills such as client relations, communicating with executives, and successfully completing a sales call, were often equally as important as technical, lab, and field work when it came to climbing the ladder within an organization. This suggests that having well developed interpersonal skills to pair with technical expertise has become more relevant to employers.

COVID-19 Response and Implications

The COVID-19 pandemic impacted businesses both globally and locally. Many companies are pivoting and learning to survive in a “new normal”. Business leaders discussed the need for true innovation in times like these. As revenue sources dry up overnight, finding alternative markets to supplement their income through the pandemic has been key. It has been necessary for businesses to implement not only temporary but some potentially permanent changes.

Businesses feel some hybrid form of home and office work will remain post COVID. While initial efforts included some growing pains, such as setting up work stations at home and working out technology kinks, many feel the transition to remote work has been successful. A challenge discussed was the lack of natural collaboration opportunities with co-workers when everyone is working remotely. Where you once discussed a project and found solutions in the office halls, collaboration must now be more intentional with fewer face-to-face interactions. The new reality of working from home has also led employers

to rely more on employee initiative. With no manager physically present to oversee work, employees must be able to stay on task and complete assignments with little to no oversight. This is leading to new metrics on productivity, with benchmarks based on deliverables rather than time in the office.

Many business leaders discussed the potential opening of markets to Hawai'i providers, most specifically in the tech and business sectors. With a global shift toward digital communications and remote platforms, contracting with partners overseas has become less of an obstacle and places Hawai'i on more equal footing with competitors overseas who may be physically closer to clients and work opportunities. Many leaders felt this may lead to a permanent expansion of opportunities for Hawai'i companies to access business across the globe that may have been previously unrealistic.

RECOMMENDATIONS

1. **CONDUCT CREDENTIAL GAP ANALYSIS.** Conduct a thorough analysis of credentials offered versus credentials valued by employers and adjust offerings as appropriate.
2. **INCENTIVIZE CREDENTIAL ATTAINMENT IN SCHOOLS.** Increase the number of students that can attain promising credentials by incentivizing schools and campuses to provide training programs and classes. The state should consider providing funding to schools and campuses for additional Career and Technical Education (CTE) program development and/or issuing bonuses to schools for every student certified.
3. **ESTABLISH AND TRACK METRICS FOR CTE AND CREDENTIAL ATTAINMENT.** There is currently a lack of comprehensive data on the availability of certification programs statewide both within K-12 and post-secondary education. Improving data collection around credentialing, including credential enrollment, attainment, and career success post attainment, will be essential to track and make planning decisions as the relevance of credentials increases in the state.
4. **ALIGN PROMISING CREDENTIALS WITH DOE PATHWAYS.** Align and integrate the Promising Credentials with DOE pathways so that more students complete credentials by graduation. Increasing credential integration into these programs will help standardize the pursuit of credentials and make attainment easier for students by taking much of the outside identification and logistical work.
5. **INCREASED FOCUS ON EMPLOYABILITY SKILLS.** Enhance focus in secondary schools on the development of employability skills that help increase employability and versatility in the workplace. Industry continued to highlight the demand for candidates with critical thinking and communication skills as well as strong work ethics.
6. **SUPPORT PROFESSIONAL DEVELOPMENT (PD) FOR TEACHERS IN INDUSTRY FOCUS AREAS.** Support professional development for teachers in various industries to better support student learning in these content areas. Enabling teachers to pursue industry specific credentials themselves will better prepare them for supporting students through industry credentialing programs and exams.
7. **BUILD A COALITION OF CTE PROGRAM LEADERS TO ENHANCE ALIGNMENT WITHIN THE STATE.** Build a coalition of secondary and post-secondary education leaders within the state to clarify the credential landscape within the state. Currently, there is a lack of clarity regarding availability and credential value for learners. Clear pathways and information sharing on the possibilities for students will assist families and counselors in education and career planning.

8. **EXPAND PARTNERSHIP OPPORTUNITIES WITH INDUSTRY.** Expand opportunities to include industry as part of the education experience including work-based learning, internships, job shadowing and career days. Industry highlighted the importance of work experience as well as an interest in increased involvement with students. Streamlining pathways for industry engagement will help increase partnerships and support additional opportunities for students. This work will also help increase student awareness of career opportunities within different fields of interest.
9. **INDUSTRY OUTREACH AND EDUCATION.** Increase industry education and awareness on nationally recognized credentials and those that will be incorporated into local education programs. This can be done through associations and conferences and will assist in developing more consistent understanding statewide of what credentials indicate about the candidate and will aid in increasing their recognition and value across the state.
10. **INCREASED SUPPORT FOR HIGH DEMAND, LOW WAGE OCCUPATIONS.** Develop policies to support or subsidize increased wages for in demand positions that did not meet the wage thresholds for this project. Increasing funding for these positions will help prevent shortages in supply of workers in some of these essential occupations.
11. **UPDATE PROMISING CREDENTIALS ANNUALLY.** Develop a systematic process to update this research to facilitate continued alignment between certification programs of focus and industry needs. Ensuring the continued industry relevance of credentials prioritized for workforce development is essential. In light of COVID-19 and the increasingly unstable short- and long-term economic forecast, an annual update is recommended.

APPENDIX A: TABLES FOR REFERENCE

Table 2 lists the occupations that met wage and demand thresholds that are considered promising occupations. The table includes projected job numbers and expected growth, as well as the number of annual job openings for those positions and their median hourly earnings in the state of Hawai'i.

The typical entry-level education for each occupation is pulled directly from the Bureau of Labor Statistics' Education and Training Measurements for Workers 15 Years and Older by Detailed Occupation. These data come from a variety of sources, including the Census Bureau's American Community Survey, Occupational Information Network (ONET) and data on postsecondary completion from the National Center for Education Statistics.

Entry-level education requirements represent national trends and are not Hawai'i-specific. Employers in Hawai'i may prefer more or less education than is captured in the federal data. For the purposes of the Promising Credentials list, these education levels are used to help organize credentials, but do not impact whether credentials are added or removed from the list itself.

Table 2: Promising Occupations Identified in Labor Market Analysis

Description	2023 Projected Jobs	2017 - 2023 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Accountants and Auditors	5,079	2%	489	\$29.47	Bachelor's degree
Administrative Services Managers	1,369	4%	120	\$45.65	Bachelor's degree
Advertising Sales Agents	365	-7%	53	\$27.74	High school diploma or equivalent
Agricultural Equipment Operators	290	8%	52	\$21.27	No formal educational credential
Agricultural Workers, All Other	477	1%	87	\$21.24	No formal educational credential
Air Traffic Controllers	302	2%	30	\$49.70	Associate's degree
Aircraft Mechanics and Service Technicians	1,561	7%	143	\$30.64	Postsecondary nondegree award
Airfield Operations Specialists	641	15%	72	\$23.50	High school diploma or equivalent
Airline Pilots, Copilots, and Flight Engineers	1,169	8%	132	\$82.62	Bachelor's degree
Architects, Except Landscape and Naval	757	1%	61	\$36.49	Bachelor's degree
Architectural and Civil Drafters	534	3%	58	\$25.37	Associate's degree
Architectural and Engineering Managers	838	8%	70	\$61.86	Bachelor's degree
Assemblers and Fabricators, All Other, Including Team Assemblers	566	-10%	72	\$15.92	High school diploma or equivalent
Audio and Video Equipment Technicians	455	10%	56	\$25.63	Postsecondary nondegree award

Description	2023 Projected Jobs	2017 - 2023 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Automotive Body and Related Repairers	671	11%	72	\$24.62	High school diploma or equivalent
Automotive Service Technicians and Mechanics	2,656	4%	273	\$21.95	Postsecondary nondegree award
Bartenders	3,771	6%	683	\$26.19	No formal educational credential
Bill and Account Collectors	512	-17%	66	\$20.03	High school diploma or equivalent
Billing and Posting Clerks	1,282	4%	148	\$19.76	High school diploma or equivalent
Biological Scientists, All Other	345	8%	36	\$38.62	Bachelor's degree
Biological Technicians	615	8%	71	\$16.11	Bachelor's degree
Bookkeeping, Accounting, and Auditing Clerks	6,278	-3%	751	\$19.27	Some college, no degree
Bus and Truck Mechanics and Diesel Engine Specialists	870	6%	87	\$28.09	High school diploma or equivalent
Bus Drivers, School or Special Client	1,130	-5%	156	\$18.46	High school diploma or equivalent
Bus Drivers, Transit and Intercity	2,408	-5%	310	\$22.12	High school diploma or equivalent
Business Operations Specialists, All Other	5,143	9%	550	\$34.25	Bachelor's degree
Butchers and Meat Cutters	745	14%	102	\$20.43	No formal educational credential
Buyers and Purchasing Agents	1,706	-4%	172	\$26.94	Bachelor's degree
Captains, Mates, and Pilots of Water Vessels	1,328	-5%	135	\$24.52	Postsecondary nondegree award
Career/Technical Education Teachers, Secondary School	1,337	-1%	127	\$19.64	Bachelor's degree
Carpenters	5,856	4%	634	\$35.39	High school diploma or equivalent
Cement Masons and Concrete Finishers	902	6%	102	\$37.69	No formal educational credential
Chefs and Head Cooks	1,150	3%	158	\$30.68	High school diploma or equivalent
Chemical Equipment Operators and Tenders	130	91%	24	\$32.10	High school diploma or equivalent
Chief Executives	1,013	-11%	76	\$91.31	Bachelor's degree
Child, Family, and School Social Workers	1,833	2%	187	\$26.84	Bachelor's degree
Civil Engineers	2,184	9%	194	\$40.20	Bachelor's degree
Claims Adjusters, Examiners, and Investigators	831	3%	74	\$29.03	High school diploma or equivalent
Clergy	516	4%	60	\$19.69	Bachelor's degree
Clinical Laboratory Technologists and Technicians	1,487	6%	117	\$27.69	Bachelor's degree
Clinical, Counseling, and School Psychologists	493	14%	43	\$37.71	Doctoral or professional degree
Coaches and Scouts	1,165	7%	177	\$17.21	Bachelor's degree

Description	2023 Projected Jobs	2017 - 2023 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Commercial Pilots	381	12%	45	\$41.39	High school diploma or equivalent
Community and Social Service Specialists, All Other	892	1%	105	\$27.09	Bachelor's degree
Community Health Workers	560	12%	71	\$20.49	High school diploma or equivalent
Compensation, Benefits, and Job Analysis Specialists	270	6%	28	\$28.68	Bachelor's degree
Compliance Officers	1,729	7%	167	\$33.05	Bachelor's degree
Computer and Information Systems Managers	890	9%	81	\$56.81	Bachelor's degree
Computer Network Support Specialists	692	-7%	59	\$29.09	Associate's degree
Computer Occupations, All Other	1,607	5%	128	\$44.92	Bachelor's degree
Computer Systems Analysts	1,543	2%	121	\$36.82	Bachelor's degree
Computer User Support Specialists	1,263	4%	113	\$22.10	Some college, no degree
Computer, Automated Teller, and Office Machine Repairers	477	0%	57	\$20.58	Some college, no degree
Concierges	1,167	1%	171	\$19.88	High school diploma or equivalent
Construction and Building Inspectors	804	9%	108	\$30.82	High school diploma or equivalent
Construction Laborers	5,415	7%	638	\$28.47	No formal educational credential
Construction Managers	2,025	11%	173	\$48.08	Bachelor's degree
Cooks, All Other	463	21%	77	\$17.04	No formal educational credential
Cooks, Institution and Cafeteria	1,419	4%	207	\$18.03	No formal educational credential
Correctional Officers and Jailers	1,546	-6%	141	\$28.20	High school diploma or equivalent
Cost Estimators	988	3%	105	\$38.41	Bachelor's degree
Court, Municipal, and License Clerks	827	9%	86	\$21.14	High school diploma or equivalent
Crane and Tower Operators	128	10%	17	\$41.46	High school diploma or equivalent
Customer Service Representatives	8,120	3%	1,147	\$17.33	High school diploma or equivalent
Dancers	394	-4%	77	\$17.67	No formal educational credential
Dental Assistants	1,718	6%	203	\$18.16	Postsecondary nondegree award
Dental Hygienists	991	8%	76	\$36.86	Associate's degree

Description	2023 Projected Jobs	2017 - 2023 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Dentists, General	707	7%	28	\$80.06	Doctoral or professional degree
Detectives and Criminal Investigators	486	3%	34	\$51.26	High school diploma or equivalent
Diagnostic Medical Sonographers	192	13%	14	\$45.68	Associate's degree
Dietitians and Nutritionists	323	11%	25	\$33.64	Bachelor's degree
Dining Room and Cafeteria Attendants and Bartender Helpers	5,547	9%	987	\$16.44	No formal educational credential
Dispatchers, Except Police, Fire, and Ambulance	923	2%	94	\$18.76	High school diploma or equivalent
Drywall and Ceiling Tile Installers	665	-12%	71	\$42.37	No formal educational credential
Education Administrators, All Other	208	45%	27	\$18.31	Bachelor's degree
Education Administrators, Elementary and Secondary School	1,020	-5%	90	\$45.85	Master's degree
Education Administrators, Postsecondary	415	2%	34	\$55.19	Master's degree
Education, Training, and Library Workers, All Other	506	30%	65	\$22.06	Bachelor's degree
Educational, Guidance, School, and Vocational Counselors	1,562	5%	176	\$28.35	Master's degree
Electrical and Electronics Engineering Technicians	648	5%	68	\$34.27	Associate's degree
Electrical Engineers	888	6%	68	\$43.78	Bachelor's degree
Electrical Power-Line Installers and Repairers	434	5%	42	\$43.65	High school diploma or equivalent
Electricians	3,861	8%	486	\$35.64	High school diploma or equivalent
Elementary School Teachers, Except Special Education	5,654	-11%	482	\$29.41	Bachelor's degree
Elevator Installers and Repairers	207	7%	25	\$43.48	High school diploma or equivalent
Eligibility Interviewers, Government Programs	781	-1%	78	\$22.52	High school diploma or equivalent
Emergency Medical Technicians and Paramedics	834	13%	68	\$26.19	Postsecondary nondegree award
Engineering Technicians, Except Drafters, All Other	456	9%	49	\$38.27	Associate's degree
Engineers, All Other	681	10%	57	\$48.09	Bachelor's degree
Environmental Science and Protection Technicians, Including Health	210	4%	26	\$21.83	Associate's degree

Description	2023 Projected Jobs	2017 - 2023 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Environmental Scientists and Specialists, Including Health	691	3%	77	\$32.46	Bachelor's degree
Executive Secretaries and Executive Administrative Assistants	2,647	-14%	320	\$27.56	High school diploma or equivalent
Farmers, Ranchers, and Other Agricultural Managers	921	-2%	101	\$60.94	High school diploma or equivalent
File Clerks	543	-20%	73	\$15.62	High school diploma or equivalent
Financial Analysts	684	11%	68	\$36.47	Bachelor's degree
Financial Managers	2,808	12%	257	\$51.91	Bachelor's degree
Financial Specialists, All Other	799	6%	75	\$36.96	Bachelor's degree
Firefighters	1,786	4%	130	\$29.05	Postsecondary nondegree award
First-Line Supervisors of Construction Trades and Extraction Workers	3,165	12%	368	\$39.62	High school diploma or equivalent
First-Line Supervisors of Farming, Fishing, and Forestry Workers	260	15%	46	\$26.89	High school diploma or equivalent
First-Line Supervisors of Fire Fighting and Prevention Workers	453	14%	37	\$44.44	Postsecondary nondegree award
First-Line Supervisors of Food Preparation and Serving Workers	6,351	11%	1,024	\$19.43	High school diploma or equivalent
First-Line Supervisors of Housekeeping and Janitorial Workers	1,689	4%	200	\$22.16	High school diploma or equivalent
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	675	4%	78	\$26.91	High school diploma or equivalent
First-Line Supervisors of Mechanics, Installers, and Repairers	2,845	3%	275	\$36.20	High school diploma or equivalent
First-Line Supervisors of Non-Retail Sales Workers	1,113	-4%	111	\$32.24	High school diploma or equivalent
First-Line Supervisors of Office and Administrative Support Workers	7,596	1%	825	\$27.10	High school diploma or equivalent
First-Line Supervisors of Personal Service Workers	1,437	14%	162	\$22.35	High school diploma or equivalent
First-Line Supervisors of Police and Detectives	634	10%	48	\$54.56	High school diploma or equivalent
First-Line Supervisors of Production and Operating Workers	1,402	1%	149	\$28.75	High school diploma or equivalent
First-Line Supervisors of Protective Service Workers, All Other	736	4%	75	\$24.00	High school diploma or equivalent
First-Line Supervisors of Retail Sales Workers	7,472	0%	836	\$19.86	High school diploma or equivalent

Description	2023 Projected Jobs	2017 - 2023 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
First-line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	2,220	7%	260	\$25.19	High school diploma or equivalent
Fitness Trainers and Aerobics Instructors	1,210	22%	226	\$22.23	High school diploma or equivalent
Flight Attendants	1,540	13%	194	\$21.17	High school diploma or equivalent
Floor Layers, Except Carpet, Wood, and Hard Tiles	221	15%	26	\$23.85	No formal educational credential
Food Servers, Nonrestaurant	1,381	1%	222	\$16.94	No formal educational credential
Food Service Managers	1,457	9%	180	\$28.97	High school diploma or equivalent
Forest and Conservation Workers	158	5%	30	\$18.55	High school diploma or equivalent
Fundraisers	251	11%	29	\$24.03	Bachelor's degree
General and Operations Managers	10,113	6%	952	\$47.84	Bachelor's degree
Health Educators	377	5%	45	\$32.72	Bachelor's degree
Health Technologists and Technicians, All Other	550	20%	50	\$23.64	Postsecondary nondegree award
Healthcare Practitioners and Technical Workers, All Other	123	-14%	8	\$31.44	Postsecondary nondegree award
Healthcare Social Workers	927	11%	102	\$31.11	Master's degree
Healthcare Support Workers, All Other	729	8%	91	\$16.98	High school diploma or equivalent
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	1,188	13%	134	\$28.88	Postsecondary nondegree award
Heavy and Tractor-Trailer Truck Drivers	3,727	5%	446	\$22.49	Postsecondary nondegree award
Helpers--Electricians	531	-1%	77	\$20.99	High school diploma or equivalent
Helpers--Installation, Maintenance, and Repair Workers	472	-2%	63	\$19.45	High school diploma or equivalent
Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	170	9%	25	\$18.48	High school diploma or equivalent
Hotel, Motel, and Resort Desk Clerks	3,098	3%	541	\$21.53	High school diploma or equivalent
Human Resources Assistants, Except Payroll and Timekeeping	750	-10%	90	\$20.08	Associate's degree
Human Resources Managers	589	5%	58	\$47.16	Bachelor's degree
Human Resources Specialists	1,908	-3%	220	\$30.45	Bachelor's degree

Description	2023 Projected Jobs	2017 - 2023 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Industrial Machinery Mechanics	704	2%	70	\$32.22	High school diploma or equivalent
Industrial Truck and Tractor Operators	943	10%	117	\$21.86	No formal educational credential
Information and Record Clerks, All Other	1,157	-3%	140	\$21.42	High school diploma or equivalent
Installation, Maintenance, and Repair Workers, All Other	1,329	2%	147	\$30.82	High school diploma or equivalent
Instructional Coordinators	893	-11%	90	\$30.88	Master's degree
Insurance Claims and Policy Processing Clerks	594	5%	63	\$18.14	High school diploma or equivalent
Insurance Sales Agents	1,006	4%	103	\$25.56	High school diploma or equivalent
Interviewers, Except Eligibility and Loan	488	-3%	63	\$19.48	High school diploma or equivalent
Labor Relations Specialists	593	3%	64	\$37.12	Bachelor's degree
Laborers and Freight, Stock, and Material Movers, Hand	7,407	3%	1,094	\$15.72	No formal educational credential
Landscaping and Groundskeeping Workers	8,598	3%	1,147	\$15.77	No formal educational credential
Lawyers	2,144	4%	115	\$46.76	Doctoral or professional degree
Legal Secretaries	758	-17%	94	\$22.54	High school diploma or equivalent
Librarians	509	0%	53	\$33.68	Master's degree
Licensed Practical and Licensed Vocational Nurses	1,443	15%	135	\$23.73	Postsecondary nondegree award
Life, Physical, and Social Science Technicians, All Other	710	-4%	86	\$26.54	Associate's degree
Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	982	5%	239	\$19.30	No formal educational credential
Light Truck or Delivery Services Drivers	5,166	11%	653	\$16.60	High school diploma or equivalent
Loan Interviewers and Clerks	799	-1%	83	\$19.61	High school diploma or equivalent
Loan Officers	1,173	2%	102	\$28.09	Bachelor's degree
Locker Room, Coatroom, and Dressing Room Attendants	314	7%	73	\$19.40	High school diploma or equivalent
Locomotive Engineers	306	3%	31	\$38.97	High school diploma or equivalent

Description	2023 Projected Jobs	2017 - 2023 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Lodging Managers	483	5%	54	\$38.77	High school diploma or equivalent
Logisticians	546	14%	61	\$39.28	Bachelor's degree
Machinists	255	-3%	28	\$32.60	High school diploma or equivalent
Magnetic Resonance Imaging Technologists	147	4%	9	\$44.18	Associate degree
Maids and Housekeeping Cleaners	13,820	0%	1,917	\$18.59	No formal educational credential
Maintenance and Repair Workers, General	7,669	6%	801	\$21.95	High school diploma or equivalent
Management Analysts	2,349	14%	256	\$37.97	Bachelor's degree
Managers, All Other	2,194	9%	191	\$45.41	Bachelor's degree
Market Research Analysts and Marketing Specialists	1,807	20%	220	\$26.88	Bachelor's degree
Marketing Managers	649	17%	71	\$48.48	Bachelor's degree
Massage Therapists	1,464	13%	189	\$27.76	Postsecondary nondegree award
Mechanical Engineers	787	5%	62	\$37.74	Bachelor's degree
Media and Communication Equipment Workers, All Other	223	4%	28	\$39.27	High school diploma or equivalent
Medical and Health Services Managers	1,861	18%	183	\$55.04	Bachelor's degree
Medical Assistants	4,005	13%	492	\$17.99	Postsecondary nondegree award
Medical Equipment Preparers	290	6%	36	\$20.10	High school diploma or equivalent
Medical Records and Health Information Technicians	728	10%	55	\$22.60	Postsecondary nondegree award
Medical Secretaries	1,609	12%	200	\$19.96	High school diploma or equivalent
Meeting, Convention, and Event Planners	813	8%	100	\$25.84	Bachelor's degree
Mental Health and Substance Abuse Social Workers	389	7%	42	\$26.01	Master's degree
Middle School Teachers, Except Special and Career/Technical Education	1,786	-3%	156	\$29.14	Bachelor's degree
Mobile Heavy Equipment Mechanics, Except Engines	577	6%	62	\$33.13	High school diploma or equivalent
Motor Vehicle Operators, All Other	491	8%	87	\$30.90	No formal educational credential
Musicians and Singers	609	1%	87	\$35.71	No formal educational credential

Description	2023 Projected Jobs	2017 - 2023 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Natural Sciences Managers	278	6%	27	\$53.92	Bachelor's degree
Network and Computer Systems Administrators	1,159	-4%	85	\$38.87	Bachelor's degree
Nurse Practitioners	520	27%	44	\$59.41	Master's degree
Nursing Assistants	5,304	7%	648	\$16.76	Postsecondary nondegree award
Occupational Health and Safety Specialists	497	7%	32	\$33.40	Bachelor's degree
Occupational Therapists	389	21%	31	\$41.32	Master's degree
Office Clerks, General	10,508	-2%	1,298	\$15.95	High school diploma or equivalent
Operating Engineers and Other Construction Equipment Operators	2,070	12%	266	\$39.42	High school diploma or equivalent
Ophthalmic Medical Technicians	356	14%	36	\$17.29	Postsecondary nondegree award
Painters, Construction and Maintenance	1,960	10%	223	\$26.53	No formal educational credential
Painters, Transportation Equipment	224	8%	27	\$25.08	High school diploma or equivalent
Paralegals and Legal Assistants	1,125	9%	132	\$24.12	Associate's degree
Parts Salespersons	668	1%	83	\$18.10	No formal educational credential
Payroll and Timekeeping Clerks	550	-10%	64	\$22.30	High school diploma or equivalent
Personal Financial Advisors	764	1%	62	\$32.70	Bachelor's degree
Pest Control Workers	585	5%	94	\$17.58	High school diploma or equivalent
Pharmacists	1,727	-1%	81	\$59.08	Doctoral or professional degree
Pharmacy Technicians	1,868	2%	161	\$18.46	High school diploma or equivalent
Phlebotomists	834	14%	100	\$17.41	Postsecondary nondegree award
Physical Therapist Assistants	269	29%	39	\$27.95	Associate's degree
Physical Therapists	1,163	18%	76	\$43.03	Doctoral or professional degree
Physician Assistants	393	22%	32	\$55.88	Master's degree
Physicians and Surgeons, All Other	1,518	13%	71	\$117.90	Doctoral or professional degree
Plumbers, Pipefitters, and Steamfitters	2,143	9%	258	\$31.10	High school diploma or equivalent

Description	2023 Projected Jobs	2017 - 2023 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Police and Sheriff's Patrol Officers	2,741	3%	203	\$35.27	High school diploma or equivalent
Police, Fire, and Ambulance Dispatchers	247	4%	25	\$22.23	High school diploma or equivalent
Postal Service Mail Carriers	1,034	-4%	83	\$30.04	High school diploma or equivalent
Postsecondary Teachers	6,156	2%	537	\$33.39	Doctoral or professional degree
Power Plant Operators	223	-5%	24	\$44.53	High school diploma or equivalent
Preschool Teachers, Except Special Education	1,438	-2%	147	\$18.68	Associate's degree
Producers and Directors	566	16%	69	\$33.71	Bachelor's degree
Production, Planning, and Expediting Clerks	879	11%	104	\$24.71	High school diploma or equivalent
Property, Real Estate, and Community Association Managers	2,761	10%	249	\$26.29	High school diploma or equivalent
Public Relations and Fundraising Managers	452	9%	44	\$46.29	Bachelor's degree
Public Relations Specialists	1,334	3%	145	\$28.48	Bachelor's degree
Purchasing Managers	295	4%	26	\$51.19	Bachelor's degree
Radiologic Technologists	722	14%	53	\$36.98	Associate's degree
Railroad Conductors and Yardmasters	121	-7%	12	\$50.87	High school diploma or equivalent
Real Estate Brokers	270	7%	28	\$34.76	High school diploma or equivalent
Real Estate Sales Agents	413	15%	46	\$29.29	High school diploma or equivalent
Refuse and Recyclable Material Collectors	595	3%	86	\$18.63	No formal educational credential
Registered Nurses	12,531	10%	835	\$50.62	Bachelor's degree
Reservation and Transportation Ticket Agents and Travel Clerks	3,150	-5%	380	\$20.42	High school diploma or equivalent
Respiratory Therapists	389	9%	26	\$34.44	Associate's degree
Riggers	236	6%	25	\$34.48	High school diploma or equivalent
Roofers	874	-4%	97	\$26.71	No formal educational credential
Sailors and Marine Oilers	673	2%	90	\$18.33	No formal educational credential
Sales and Related Workers, All Other	346	6%	47	\$17.95	High school diploma or equivalent
Sales Managers	2,033	3%	195	\$40.00	Bachelor's degree

Description	2023 Projected Jobs	2017 - 2023 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Sales Representatives, Services, All Other	3,768	1%	493	\$26.47	High school diploma or equivalent
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	3,700	-5%	402	\$22.77	High school diploma or equivalent
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	1,092	-2%	121	\$34.15	Bachelor's degree
Secondary School Teachers, Except Special and Career/Technical Education	4,025	-4%	323	\$28.92	Bachelor's degree
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	9,994	-11%	1,174	\$19.11	High school diploma or equivalent
Securities, Commodities, and Financial Services Sales Agents	793	11%	88	\$30.31	Bachelor's degree
Security and Fire Alarm Systems Installers	450	14%	59	\$22.26	High school diploma or equivalent
Security Guards	9,562	-1%	1,250	\$15.75	High school diploma or equivalent
Self-Enrichment Education Teachers	1,848	7%	227	\$17.75	High school diploma or equivalent
Sheet Metal Workers	797	0%	89	\$39.06	High school diploma or equivalent
Shipping, Receiving, and Traffic Clerks	1,850	-7%	191	\$17.28	High school diploma or equivalent
Skincare Specialists	271	25%	38	\$22.02	Postsecondary nondegree award
Social and Community Service Managers	691	12%	70	\$31.59	Bachelor's degree
Social and Human Service Assistants	2,419	6%	302	\$17.15	High school diploma or equivalent
Social Scientists and Related Workers, All Other	325	4%	39	\$46.46	Bachelor's degree
Social Workers, All Other	258	8%	27	\$40.90	Bachelor's degree
Software Developers, Applications	932	17%	83	\$38.46	Bachelor's degree
Software Developers, Systems Software	1,035	1%	79	\$43.87	Bachelor's degree
Solar Photovoltaic Installers	324	46%	52	\$25.98	High school diploma or equivalent
Special Education Teachers, Kindergarten and Elementary School	1,569	-6%	142	\$27.07	Bachelor's degree

Description	2023 Projected Jobs	2017 - 2023 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Speech-Language Pathologists	641	15%	45	\$35.64	Master's degree
Substance Abuse, Behavioral Disorder, and Mental Health Counselors	717	15%	84	\$23.44	Bachelor's degree
Substitute Teachers	2,551	12%	374	\$22.67	Bachelor's degree
Surgical Technologists	402	15%	39	\$23.45	Postsecondary nondegree award
Switchboard Operators, Including Answering Service	412	-19%	56	\$20.72	High school diploma or equivalent
Tank Car, Truck, and Ship Loaders	301	-17%	40	\$37.90	No formal educational credential
Tax Preparers	239	7%	30	\$25.58	High school diploma or equivalent
Teachers and Instructors, All Other	6,384	3%	827	\$21.02	Bachelor's degree
Telecommunications Equipment Installers and Repairers, Except Line Installers	1,128	-5%	130	\$29.81	Postsecondary nondegree award
Telecommunications Line Installers and Repairers	402	15%	53	\$32.99	High school diploma or equivalent
Training and Development Specialists	1,192	7%	140	\$28.41	Bachelor's degree
Transportation Inspectors	179	2%	19	\$36.10	High school diploma or equivalent
Transportation Security Screeners	1,167	7%	122	\$19.50	High school diploma or equivalent
Transportation Workers, All Other	775	12%	91	\$17.25	High school diploma or equivalent
Transportation, Storage, and Distribution Managers	579	4%	49	\$42.65	High school diploma or equivalent
Travel Agents	553	-14%	81	\$18.98	High school diploma or equivalent
Tree Trimmers and Pruners	252	10%	35	\$21.60	High school diploma or equivalent
Urban and Regional Planners	485	9%	50	\$35.73	Master's degree
Veterinary Technologists and Technicians	472	19%	48	\$17.23	Associate's degree
Waiters and Waitresses	20,641	4%	4,029	\$23.49	No formal educational credential
Water and Wastewater Treatment Plant and System Operators	459	1%	45	\$25.90	High school diploma or equivalent
Web Developers	309	0%	25	\$29.69	Associate degree
Welders, Cutters, Solderers, and Brazers	554	-3%	64	\$27.89	High school diploma or equivalent
Word Processors and Typists	431	-21%	60	\$16.84	High school diploma or equivalent

While not meeting the highest demand thresholds set for this project, the occupations in table 3 had minimal education requirements and high wages. These were also considered promising occupations and were included in the analysis and the list above.

Table 3: High Wage Occupations with Minimal Education Requirements

Description	2023 Projected Total Jobs	2017 - 2023 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Chemical Equipment Operators and Tenders	130	91%	24	\$32.10	High school diploma or equivalent
Crane and Tower Operators	128	10%	17	\$41.46	High school diploma or equivalent
Diagnostic Medical Sonographers	192	13%	14	\$45.68	Associate degree
Healthcare Practitioners and Technical Workers, All Other	123	-14%	8	\$31.44	Postsecondary nondegree award
Machinists	255	-3%	28	\$32.60	High school diploma or equivalent
Magnetic Resonance Imaging Technologists	147	4%	9	\$44.18	Associate degree
Power Plant Operators	223	-5%	24	\$44.53	High school diploma or equivalent
Railroad Conductors and Yardmasters	121	-7%	12	\$50.87	High school diploma or equivalent
Tank Car, Truck, and Ship Loaders	301	-17%	40	\$37.90	No formal educational credential
Transportation Inspectors	179	2%	19	\$36.10	High school diploma or equivalent
Web Developers	309	0%	25	\$29.69	Associate degree

There were 38 occupations identified that met demand thresholds but did not meet wage thresholds. These are positions that are in demand and needed to sustain our communities and our economy, yet, they do not pay a living wage. The wage threshold applied to this list was based off of the 2019 ALICE Report.

Table 4: High Demand Occupations that did not meet Wage Thresholds

Description	2023 Jobs	2017 - 2023 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Amusement and Recreation Attendants	1,811	14%	432	\$11.86	No formal educational credential
Automotive and Watercraft Service Attendants	277	0%	42	\$13.57	No formal educational credential
Baggage Porters and Bellhops	1,516	-4%	223	\$13.51	High school diploma or equivalent
Cashiers	14,871	4%	2,888	\$11.57	No formal educational credential

Description	2023 Jobs	2017 - 2023 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Childcare Workers	2,021	3%	311	\$11.49	High school diploma or equivalent
Cleaners of Vehicles and Equipment	2,050	7%	316	\$12.08	No formal educational credential
Combined Food Preparation and Serving Workers, Including Fast Food	16,066	14%	2,980	\$11.31	No formal educational credential
Cooks, Fast Food	1,607	-4%	232	\$13.50	No formal educational credential
Counter and Rental Clerks	2,100	2%	281	\$13.93	No formal educational credential
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	4,538	2%	998	\$11.34	No formal educational credential
Demonstrators and Product Promoters	666	-5%	117	\$13.12	No formal educational credential
Dishwashers	4,687	2%	759	\$12.26	No formal educational credential
Food Batchmakers	694	5%	108	\$12.99	High school diploma or equivalent
Food Preparation and Serving Related Workers, All Other	281	15%	52	\$11.52	No formal educational credential
Food Preparation Workers	8,110	4%	1,430	\$12.42	No formal educational credential
Helpers--Production Workers	393	-11%	62	\$13.65	High school diploma or equivalent
Home Health Aides	5,597	11%	721	\$12.69	High school diploma or equivalent
Inspectors, Testers, Sorters, Samplers, and Weighers	849	-9%	118	\$12.90	High school diploma or equivalent
Manicurists and Pedicurists	335	21%	45	\$11.18	Postsecondary nondegree award
Meat, Poultry, and Fish Cutters and Trimmers	671	7%	89	\$13.85	No formal educational credential
Nonfarm Animal Caretakers	796	19%	139	\$12.95	High school diploma or equivalent
Office and Administrative Support Workers, All Other	1,870	-1%	224	\$13.60	High school diploma or equivalent
Packaging and Filling Machine Operators and Tenders	701	0%	84	\$13.77	High school diploma or equivalent

Description	2023 Jobs	2017 - 2023 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Packers and Packagers, Hand	2,681	-8%	404	\$11.57	No formal educational credential
Parking Lot Attendants	1,835	-4%	290	\$11.46	No formal educational credential
Personal Care Aides	5,944	31%	954	\$13.16	High school diploma or equivalent
Personal Care and Service Workers, All Other	1,036	6%	167	\$10.11	High school diploma or equivalent
Physical Therapist Aides	196	11%	27	\$13.92	High school diploma or equivalent
Recreation Workers	3,003	5%	510	\$12.94	High school diploma or equivalent
Retail Salespersons	24,239	0%	3,619	\$13.03	No formal educational credential
Sewing Machine Operators	297	-8%	39	\$11.81	No formal educational credential
Stock Clerks and Order Fillers	9,066	4%	1,241	\$13.43	High school diploma or equivalent
Taxi Drivers and Chauffeurs	1,365	-2%	154	\$12.95	No formal educational credential
Tour and Travel Guides	2,097	7%	331	\$13.73	High school diploma or equivalent
Transportation Attendants, Except Flight Attendants	1,204	15%	185	\$13.86	High school diploma or equivalent
Ushers, Lobby Attendants, and Ticket Takers	882	6%	223	\$10.71	No formal educational credential
Veterinary Assistants and Laboratory Animal Caretakers	250	14%	43	\$14.02	High school diploma or equivalent
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	469	-9%	57	\$10.11	High school diploma or equivalent

APPENDIX B: METHODOLOGY

Identification of Promising Occupations

To tackle the identification of credentials that lead to good jobs in the state of Hawai'i, the project team first identified a set of promising occupations that offer abundant opportunities and good wages in the state. This analysis leverages data from EMSI, a labor market data provider that aggregates data from both traditional government sources as well as through job ads and online profiles and resumes. The number of job postings provides a quantifiable approach to seeing the volume of jobs. There were 666 occupations with wage and demand data available in EMSI for the state of Hawai'i. Three indicators for demand and one indicator for wage were used to classify occupations⁴.

1. Growth projections from 2017 to 2023: Change in number of jobs for each occupation, using 2017 baseline job numbers and 2023 job projections, as calculated by EMSI;
2. Annual job openings, as identified in EMSI data;
3. Total unduplicated positions for each occupation, as identified in EMSI data;
4. Median hourly earnings, as reported in EMSI.

Demand Thresholds

Occupational demand thresholds represent a combination of occupational growth projections, annual job openings, and total volume of positions in each occupation. In reviewing these data, two main groups of occupations emerged – those that have a high volume of positions and annuals openings within the state (250 or more total positions and at least 50 annual openings) and those that have fewer positions total, but are growing (at least 25 annual openings and positive growth projections).

Table 5: Demand Thresholds

Demand Thresholds
250+ total positions, 50+ annual openings
Positive growth, 25+ annual openings

⁴ Occupations with missing data on one or more of these indicators are excluded from the analysis (103 occupations).

Wage Thresholds

Leveraging the [ALICE report](#), published by Aloha United Way, two living wage thresholds are used in the Promising Occupations analysis – one for individuals (\$15.53/hour) and one for families with two adults and two children (\$36.17/hour). A third threshold, the living wage for one adult with one child as identified in the MIT living wage calculator is also included in the analyses.

Table 6: Wage Thresholds

Median Hourly Wage Groupings	Wage Threshold
\$0.00-\$15.52	Below living wage
\$15.53-\$28.28	ALICE Individual
\$28.29-\$45.40	MIT Living Wage
\$45.41+	ALICE Family

All identified occupations on the Promising Occupations list meet at least the ALICE Individual wage threshold. Table 3 shows the breakdown of occupations within in each category of demand by wage threshold.

Table 7: Occupations with median hourly wage above \$15.53, by Wage Threshold

Demand Threshold Groups	ALICE Family	MIT Living Wage	ALICE Individual	Total
250+ jobs, 50+ openings	7%	25%	68%	100%
Positive growth, 25+ openings	13%	39%	50%	100%

Breakdown by Education Level

Occupations that meet the wage and demand thresholds discussed above are shown by education level in Table 4 and Table 5. The majority of these occupations require less than a bachelor's degree, but occupations that require a Bachelor's degree or more are more likely to exceed the ALICE Family wage.

**Table 8: High Volume Occupations (250+ total positions, 50+ annual openings)
by Wage Threshold and Education Level**

	ALICE Family	MIT Living Wage	ALICE Individual	Total
No formal credential	0	1	3	4
High school diploma	1	3	27	31
Some college, no degree	0	0	2	2
Post-secondary nondegree award	0	1	1	2
Associate degree	0	1	3	4
Bachelor's degree	1	6	3	10
Master's degree	1	2	0	3
Doctoral / professional degree	1	0	0	1
Total	4	14	39	57

**Table 9: Positive Growth Occupations (Positive growth and 25+ openings)
by Wage Threshold and Education Level**

	ALICE Family	MIT Living Wage	ALICE Individual	Total
No formal credential	0	4	18	22
High school diploma	2	26	47	75
Some college, no degree	0	0	1	1
Post-secondary nondegree award	0	4	15	19
Associate degree	1	5	5	11
Bachelor's degree	17	31	15	63
Master's degree	3	5	1	9
Doctoral / professional degree	3	3	0	6
Total	26	78	102	206

The analysis highlighted that nearly 400 occupations considered did not meet the demand and/or wage thresholds. Of those 400 occupations, 42% did not meet the demand thresholds, 15% did not meet the wage threshold and 43% did not meet either.

The project team identified an additional 11 occupations that met at least the MIT Living Wage threshold but did not meet the initial demand thresholds. These 11 occupations require less education but pay good wages and are aligned to the priorities within the state. Those occupations are shown in Appendix A, Table 11 and were included in the subsequent analysis.

Table 10: Occupation Analysis Breakdown

Classification	Number of Occupations
Total Occupations Considered	666
Did Not Meet Thresholds	392
Total Occupations included in Analysis	274

The final occupation analysis resulted in the identification of more than 250 Promising Occupations for the State of Hawai'i, shown in Appendix A, Table 2.

Identifying Promising Credentials

Using EMSI qualifications data, we examined the credentials that appear in job ads for all occupations of the Promising Occupations list. These data capture the qualifying factors that employers list in job ads, including credentials and in some cases degrees. There are 9,985 qualifications aligned with occupations available for the state of Hawai'i. To identify credentials of value, all qualifications corresponding with the promising occupations in Hawai'i were selected for analysis. Each credential was reviewed to ensure it truly aligned with its associated occupation(s). For example, an IT job in the healthcare field might list a few healthcare specific skills in a job ad. That doesn't mean that IT people need healthcare credentials. This resulted in 1,942 credentials associated with the identified promising occupations.

To narrow those 1,942 credentials to a targeted list of credentials that hold the most promise for Hawai'i residents we considered both the number of promising occupations that reference each credential as well as the number of job ads, unduplicated, that contain reference to each credential. Ultimately, all credentials that were selected for the final list were requested in a minimum of 60 job ads, though the median number of job ads requesting each credential is much higher (1,369 job ads per credential). Each credential also appeared in job ads for at least 3 priority occupations.

Upon completion of an initial analysis of the job ad data, the project team undertook local industry outreach to validate results and explore nuances with local employers.

Industry Outreach Strategy

SMS worked with the Project Team to develop an industry outreach strategy. While the overall project analysis relied heavily on the Labor Market data, the outreach strategy was developed specifically to validate the industry-recognized credentials and identify common local nuances that may have been missed in the data. The team implemented an online survey and conducted online focus groups with local industry executives. Outreach feedback was not intended to be representative of all employers in Hawai'i, but rather to provide evidence to confirm results and identify gaps for further inquiry. The Industry Feedback Key Findings are based on consolidated results from both methods of outreach.

Employer Survey

The survey instrument was designed around a blended methodology directed by ESG. The objectives of the survey research were to:

- Identify any priority occupations that were not highlighted by the Labor Market Analysis.
- Identify the local awareness and importance of each credential as it relates to hiring and promotion. This section also allowed respondents to list additional credentials of importance that were not on the list.
- Collect additional data on workforce development issues in Hawai'i, such as desired skills sought by employers and training programs offered or sponsored by employers.

The survey response period was June 17, 2020 to July 29, 2020.

Table 11: Response Rate

Source	Completes	Initial Contacts	Response Rate
Chamber of Commerce Hawai'i	41	1,590	3%
Native Hawai'ian Chamber of Commerce	10	350	3%
KS/SMS Managed List	15	255	6%
Other SMS and Generic Outreach	27	N/A	N/A
OVERALL	93	2,195+	4%

Response rates below are listed by industry. Primary indicates the first industry that was selected by respondents and secondary indicates any additional industries that were selected. Both primary and secondary industry respondents completed questions on credentials and priority occupations so responses by industry are the total number of respondents, both primary and secondary combined.

Table 12: Response Rate by Industry

Industry	Total	Primary	Secondary
Agriculture, Food, and Natural Resources	22	20	2
Architecture and Construction	8	6	2
Arts, Audio/Video Technology & Communications	9	4	5
Administration, Business, Finance, & Marketing	42	15	27
Education and Training	19	12	7
Health Science	11	10	1
Hospitality and Tourism	8	6	2
Human Services	15	8	7
Information Technology (IT)	22	0	22
Law and Public Safety	8	2	6
Manufacturing	3	3	0
Transportation, Distribution, & Logistics	10	7	3
OVERALL	177	93	84

Industry Focus Groups

Traditionally, focus group research is “a way of collecting qualitative data, by engaging a small number of people in an informal group discussion ‘focused’ around a particular topic or set of issues.” Focus groups are less threatening to many research participants and this environment often solicits a range of perceptions, ideas, opinions, and thoughts.

SMS conducted six focus groups comprised of business leaders from like-minded industries and completed three additional one-on-one executive interviews. At these discussions, SMS presented the objectives of the industry credential project and led the discussion. Discussion focused on skills, credentials, trends in the industry, and hiring issues.

Elements of the Discussion

The discussion guide included the topics below.

- Staffing needs including hard to fill and in demand occupations
- Skills in demand within the workforce
- Sourcing and talent pipelines
- Internal or external training opportunities
- Credentials and qualifications of value within their industry
- Barriers to workforce development
- Growing trends in their industry and beyond
- Long- and short-term implications of the COVID-19 pandemic

Recruitment

The first task was to recruit qualified participants for each group. Virtual group meetings were conducted via Zoom. Each group had six to eight executives, recruited using a list of names, phone numbers and emails provided by the Project Team and additional direct outreach to businesses and contacts. SMS conducted a short screening process to ensure the desired mix of participants. SMS guaranteed confidentiality to all participants.

APPENDIX C: SURVEY INSTRUMENT

Below is an example of the series of questions asked to survey respondents. Credential and occupational listings varied by industry sector chosen. Respondents had the opportunity to respond to questions within as many industries as desired.

Credentials Survey

INTRODUCTION

The Promising Credentials project is a consolidated effort between Kamehameha Schools, the Chamber of Commerce Hawai'i, the Harold K.L. Castle Foundation and the University of Hawai'i P-2. This project aims to address the gap between workforce training and the demand for quality employees in Hawai'i. In light of the economic impacts already being felt due to the COVID-19 pandemic, we believe this work is even more important and will help us build a stronger workforce and more resilient economy.

Using labor market data, the project has identified promising occupations that are forecasted to be in demand over the coming years and pay a living wage. For each industry, we have also identified the existing industry certifications that can be earned at local community colleges, completed at local testing sites, or accessed online. Our next step is to validate these occupations and industry certifications with you, the employer community. We are doing this to ensure local businesses, now and into the future, will have a sustained supply of well-trained local workers ready to step in to in-demand roles within your companies.

We thank you in advance for responding to this survey. Your input and insight are an essential part of this work. The survey is designed to take no more than 10 minutes of your time.

1. What is the zip code where your main office is located?

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2. Are there any additional regions where your employees might report to work? Long term job sites or other out of office locations that you conduct business? Choose as many as applicable.
- a) O'ahu-wide
 - b) Statewide
 - c) Honolulu
 - d) North Shore
 - e) Central O'ahu
 - f) East O'ahu
 - g) West O'ahu
 - h) Hawai'i Island
 - i) Kaua'i
 - j) Maui
 - k) Moloka'i
 - l) Lana'i
 - m) Continental US

3. To assess the approximate size of your company, how many full-time employees do you have? (Please give your average number of employees prior to COVID-19.)
- Fewer than 10
 - 11 to 50
 - 51 to 100
 - 101 to 250
 - 251 to 500
 - 501 to 750
 - 751 to 1,000
 - More than 1,000
4. What is your company's primary industry?
- Agriculture, Food, and Natural Resources
 - Architecture and Construction
 - Arts, Audio/Video Technology & Communications
 - Administration, Business, Finance & Marketing
 - Education & Training
 - Health Science
 - Hospitality & Tourism
 - Human Services
 - Information Technology (IT)
 - Law & Public Safety
 - Manufacturing
 - Transportation, Distribution & Logistics
5. What are the primary skill sets you look for when hiring new candidates? Select up to three.
- Critical thinking: Finding solutions to problems
 - Creativity: Thinking outside the box
 - Collaboration: Working with others
 - Communication: Talking with others
 - Information literacy: Understanding facts, figures, statistics, and data
 - Media literacy: Understanding the methods and outlets in which information is published
 - Technology literacy: Understanding the methods and outlets in which information is published
 - Flexibility: Deviating from plans as needed
 - Leadership: Motivating a team to accomplish a goal
 - Initiative: Starting projects, strategies, and plans on one's own
 - Productivity: Maintaining efficiency in an age of distractions
 - Social skills: Meeting and networking with others for mutual benefit
6. The following occupations within the Education & Training industry have been identified as promising occupations based on job demand, skill requirements, and median wage.
- Career/Technical Education Teachers, Secondary School
 - Child, Family, and School Social Workers
 - Education Administrators, Elementary and Secondary School
 - Education Administrators, Postsecondary
 - Education Administrators, All Other
 - Education, Training, and Library Workers, All Other
 - Elementary School Teachers, Except Special Education
 - Health Educators
 - Instructional Coordinators
 - Kindergarten Teachers, Except Special Education
 - Librarians
 - Middle School Teachers, Except Special and Career/Technical Education

- Postsecondary Teachers
- Preschool Teachers, Except Special Education
- Secondary School Teachers, Except Special and Career/Technical Education
- Self-Enrichment Education Teachers
- Special Education Teachers, Kindergarten and Elementary School
- Substitute Teachers
- Teacher Assistants
- Teachers and Instructors, All Other

Are there any occupations within this industry that are not listed above that you believe should be included as a priority within local workforce development and training?

- a) Yes
- b) No [SKIP TO Q8]

7. Please list those occupations here:

Occupation 1: _____

Occupation 2: _____

Occupation 3: _____

Occupation 4: _____

8. The following non-degree credentials within the Education & Training industry were selected for either being available locally or posted in job ads from employers across Hawai'i.

Based on your experience and knowledge, how important is each credential in deciding to hire or promote an individual? Please select one option for each credential.

	Required: This credential is commonly required to hire/promote	Preferred: This credential is preferred, but not required, to hire/promote.	Not Important: This credential is not relevant to decision making.	I am not familiar with this credential.
Certified Diabetes Educator				
Certified Flight Instructor				
Certified Health Education Specialist				
Child Development Associate (CDA)				
Early Childhood Education Certification				
English Learner Authorization				
Teaching English As A Foreign Language				
Water Safety Instructor Certification				
Wilderness First Aid				

9. Are there any non-degree credentials in this industry that are not on the list above that you believe should be considered for inclusion in the next cycle, based on alignment to in-demand, living-wage occupations?

- a) Yes
- b) No [SKIP TO Q11]

10. Please list those non-degree credentials here:

Credential 1: _____

Credential 2: _____

Credential 3: _____

Credential 4: _____

- 11.** Are there any occupations in the [RESPONDENT'S ANSWER FROM Q4] industry that are particularly difficult to fill because prospective employees lack the necessary non-degree credentials?
- a) Yes
 - b) No [SKIP TO Q13]

- 12.** Please list which occupations you have noticed a shortage due to credentialing:

Occupation 1: _____

Occupation 2: _____

Occupation 3: _____

Occupation 4: _____

- 13.** Does your organization provide training or sponsor employees to acquire credentials?
- a) Yes
 - b) No [SKIP TO Q15]

- 14.** Please list which occupations you have noticed a shortage due to credentialing:

Credential/Training 1: _____

Credential/Training 2: _____

Credential/Training 3: _____

Credential/Training 4: _____

- 15.** Does your company routinely hire full-time employees to perform business functions that are outside of your primary industry (for example, IT staff, accountants, lawyers, etc.)?
- a) Yes
 - b) No [SKIP TO Q17]

16. Please select the industry(s) or function(s) for which you hire additional full-time support staff?
(choose all that apply) [RESPONDENT'S ANSWER FROM Q4 NOT INCLUDED]

- a) Agriculture, Food, and Natural Resources
- b) Architecture and Construction
- c) Arts, Audio/Video Technology & Communications
- d) Administration, Business, Finance & Marketing
- e) Education & Training
- f) Health Science
- g) Hospitality & Tourism
- h) Human Services
- i) Information Technology (IT)
- j) Law & Public Safety
- k) Manufacturing
- l) Transportation, Distribution & Logistics

[RESPONDENT WILL LOOP THROUGH QUESTIONS 6-10 FOR EACH ADDITIONAL
INDUSTRY THEY SELECTED]

17. If you are willing to participate in a possible follow up interview or focus group, please leave your preferred contact information below.

Name: _____

Company: _____

Role: _____

Phone: _____

Email: _____

18. If you are interested in receiving a copy of the final report once available, please leave your email below.

Email: _____

APPENDIX D: FOCUS GROUP DISCUSSION QUESTIONS

1. From your perspective, what are the most pressing current and future employment needs within the field?
2. Do you feel that your businesses are able to successfully identify and hire the right talent from within Hawai'i?
 - a. If not, what is missing from the talent pool?
 - i. Are potential workers not equipped with the right skills, training, or credentials? If so, could you elaborate on what those skills, training, or credentials are?
 - ii. Are there not enough workers to meet demand for open positions?
 - b. If yes, where do you find talent?
 - i. Do you have partnerships with colleges and universities, high schools, industry associations, etc. that help you identify talent?
 - ii. Do you operate any workforce training programs that feed into your talent pool?
 - iii. Do you routinely seek talent from outside of Hawai'i?
3. We used industry research and job posting data from employers across the state to identify a set of credentials that employers likely consider as part of their hiring strategies. We'd like to review those credentials with you and get your honest feedback on the value and importance of these credentials.
 - a. In your opinion and experience, are these the relevant credentials that are preferred to gain employment within your industry?
 - b. Do these credentials hold value across the industry, regardless of business or specific job title, or are they especially relevant to a specific occupation?
 - c. Are there *groupings* of credentials you like to see candidates have? For example, are there credentials on this list that are only valuable in combination with other credentials and/or degrees?
 - d. Are there credentials not on this list that are important for hiring and/or promotion in your industry? How are those credentials used (bundling/stacking, hiring/promotion)?
5. What do you believe are the barriers to workforce training and development in your industry? How could Hawai'i address these gaps?
6. Are there emerging trends in your industry that the team should keep in mind for future planning? Are any new policies or technologies likely to impact desired skills and/or workforce demand? Do you expect any significant declines in demand within certain occupations or fields?
7. What impacts are you experiencing, or do you expect, from the current COVID-19 pandemic and do you believe these to be short or long-term?

APPENDIX E: DATA SOURCES

Alice Report – Completely annually, the ALICE report measures financial hardship to understand why so many households struggle to make ends meet. Each ALICE report contains data on household budgets, demographics, employment opportunities, housing affordability, public and private assistance, and other critical economic factors. For more information on ALICE research, see www.unitedforalice.org.

EMSI – EMSI provide the labor market data for use in higher education, economic development, workforce development, talent acquisition, and site selection. EMSI data covers more than 99% of the workforce and is compiled from a wide variety of government sources, job postings, and online profiles and résumés. For more information on EMSI data please see the website for Emsi – economicmodeling.com.

MIT Living Wage – MIT Living Wage is a living wage calculator that estimates the cost of living in communities and regions based on typical expenses. The tool helps individuals, communities, and employers determine a local wage rate that allows residents to meet minimum standards of living. For more information on MIT Living Wage, see livingwage.mit.edu.

APPENDIX F: GLOSSARY

Annual Job Openings: These include unique job postings or the number of deduplicated job vacancy advertisements scraped from over 100,000 websites. Deduplication is the process of identifying duplicate job postings and only counting one of the duplicates. The unique posting count is the count of postings after the deduplication process has taken place.

CTE: Career and Technical Education (CTE) is a term used to describe programs that focus on developing career skills for students within K-12 or post-secondary programs.

Industry Recognized Credential: A verification of qualifications or competence, issued by a third party with the relevant authority to issue such credential. The term credential encompasses educational certificates, degrees, certifications, and government-issued licenses.

Labor Market Analysis: This analysis leveraged economic and industry data from EMSI, which included occupation data and focused on the number of total positions, annual openings and median wages in Hawaii which was used to assess the demand for various types of positions and whether or not they paid a living wage.

Priority Occupations: There were 274 identified priority occupations that met wage and demand thresholds.

Promising Credential: After applying all wage and occupational (volume and growth) thresholds - there were 1,942 promising credentials identified. These credentials were further validated through industry surveys and employer focus groups and the total number of credentials included are 137.

Threshold, Wage: A wage threshold was established to provide a cut off point for what would be considered a living wage. The project referenced the 2020 ALICE Report and MIT Living Wage. All identified occupations and associated credentials in this report meet at least the ALICE Individual wage threshold. Table 3 shows the breakdown of occupations within in each category of demand by wage threshold.

Threshold, Demand: Occupational demand thresholds represent a combination of occupational growth projections, annual job openings, and total volume of positions in each occupation. In reviewing these data, two main groups of occupations emerged – those that have a high volume of positions and annuals openings within the state (250 or more total positions and at least 50 annual openings) and those that have fewer positions total, but are growing (at least 25 annual openings and positive growth projections).