Appendix E: Strengths, Weaknesses, Opportunities, and Threats

A strengths, weaknesses, opportunities, and threats (SWOT) analysis is used to critically examine the position of a state economy, to assist in the formation of goals, objectives, and strategies. Strengths and weaknesses are internal to the state, while opportunities and threats are external elements that exert influence. This SWOT considers background research, community and industry forum input, and Strategy Committee discussion.

Business and Industry Environment

Strengths

- Active Startup Ecosystem
- Aerospace and Aviation
- Agriculture
- Alaska Native Corporations
- Business and Entrepreneurship Programming
- Energy Innovation
- Federal and Defense Spending
- Global Logistics
- Natural Assets
- Plentiful and Responsibly Managed Natural Resources
- Low tax Burden

Weakness

- Access to Capital
- Access to Resources
- Digital Competency
- Equitable Access to Business Resources
- High Operating Costs
- Lack of Human Resources
- Lack of Economic Diversity
- Regulatory Burden on Small- and Mid-Sized Businesses

Opportunities

- Arctic Opening
- Critical Minerals
- Energy and Climate Technology
- Establishment of New Economic Engines
- Expanding Startup Programming
- Research and Development
- Using Known Resources in New Ways
- Value-Added Product Development
- World-Class Destination
- Mariculture

Threats

- Federal Permitting and Regulation
- Geopolitical Threats
- Oil Production Decline
- Climate Change Disruptions
- Supply Chains, Operating Costs, Specialized Needs

Strengths

Active Startup Ecosystem. Alaska is home to an active and growing startup ecosystem with regular events like Startup Week, 1 Million Cups, Arctic Innovation Competition, Alaska Angel Conference, and more highlighting and supporting entrepreneurs. The statewide startup ecosystem plays an important role connecting entrepreneurs and business owners with mentorship, business resources, and other community tools.

Aerospace and Aviation. With vast open airspace and developed aerospace infrastructure, the aerospace industry in Alaska is a small but growing force. Alaska is home to established aerospace and aviation institutions, from the Alaska Center for Unmanned Aircraft Systems Integration housed at the University of Alaska Fairbanks to the Pacific Spaceport Complex, a FAA-licensed launch site on Kodiak Island. Alaska is home to innovative startups and established businesses in the aerospace and aviation spaces.

Agriculture. Most agricultural production in Alaska is consumed in-state. Growing farm production helps to improve the state's self-sufficiency and keep money circulating locally instead of leaving. However, one export sector of the industry, peony cultivation, is growing, with Alaska peonies sold for events around the world.

Alaska Native Corporations. The 12 regional corporations and 174 village corporations are a major economic force in the state. All 12 of the regional corporations rank among the top 50 Alaska-owned companies by gross revenue, with many village corporations included among the top companies as well.[i] These federally created corporations operate in government contracting, oil and gas, mining, real estate, telecommunications, and other areas and their activities feed back into local communities in the form of shareholder dividends, scholarships, and community development funds.

Business/Entrepreneurship Programming. Best in the West, Paths to Prosperity, North Slope Marketplace, Set Up Shop, Launch Alaska, Upstart Alpha, Health TIE, Alaska Ocean Cluster, and gBeta are a handful of examples of programs serving to accelerate business development through cohort model business development intensives. Statewide business support programs like the SBA, SBDC, MEP, and PTAC provide further technical assistance. Alaska is home to a wide range of these business programs targeted at various geographies, demographics, and business stages.

Energy Innovation. With plentiful renewable energy resources, high energy costs, and harsh conditions, Alaska has served as a testbed for developing renewable energy systems. The state is home to about 12% of the world's microgrids, a subject of global interest.[ii] With established expertise developing and integrating renewable energy systems, the state is home to a growing number of energy startups developing technology and expertise that is exportable around the world.

Federal and Defense Spending. Federal government spending is a large economic force in Alaska. One of the core elements of federal spending is defense, with government contracting generating revenue for Alaska businesses and military activities bringing thousands of families to the state. Defense spending in Alaska—including contracts and payroll—was $3.7 billion in federal fiscal year 2020.[iii]

Global Logistics. With its strategic geographic position, Alaska is already a hub for air cargo from Asia. Ted Stevens Anchorage International Airport received 22.9 billion lbs. of landed cargo in 2020, a 25% increase over the previous year. It is among the top airports for landed air cargo in the U.S. and worldwide, ranking second in the U.S. in 2020.[iv]

Natural Assets. The natural beauty of Alaska and access to recreational opportunities is a strong driver for attracting and retaining Alaskans, but it is also a major pull for visitors to the state. Alaska is home to scenery and wildlife unavailable anywhere else in the U.S., with public lands, trails, waterways, and access to satisfy visitors and residents alike.

Responsibly-Managed Natural Resources. For decades, Alaska's plentiful resources have been the cornerstone of its economy. Timber, oil and gas, mining, and fisheries have all brought money into the state's economy and employed thousands of Alaskans. International exports from Alaska from these industries totaled $4.43 billion in 2020, not accounting for exports from Alaska to the rest of the U.S.[v] While still strong, these industries have faced economic hardships in recent years caused by drops in oil prices, fisheries decline, and the COVID-19 pandemic.

Weaknesses

Access to Capital. In their 2021 Small Business Survey, the Alaska Small Business Development Center reported that 61% of Alaska businesses surveyed expected it would be at least somewhat difficult to raise capital within the next 12 months. Those businesses cited several things which would improve access to capital, including having a central place to learn options, tools to increase profitability, more non-traditional funding options, and mentorship/technical.[vi]

Access to Resources. Oil, minerals, timber, and seafood are all often harvested from remote areas. Remoteness and lack of connections to infrastructure to enable exploration, development, and transit of resources to market dramatically impact the feasibility of development projects. Alaska's resource dependent industries rely on the sparse road systems and access to ports and harbors; however, limited infrastructure drives up the cost of doing business and effects the feasibility of projects.

Digital Competency. A growing amount of commerce is now conducted online, signaling a need for businesses to be proficient in e-commerce, cyber security, and digital business tools. Perhaps related to lagging access to broadband in many remote areas, many Alaskan entrepreneurs struggle with digital competency, specifically cyber security.

Equitable Access to Business Resources. Many of the resources for Alaskan entrepreneurs are located around the urban areas of Fairbanks, Anchorage, and Juneau. Other business plan competitions and services are available to more remote residents or focused on underserved populations; however, limited access and cost of high-speed internet can limit the ability to access resources remotely.

High Operating Costs. Alaska has high energy, labor, and logistical costs that impact nearly all businesses in the state in one way or another. Natural resource projects in remote areas face especially high costs to mobilize personnel and equipment and move products to markets.

Lack of Economic Diversity. Alaska's economy is reliant on a handful of core, resource-dependent industries. In 2020, 91% of Alaska's international exports came from three industries: seafood (41%), mining (38%), and oil and gas (13%).[vii] These industries employ a significant portion of Alaskans, and their revenues support other essential businesses throughout Alaska. They also make up one of the core pillars of funding for state and local governments.

Regulatory Burden on Small- and Mid-Sized Businesses. Meeting regulatory requirements for small business and startups can be a barrier to doing business. Some recent examples of this include permitting for new kelp farms, environmental permitting for independent power producers, and even basic processes like filing for certain licenses in rural areas.

Opportunities

Arctic Opening. Increased interest in the Arctic is emerging from several avenues, which could have a positive impact on Alaska's economy. Climate change and the opening of the Arctic could mean higher shipping and resource exploration traffic through the Bering Strait and in the Arctic Ocean. Research activity in the Arctic is growing as more federal funding is allocated toward assessing the impacts of climate change. Defense activity in the Arctic is also growing as tensions with Russia escalate, and interest in the Arctic from both Russia and China continue.

Critical Mineral Exploration and Development. In light of recent supply chain disruptions and international tensions, locating domestic sources of critical minerals is a national priority. Alaska contains known reserves of rare earth elements, zinc, cobalt, and other minerals classified as critical for national security and industry resilience. Development of these resources represents an opportunity to create thousands of high-paying jobs along with state and local revenues.

Energy and Climate Technology. In many ways Alaska is seen as a testbed for energy technologies. With the state's harsh climate, unique operating conditions, and high energy costs, testing early-stage technologies under Alaskan conditions can help prove out the technology for other markets. Tapping into this trend can serve industries and communities. However, it may also be an opportunity to develop businesses around the expertise and innovation found in the state.

Establishment of New Economic Engines. The Emerging Sectors identified above are currently small in terms of revenues and employment, but they have potential to grow rapidly to join the ranks of Alaska's Economic Engines like mining and tourism. These sectors could expand to bring new money to Alaska, or to substitute for goods otherwise purchased out of state. This would mean the establishment of new firms, job creation, and new sources of state and local revenues.

Expanding Startup Programming. Outside of developing skills, technology, and ideas, one of the main benefits of startup events—incubators, accelerators, sprints, and more—is community connections. Through these programs, entrepreneurs meet mentors and funders, make connections for projects, fine-tune prototypes, etc.

Mariculture. Mariculture in Alaska refers to the cultivation of aquatic plants like kelp and small aquatic creatures like shellfish. It does not include fish farming—according to state law, farming of finfish species is forbidden. With plentiful coastline and nutrient rich waters, mariculture has long been present in the state; however, recent growth in research, cultivation, and sale of aquatic plants signals growing potential. Between 2017 (the first year with data) and 2021, kelp sales have grown rapidly to 536,390 lbs.[viii]

Research and Development. Research and development is one of the critical pathways for innovation. Applied research entities across Alaska, like the UAF Alaska Center for Energy and Power or the nonprofit Cold Climate Housing Research Center, serve as a bridge between researchers and consumers. Growing research and development capacity in-state could strengthen the business ecosystem and create more pathways to commercialization.

Using Known Resources in New Ways. The growing movement to reduce carbon emissions, combined with innovative new technologies, has led to alternative potential uses for some of Alaska's natural resources. For example, natural gas can be used to produce hydrogen, which can then be used as a fuel

source for transportation, heating, or electrical generation. This offers new ways to reap the benefits of natural resource development in the state.

Value-Added Product Development. Largely due to the high cost of doing business—energy, workforce, housing, and more—most of the raw materials extracted from Alaska's land and waters are exported out-of-state or overseas for value-added processing. This represents a significant leakage from Alaska's economy as that value is captured in other geographies. Finding opportunities for moving some value-added processing home or developing new products manufactured in Alaska from Alaska's raw materials would grow the value retained in Alaska's economy.

World-Class Destination. Before COVID-19, millions of visitors were drawn to Alaska each year by the state's natural attractions, supporting small businesses with their spending. In 2019, pre-pandemic visitor spending totaled nearly $3 billion during the summer season. With a national economic recovery underway and travel spending increasing, it is likely that tourism can resume its growth trajectory.

Threats

Federal Permitting and Regulations. Alaska's natural resource industries have a positive track record of environmental stewardship and adhere to rigorous standards. Despite this, federal permitting requirements are frequently excessive and require multi-year processes that companies must enter into without certainty about the outcome. Business leaders in-state argue that a shifting and tightening regulatory climate discourages investment and results in lost economic opportunity.

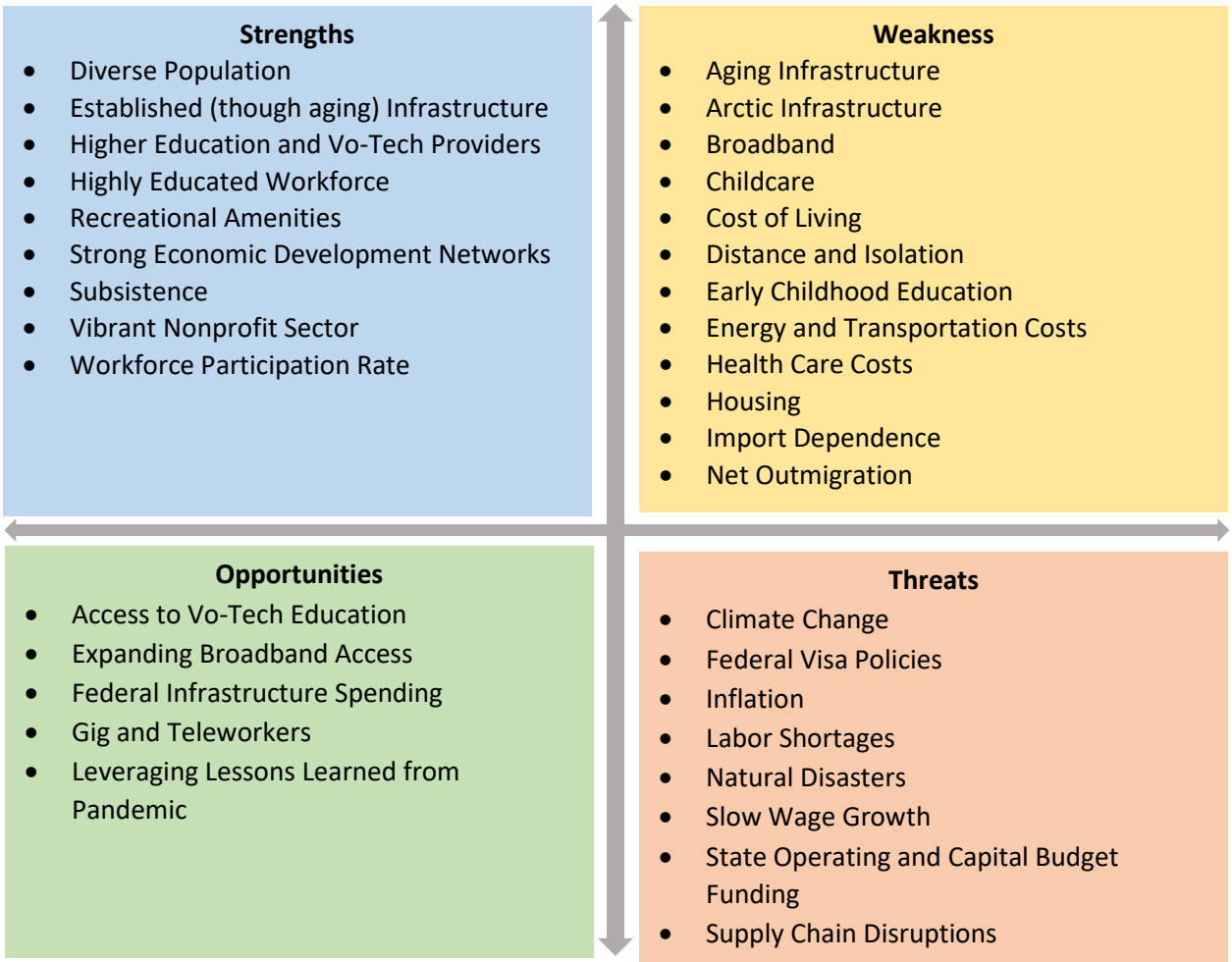
Geopolitical Threats. Geopolitical challenges can have economic consequences. Alaska's geographic position in the Pacific means the state shares a maritime boundary with Russia in the Bering Sea. Russian military exercises in the Bering Sea have impacted fishing activities of the Alaska fleet in the recent past. Increased tensions between Russia and the U.S. could have an impact on economic activities in the Bering Sea and Arctic in the future. In addition, economic tensions with China could have an impact on Alaska export industries. China is Alaska's top trading partner, receiving 25% of the state's international exports.[ix]

Oil Production Decline. Global and local trends in the oil and gas industry have affected Alaska's economy over the last decade, showcasing how sensitive the economy is to changes in oil prices and production. Looking into the future, the decline in oil production on the North Slope may represent a continuing trend even if new fields are developed. Externally, trends in the power production and transportation markets away from carbon fuels could signal a decline in consumer demand for Alaska's oil.

Climate Change Disruptions. Climate change is linked to a wide variety of environmental hazards that impact the operations of all industries in Alaska, as well as the daily lives of many residents. These include ocean temperatures impacting fisheries and the need to decarbonize natural resource development operations.

Supply Chains, Operating Costs, Specialized Needs. As with other kinds of economic development in Alaska, success with Emerging Sectors depends on careful management of the supply chains needed to access inputs as well as markets for finished goods, while mitigating the high operating costs of working in the state. Additionally, some Emerging Sectors require specific services that are not available in Alaska, like certain types of laboratory tests for mariculture products.

Human Capital and Economic Foundations



Strengths

Diverse Population. With 19% of Alaskans identifying as "Alaska Native and American Indian" in the 2020 census,[x] Alaska has the highest share of indigenous people in the U.S.[xi] Alaska's Native people have deep connections to the land, long oral traditions, and strong cultural heritage. The state is also home to Black, Hispanic, Asian, and Pacific Islander communities, and recently boasted the most diverse Census tract in the U.S.

Established Infrastructure. Although Alaska is underdeveloped from an infrastructure point of view, the state does have some important assets underpinning its economy. Bradley Lake Hydroelectric Plant, the Alyeska Pipeline, the Port of Alaska, and the Ketchikan Shipyard are just a few examples of core pieces of infrastructure that support Alaska's economy.

Higher Education and Vo-Tech Providers. Alaska is home to established higher education institutions—4 university campuses (3 public and 1 private) and 12 community college campuses. Expanding

opportunities and lowering barriers of access to higher education for Alaskans to pursue degrees or continued education will support an agile and qualified workforce.

Highly Educated Workforce. An estimated 94% of adults ages 25 and older in Alaska have a high school diploma or equivalent, higher than the national average. A further 30% of Alaskans hold a bachelor's degree or higher.[xii] Training and educating Alaskans for the jobs in Alaska is critical for ensuring a stable economy.

Recreational Amenities. In a 2007 statewide survey, 58% of Alaskans listed "opportunities for outdoor activities" as a main reason for living in Alaska.[xiii] Access to amenities, including recreational amenities, is one of the core criteria many businesses and families look for when relocating. They are also one of the quality-of-life indicators which retain workers in an area. Alaska's recreational assets are world class, from countless miles of trails, to endless rivers and lakes, and fishing and hunting opportunities not found anywhere else.

Strong Economic Development Networks. The COVID-19 pandemic helped mobilize Alaska Regional Development Organizations (ARDORs), local economic development organizations, and other support organizations to respond quickly to a near-collapse of the state economy. One result of this mobilization was the establishment of a strong network that is familiar with the practices of economic resilience and providing support to businesses, communities, and nonprofit organizations.

Subsistence. In nearly every corner of Alaska subsistence harvests make up a core pillar of cultural practices for indigenous people, and in rural or remote areas subsistence harvests serve to supplement or replace store bought foods which may be hard to come by or costly. In some areas of Alaska, traditionally harvested food sources make up 50% of residents' diet. From a resiliency perspective, subsistence activities play an important role for the cultural health of indigenous residents as well as an economic role in terms of food security.

Vibrant Nonprofit Sector. Alaska's nonprofits directly employ nearly 40,000 Alaskans,[xiv] but their contributions to the state economy go well beyond this. Nonprofits support every major industry in the state, partner with government to deliver essential services, provide community investment and civic engagement, and leverage public funds to maximize returns.

Workforce Participation Rate. Alaska's labor force participation rate is strong and measurably higher than the national average. In April 2022, Alaska's labor force participation rate was 66.1%, signaling a recovery from the impacts of the pandemic and even higher than pre-pandemic levels, though labor shortages remain.[xv]

Weaknesses

Aging Infrastructure. In 2022, the American Society of Civil Engineers gave Alaska a "C-" in its annual Infrastructure Report Card.[xvi] With restricted capital budget funding over the last several years and a statewide recession affecting government revenue at all levels, many of the state's infrastructure assets – roads, ports, bridges, and more – are rapidly deteriorating. The infrastructure which makes it possible to bring Alaska's goods and services to the global market is essential to supporting Alaska's economy.

Arctic Infrastructure. Despite Alaska being the U.S.'s gateway to the Arctic, the closest U.S. deep-water port to the Bering Sea and Arctic Ocean is Dutch Harbor in the Aleutian Islands. The closest Coast Guard Base from which to launch search and rescue is on Kodiak Island. According to a study conducted by the

U.S. Committee on the Marine Transportation System, marine traffic in the Arctic could increase up to 70% by 2030.[xvii] Building out Arctic infrastructure will be critical to accessing its economic opportunities and ensuring safe operations.

Broadband. Statewide, an estimated 87% of Alaskan households have access to internet.[xviii] However statistics on broadband access frequently do not paint the full picture in Alaska. In rural areas of the state, speed and affordability can vary widely. Of the roughly 360 Census Designated Places in Alaska, only 63% of communities have access to 100/10 Mbps service and 37% have access to 25/3 Mbps speed service.[xix] While broadband availability in Alaska is growing, in many areas of the state availability of fast, affordable broadband is still severely limited or nonexistent. In the modern economy, fast and affordable internet access is a necessity for conducting business, education, and communication.

Childcare. An estimated 61% of Alaskans live in a childcare desert, as defined by the Center for American Progress. Lack of childcare impacts workers' ability to participate in the economy, and it worsened with the COVID-19 pandemic. In 2021 approximately 77% of parents reported missing work due to childcare issues. The U.S. Chamber of Commerce estimated in a 2021 study that childcare issues result in a $165 million loss annually to Alaska's economy.[xx]

Cost of Living. In 2021, Cost of Living Index (COLI) ranked Alaska as the fifth most expensive state. A composite of housing, utilities, health care, groceries, and miscellaneous goods was about 30% more expensive than the U.S. average. Living costs within Alaska can vary widely, with rural communities being much more expensive than urban areas—but even the relatively lost cost parts of Alaska are well above U.S. averages.

Distance and Isolation. The distance and isolation of Alaska from the rest of the U.S. and of communities within Alaska impacts the cost and ease of doing business. In many ways, being at the end of the supply chain is a risk to the state economy, affecting its ability to weather shocks.

Early Childhood Education. In 2021, an estimated 13,204 children under the age of six in Alaska lacked access to early childhood education services.[xxi] Early childhood education plays a key role in building foundational skills and improving educational success. Investments in early childhood education have one of the highest rates of return.

Energy and Transportation Costs. High energy and transportation costs are the major limiting factor for any industry in Alaska. In February 2022, gasoline prices ranged from $3.59/gallon in Healy to $8.35/gallon in Atka. During the same period, heating fuel prices, which can be used as a metric for the cost of heat and power, ranged from $3.10/gallon in Healy to $14.00 in Arctic Village.[xxii]

Health Care Costs. Alaska has some of the highest health care costs in the U.S. In 2020, the average annual premium for employer-based health insurance in Alaska was the highest in the nation at $8,635 per year.[xxiii] Both cost and access impact the health care industry in Alaska, with access to even the most basic health care services limited in rural and remote areas and limited access to specialists in urban areas. Many Alaskans must travel to Seattle or farther to seek specialized treatments.

Housing. Housing availability and costs are a constricting factor for most communities in Alaska. According to the Alaska Housing Finance Corporation's 2018 Housing Assessment, 32% of Alaskan households are cost burdened.[xxiv] Between 2020 and 2021 the average home price rose by about 9%.[xxv]

In some cases, housing availability severely impacts a community's ability to attract workers, especially in areas with large fluctuations in seasonal employment.

Import Dependence. Alaska's economy has a high dependence on imported goods. Even looking at the core industries that fuel Alaska's economy, raw materials are extracted in Alaska, shipped out-of-state for processing, and, in many cases, goods are shipped back to Alaska for consumption (i.e. petroleum products). The supply chain that facilitates imports to Alaska is dependent on a handful of key ports. Failure at any point in the supply chain could dramatically impact the economy.

Net Outmigration. Between 2016 and 2020, Alaska's population declined an average of 0.3% annually.[xxvi] This trend was primarily driven by greater outmigration than in-migration. Migration trends in Alaska appear closely related to the U.S. employment market, which has been stronger than the in-state job market for the last decade. Long-term net outmigration causes drag on the state's labor market, with fewer individuals in the labor pool.

Opportunities

Access to Vocational and Technical Education. Approximately 24% of the jobs in Alaska in April 2021 were in skilled occupations.[xxvii] These jobs are in transportation, maintenance, construction, resource extraction, and other areas. Growing access to vocational and technical education, including in rural areas of the state, provides a means to secure high-paying jobs for local residents.

Expanding Broadband Access. Federal funding and investment in rural broadband infrastructure is growing. The federal Infrastructure Investment and Jobs Act included $1 billion in funding specifically allocated to Alaska for broadband.[xxviii] Investment in middle- and last-mile infrastructure will be critical for improving affordability and access across the state.

Federal Infrastructure Spending. The federal Infrastructure Investment and Jobs Act (IIJA) dedicated over $1 trillion in funding for infrastructure projects across the U.S. The law includes formula and competitive funding for highways, ports, airports, water/wastewater, broadband, and energy, among other areas. The IIJA will create thousands of jobs in Alaska related to construction, transportation, and administration between 2022 and 2026. These jobs will require at least some training but will provide high-wage employment around the state.

Gig and Teleworkers. In 2020, with the onset of the COVID-19 pandemic, many workers transitioned to remote work. According to a nationwide report of remote work, *2022 State of Remote Work,* an estimated 97% of workers would like to work remotely, at least some of the time, for the rest of their career.[xxix] This signals a shift toward a workforce with more mobility—able to disconnect the place they work from the place they live. Attracting gig and teleworkers to Alaska presents one opportunity to expand Alaska's workforce. Gig and telework also represents an employment opportunity for Alaskans. These workers contribute to local tax base, participate in local economies, and bring new wealth to Alaska's economy.

Leveraging Lessons Learned from Pandemic. The economic shocks generated by the COVID-19 pandemic created an enormous need for rapid responses to businesses and individuals in crisis. The pandemic generated an opportunity to learn from the experiences of 2020 and 2021 and build business support response plans and more to support businesses and residents when crises strike.

Threats

Climate Change. Incidents of extreme climate events have endangered infrastructure, disrupted business operations, and pushed Alaskans out of their homes. Forest fires, landslides, erosion, extreme snowfalls, flooding, permafrost melting, and more are all common headlines. With the growing impacts of climate change, it can be expected that the frequency of these disruptive events will increase, impacting workers and businesses.

Federal Visa Policies. In Alaska, temporary worker visas are commonly used in the tourism and seafood industries to rapidly staff seasonal positions. Changing rules and regulations around visas, fee increases, and processing backlogs at the federal level all impact the ability of Alaskan employers utilizing the program to access workers. This contributes to worker shortages that ripple throughout the economy.

Inflation. In May 2022 the U.S. Consumer Price Index rose 8.6% over the year prior. Continued rapid inflation would put Alaska's economy at risk as the cost for services and materials outstrips the ability of the economy to adjust its prices and wages. This is a threat for all industries but presents a major hurdle for industries in the growth stages.

Labor Shortages. Alaska's out-migration trend suggests that many residents (and would-be residents) see greater opportunity elsewhere. With a small labor force to begin with, Alaska will need to attract more working-age residents to meet the demand from employers in-state, who face severe labor shortages. This puts Alaska in competition with other states that have lower living costs, high-quality housing stock, and other amenities.

Natural Disasters. Over the last five years, Alaska has experienced earthquakes, forest fires, erosion, windstorms, and countless other natural disasters which have impacted households' and businesses' capacity to participate in the economy. With the growing impacts of climate change, it can be expected that the frequency of these disruptive events will increase, impacting workers and businesses.

Slow Wage Growth. Over the last decade, real wages have grown steadily on the national level, 1% annually on average between 2012 and 2021. In Alaska, the average real wage has fluctuated between years of small amounts of growth and years of decline, at about half of the national average at 0.5% annually.[xxx] This threatens the state's economy from several angles, primarily through the rising cost of inflation impacting households even harder as the purchasing power of a paycheck fails to keep up with the cost of goods and services. Wage decline also functions as another pull for workers leaving the state, seeking higher paid opportunities elsewhere.

State Capital Budget Funding. Coinciding with declines in oil prices, the State of Alaska has experienced fiscal instability since 2014. Budget constraints have significantly impacted capital project funding. With the State budget tied to oil revenues, future instability in oil prices could have significant impacts on State capital spending.

Supply Chain Disruptions. With the economic impact of the pandemic in 2020 and 2021, it became even more apparent that Alaska is at the end of the supply chain, with price increases and empty shelves. Disruption at one key point in the supply chain, like the Port of Seattle, can have immediate effects on Alaskan industries, businesses, and households.

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