

ALASKA ECONOMIC **TRENDS**

APRIL 2014

Alaska's Housing Market

WHAT'S INSIDE

Alaska is big on microbrews
The growth of telecommunications



ALASKA DEPARTMENT OF LABOR
& WORKFORCE DEVELOPMENT

Sean Parnell, Governor
Dianne Blumer, Commissioner

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On the cover:
West Juneau on Douglas Island, across the Gastineau Channel from Juneau. Photo by Sam Dapcevich

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Making heat affordable for Alaskans is a major priority



**By Dianne Blumer,
Commissioner**

This month's *Trends* focuses on Alaska's housing market, which fared well during the national housing crash and recession. Although single-family home prices decreased by 4 percent from 2007 to 2012, Alaska had fewer subprime loans and foreclosures and didn't follow the same pattern nationwide where average single-family prices fell 26 percent.

From 2002 to 2012, Alaska's rental affordability index remained fairly constant at about 1.0, which means an Alaskan with average income can afford the average rent. The comparable homeowner affordability index has been in the 1.3 to 1.4 range for most of the past 20 years.

The Alaska Housing Finance Corporation, a self-supporting public corporation, provides access to affordable loans, public and senior housing, as well as energy efficiency and weatherization programs. AHFC has contributed more than \$1.9 billion in dividends into the state general fund.

In this issue, Alaska Department of Labor and Workforce Development economists report almost 50 percent of Alaska homes — most in Anchorage and the Matanuska-Susitna and Kenai boroughs — are heated with less expensive natural gas, followed by fuel oil and kerosene at a little more than 30 percent.

The ability of Alaskans to heat their homes affordably continues to be a priority of the Parnell Administration. Gov. Sean Parnell introduced legislation that will advance a large-diameter Alaska gasline — on board are three producers, a preeminent pipeline builder, and the Alaska Gasline Development Corporation. It provides a framework for Alaska's ownership in an open, public process on Alaska's terms and in Alaskans' interests.

AGDC, a separate public corporation, is Alaska's "ace in the hole" as it can also get gas to Alaskans first through the smaller volume Alaska Stand Alone Project. ASAP is on track for an open season for early 2015. I was honored to be appointed to the AGDC board last year.

The governor recently signed an Administrative Order creating the Municipal Advisory Gas Project Review Board to develop a framework for assessing the impact and benefits, especially on communities, of a future Alaska natural gasline.

The Review Board ensures local participation and input on Alaska gasline projects. The board will provide annual reports to the governor and the Alaska Legislature that include the potential benefits and impacts of North Slope natural gas development and new infrastructure, recommendations for changes to property tax statutes related to a natural gas project, and other issues dealing with the effects of a major gas project on Alaska communities.

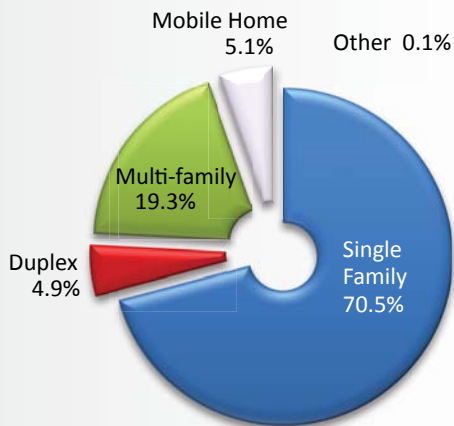
Members of the review board will be the commissioner of the Department of Revenue (who will serve as chair), commissioner of the Department of Natural Resources, and commissioner of the Department of Commerce, Community, and Economic Development. It will also include mayors from the North Slope Borough, Fairbanks North Star Borough, Denali Borough, Mat-Su Borough, and Kenai Peninsula Borough as well as one member of an organization representing all municipalities in the state, regardless of where that person resides, and two members of the public who do not reside in the five boroughs already represented.

A copy of the governor's AO is available online at gov.alaska.gov/parnell_media/resources_files/ao_032514.pdf.

Alaska's Housing Market

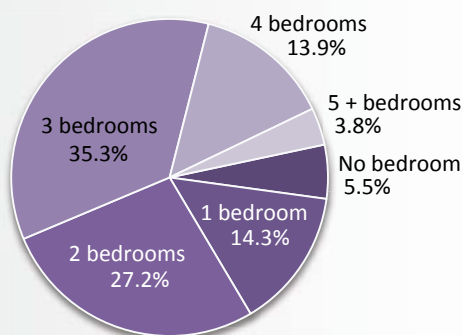
Characteristics, affordability, and what makes us unique

1 Houses Dominate Mix Alaska housing, 2008 to 2012



Source: U.S. Census Bureau, American Community Survey 2008-2012

2 Mostly 2 and 3 Bedrooms Alaska homes, 2008 to 2012



Source: U.S. Census Bureau, American Community Survey 2008-2012

Living in Alaska presents many opportunities and challenges, and finding a home is often one of them. If you ask Alaskans about their local housing markets, it's common to hear:

"There's nothing to rent."

"I had no idea it would be so expensive."

"Have you seen the price of heating oil?"

"I'm not sure if we're going to buy or rent; we might not stay in Alaska more than a couple of years."

"Do you know what I could have bought for \$300,000 in my home state?"

In the coming months, *Trends* will feature regional housing profiles that detail some of these costs, as Alaska is so large and diverse that its local markets can differ widely. Despite those local differences, it's helpful to first examine the state housing market as a whole to see how it differs from the rest of the nation.

Most homes are single-family

According to the most recent census estimates, Alaska has 252,991 occupied housing units, with 64 percent owner-occupied and 36 percent rented.

Seven of 10 housing units are single-family homes. Apartments and condos together make up nearly 20 percent, and duplexes and mobile homes each represent 5 percent. (See Exhibit 1.)

In Alaska, almost half of residences have two bedrooms or fewer while in the U.S. as a whole, only 40 percent are that small. Homes in Alaska generally have between one and three bedrooms, with larger bedroom sizes only making up 18 percent

of units. (See Exhibit 2.) Alaska also has two-and-a-half times the U.S.'s percentage of homes with no bedrooms, which include studio apartments and one room cabins.

More Alaskans do without amenities

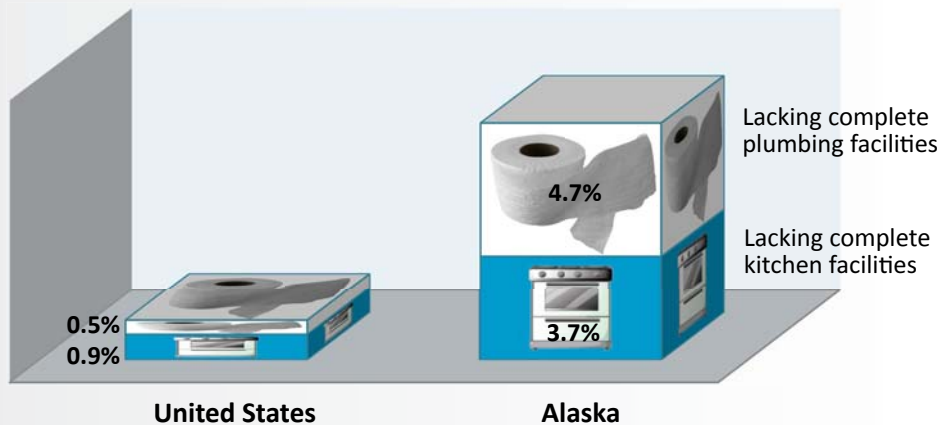
Proportionately, Alaska has six times as many homes without complete plumbing or kitchens as the nation. (See Exhibit 3.) This may come as no surprise to legislative staffers renting tiny studios in Juneau during session who make do with a hot plate and mini fridge, or rugged cabin dwellers in the Interior who trudge through snow to view the northern lights from the outhouse.

The census estimates that nearly 12,000 Alaskans live without complete plumbing and more than 9,000 don't have a complete kitchen.

Oil, natural gas are common

When it comes to heating our homes, nearly half of Alaska uses relatively inexpensive natural gas, which is available in some of the most populated areas including Anchorage, the Matanuska-Susitna Borough, and parts of the Kenai Peninsula.

3 Alaskans Live Rougher Homes that lack plumbing, kitchens, 2008 to 2012



Source: U.S. Census Bureau, American Community Survey 2008-2012

For the rest of Alaska, fuel oil serves the next largest group, followed by electricity. (See Exhibit 4.)

Almost 6 percent of homes in Alaska heat with wood, nearly three times higher than in the nation.

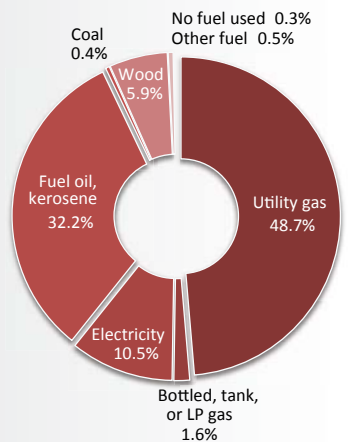
Most of us fairly new to our current home

Compared to the U.S. as a whole, Alaska has a higher percentage of people who moved to their current home fairly recently, due to our more mobile population. (See Exhibit 5.)

Sixty-eight percent of Alaskans moved to their current home after 2000 compared to 63 percent nationwide. Alaska also has a higher percentage who moved to their homes in the 1980s during the state's oil-fueled economic boom.

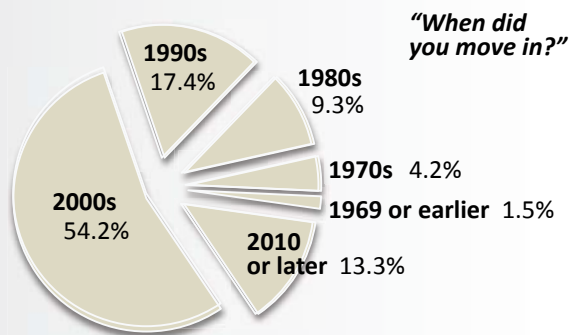
The U.S. has three times as many households who are still in the homes they moved into in 1969 or earlier, when Alaska was still a young and sparsely populated state.

4 Heating Fuels Alaska, 2008-12



Source: U.S. Census Bureau, American Community Survey 2008-2012

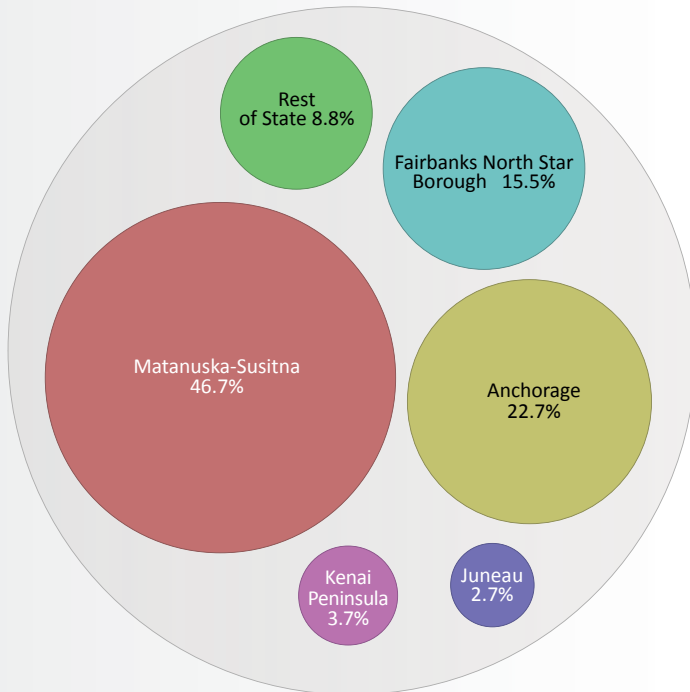
5 Time In Current Home Alaska by decade as of 2008-12



Source: U.S. Census Bureau, American Community Survey 2008-2012

6 Mat-Su Had Half of New Houses

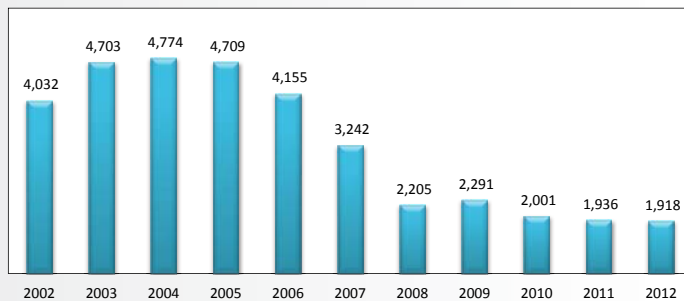
Single-family homes, 2002 to 2012



Source: Alaska Department of Labor and Workforce Development, Research and Analysis, New Housing Unit Survey

7 New Residential Construction

Alaska, 2002 to 2012



Source: Alaska Department of Labor and Workforce Development, Research and Analysis, New Housing Unit Survey

Construction boomed in Mat-Su

Between 2002 and 2012, 23,919 new single-family homes went up in Alaska. Mat-Su led the state with 47 percent of the new construction, adding nearly 30,000 new residents at the same time.

Although Anchorage has three times the population of Mat-Su, less than half as many single-family homes were built there. (See Exhibit 6.)

Mat-Su has large tracts of undeveloped land, while urban Anchorage is mostly limited to infill sites that restrict growth and increase costs. The Juneau area also lacks developable land, while the Fairbanks North Star Borough has more to work with.

Although the effects of the national housing market crash and recession are evident in recent years' lower residential construction numbers, the dropoff was less extreme because the state didn't participate in the same speculative building that preceded the burst of the national housing bubble. (See Exhibit 7.)

Fewer Alaskans own homes

Alaska's home ownership rate continues to lag behind the U.S., but the gap had narrowed by the last census. In 1990, Alaska trailed the nation by 8 percentage points, but by 2010 the gap had shrunk to 2 percentage points. (See Exhibit 8.)

Alaskans' tendency to rent may be due to our relatively young and mobile population, with the military, university, and the "call of the wild" bringing people in from the Lower 48. Mat-Su is the exception, with a higher ratio of homeowners than the U.S. as well as the rest of the state.

Since the 1990 Census, the percentage of small, owner-occupied homes with one or two residents has grown, and the share of larger households has declined.

Renters tend to have smaller households than owners. A larger percentage of single-person households rent rather than own, but for households with two or more people, a greater percentage own.

Renters also tend to be younger, with 42 percent

of renting householders under age 35, whereas just 14 percent of homeowners are under 35.

Both types of householders are getting older, though, as the population ages. The percentage of owners 45 and over increased from 44 percent in 1990 to 68 percent in 2010, meaning nearly 7 out of 10 homeowners were 45 or older. The increase in renter age is also significant, with the percentage over 45 nearly doubling from 20 to 39 percent during the same time period.

Rents and vacancy rates

Our annual rental survey, conducted in March each year, examines rents and vacancies in communities across Alaska and inflation-adjusts rents to allow comparisons between years.

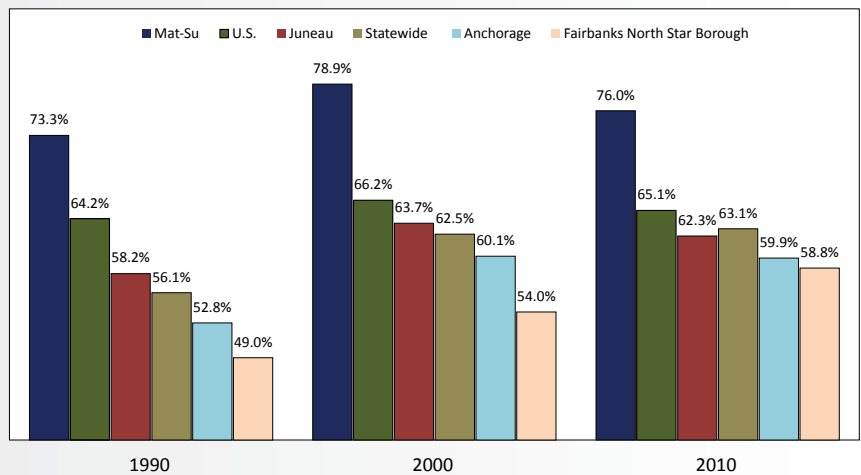
Average adjusted rent in all surveyed areas combined, including utilities, has increased 11 percent since 2002. Rents held steady from 2002 to 2005 at around \$1,030 before beginning to rise in 2006, then stabilized in the last couple of years at around \$1,150. (See Exhibit 9.)

Rentals have become less available in recent years, with vacancy rates falling from an average of 7.4 percent between 2002 and 2009 to around 4.2 percent between 2010 and 2012.

Fairbanks' vacancy rate is generally higher than other surveyed areas, likely due to the area's especially mobile population. Anchorage and Juneau have tight rental markets, with vacancies consistently under the survey average. (See Exhibit 10.)

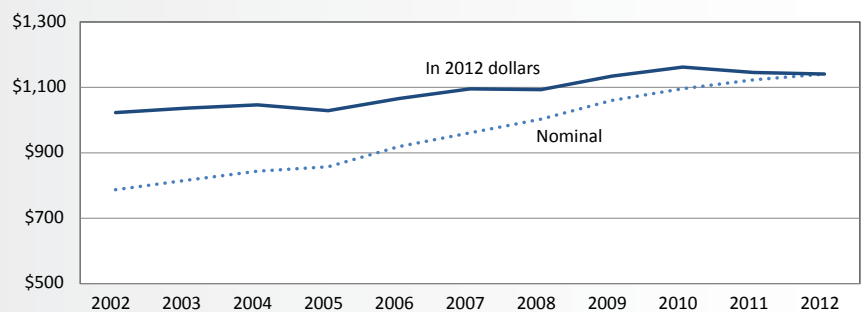
Likely factors behind the decline in rental vacancy rates include a decline in new housing units and tighter lending standards, which make it harder for aspiring homeowners to qualify for a mortgage. Potential homebuyers remaining in the rental market means more competition for units.

8 More are Home Owners in Mat-Su Alaska and U.S. home owners, 1990-2010



Source: U.S. Census Bureau, 1990, 2000, and 2010 Censuses

9 Rent Has Risen Steadily Over Past Decade Alaska, 2002 to 2012



Note: Rent is adjusted here to include all utilities.

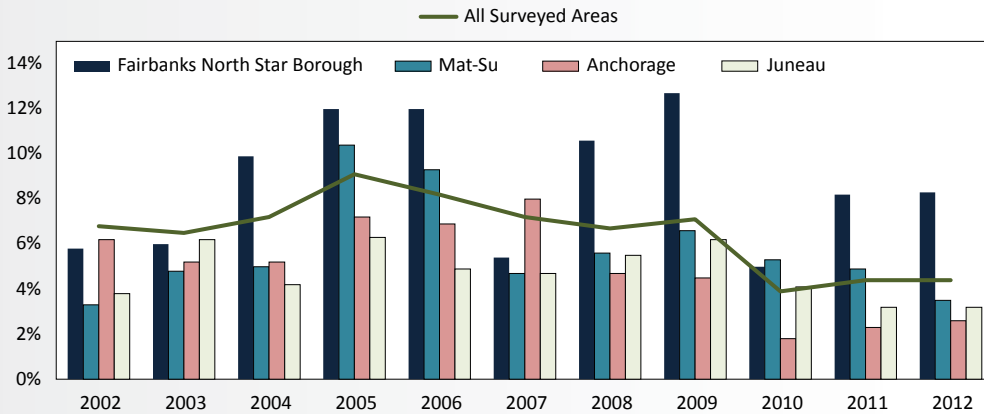
Source: Alaska Department of Labor and Workforce Development, Research and Analysis, New Housing Unit Survey

U.S., Alaska prices diverged

While Alaska is clearly a more expensive place to buy a home, U.S. sales prices followed a similar upward trend through 2006. (See Exhibit 11.) In 2007, U.S. home prices began to fall rather quickly while Alaska's leveled out. National single-family home prices, adjusted for inflation, fell 26 percent from 2007 to 2012 while Alaska's dipped just 4 percent.

10 Fairbanks Area Has Higher Vacancy Rates

Select community rates, 2002 to 2012



Source: Alaska Department of Labor and Workforce Development, Research and Analysis, Annual Residential Rental Survey

In 2012 dollars, Alaska's average single-family home price increased 36 percent, or by \$78,000, from 1992 to 2012.

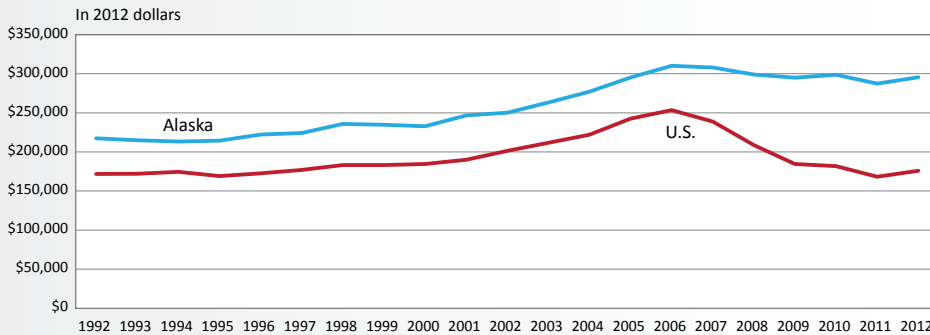
Interest rates were low for years

Alaska's 20-year average interest rate was 6.32 percent, and our 10-year average was 5.36 percent. In contrast, Alaska's 2012 interest rate averaged just 3.67 percent. (See Exhibit 12.)

Data from the first half of 2013 show interest rates staying low at 3.48 percent, but national data suggest rates are on the rise.

11 Alaska Has Always Had Higher Home Prices

Average single-family sales prices, 1992 to 2012



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section, Quarterly Survey of Mortgage Lending Activity; National Association of Realtors

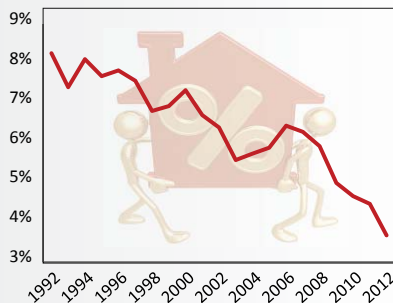
Changes in interest rates affect housing costs, both in terms of monthly mortgages and the price paid over the life of the loan. A single percentage point rise in the interest rate means a roughly 10 percent drop in the price of a house while maintaining the same monthly mortgage payment. In other words, a homebuyer would be paying about the same monthly mortgage for a home purchased for \$300,000 at 4 percent interest as a \$270,000 home at 5 percent interest.

As another example, consider a homebuyer with a budget of

\$1,600 for a monthly mortgage payment. In 2010, when Alaska's interest rates averaged 4.66 percent, the buyer would have been able to take out a \$310,000 loan. Two years later, when the average interest rate fell to 3.67 percent, the same buyer could have taken out a \$350,000 loan for the same monthly payment.

12 Alaska Rates Fell

Interest, 1992 to 2012



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section, Quarterly Survey of Mortgage Lending Activity

Foreclosure crisis didn't hit Alaska

Alaska largely avoided the recent foreclosure crisis that rocked the foundations of the national housing market. At the 2010 peak, national foreclosures reached 4.63 percent of all loans, dwarfing Alaska's peak of 1.40 percent in the same period.

Alaska wasn't exposed to the same damaging combination of subprime/adjustable rate mortgages and an overheated market as the nation. That, combined with a fairly healthy state economy, helped Alaska ride out the storm relatively unharmed.

Alaska had its own foreclosure crisis in the late 1980s and early '90s in the aftermath of oil production declines when foreclosures peaked at 10.57 percent of all loans. (See Exhibit 13.)

Rent more affordable than a mortgage

Housing affordability indexes look at the number of average incomes required to afford the average rent or mortgage payment. (For more on the indexes Alaska produces, see the box on page 10.)

For homebuyers, housing cost incorporates the average sales price and the interest rate to approximate a monthly mortgage payment, and for renters it's simply the average rent.

Unlike the affordability of home sales, rental affordability has been largely constant over the last two decades. The largest gap between renting and purchasing was in 2007, when it would have required an additional 63 percent of an income to buy rather than rent. (See Exhibit 14.)

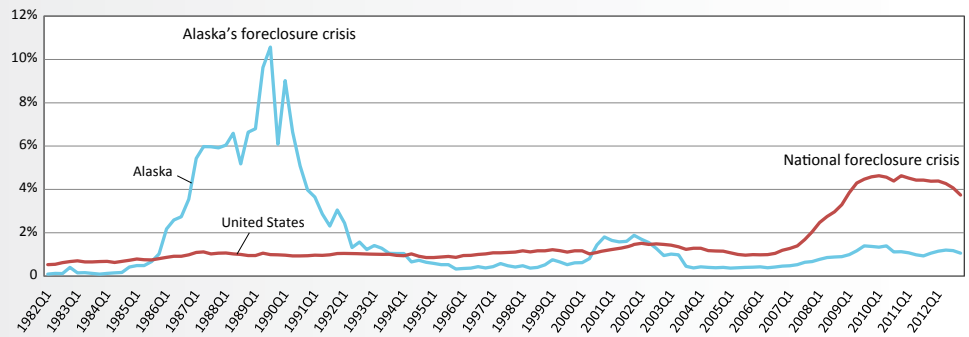
In 2012, the affordability indexes narrowed to where it required less than a fifth of an additional income to buy rather than rent.

In Alaska overall, the rental affordability index tends to hover right around 1.0, meaning a person with average income can afford the average rent.

The homeowner affordability index has bounced up and down in the 1.3s and 1.4s most of the last two decades, with two noticeable exceptions:

13 Alaska's Foreclosure Crisis Was Decades Earlier

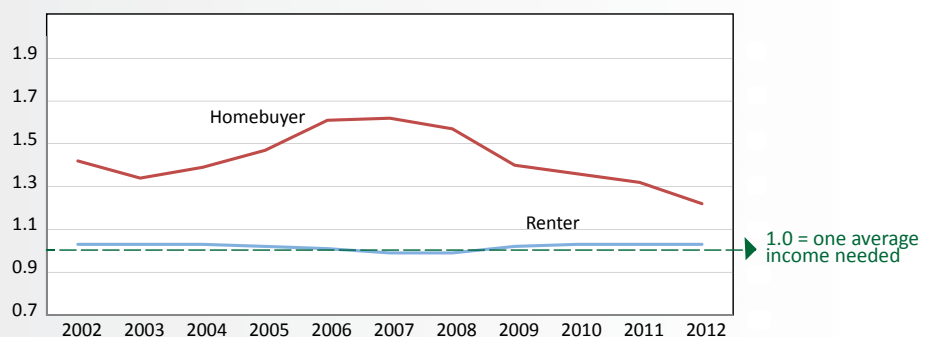
Alaska and U.S. foreclosures, 1982 to 2012



Sources: Mortgage Brokers Association; Alaska Department of Labor and Workforce Development, Research and Analysis Section; and Department of Natural Resources, Recorder's Office

14 Renting vs. Buying: Affordability

Alaska, all surveyed areas, 2002 to 2012



Sources: Alaska Department of Labor and Workforce Development, Research and Analysis Section, Annual Residential Rental Survey, Quarterly Survey of Mortgage Lending Activity

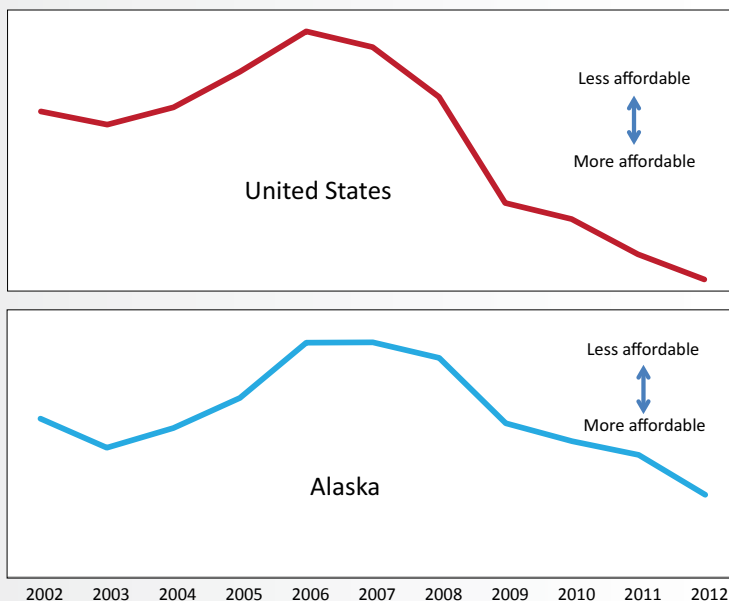
- Between 2006 and 2008, the index went up to 1.62 as sales prices increased and interest rates rose temporarily, increasing the cost of purchasing.
- After that, interest rates steadily declined and reached historic lows. Housing prices remained flat and incomes rose slightly, pushing the affordability index down to 1.22 in 2012.

Data from the first half of 2013 show the index falling even lower, to 1.19. This level of affordability is unlikely to last, as it was driven by record low interest rates that began to rise again in 2013 and will likely continue.

The following is an example of how interest rates affect affordability. Interest rates were low in 2012, but what if a homebuyer were to pay the higher interest rates we had in 1992 on a home in 2012? At that high rate, the income required would increase from \$5,075 per month to \$8,331 and monthly payments would balloon from \$1,218 to \$1,999, resulting in an index value of 2.0 rather than 1.22.

Alaska's affordability index and the U.S. index created by the National Association of Realtors use different methods so they aren't directly comparable, but they show the same trends. Similar peaks and valleys appear in both, although the national market peaked a year earlier than Alaska. National affordability had a sharper downturn than Alaska, primarily due to housing prices falling farther and more rapidly. (See Exhibit 15).

15 Similar Home Affordability Patterns Alaska and the U.S., 2002 to 2012



Note: Because the U.S. and Alaska affordability indexes are calculated differently and use different values, they can't be graphed together or directly compared. This graph compares only the overall shapes of their affordability trends.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section; and National Association of Realtors

How we determine renting vs. buying affordability

The Alaska Department of Labor and Workforce Development uses two indexes to monitor housing affordability across Alaska. These indexes measure a number of economic housing factors and how they interact, producing a single value.

The Alaska Affordability Index considers sales prices, loan amounts, income, and interest rates to estimate how many wage earners it would take to afford a 30-year conventional mortgage for an average-priced home with 15 percent down, given the average interest rate and average income. Put another way, it tells you how many people have to bring in a paycheck to afford a home.

The Rental Housing Index is similar but uses average contract rents rather than mortgage payments. Contract rent is the amount a landlord charges each month, not including any additional utilities the tenant pays.

An index value of 1.0 means exactly one person's income is required to afford a typical home or average rent. An increasing number means additional income is necessary, making housing less affordable. A value of less than 1.0 is more affordable.

The index monitors housing affordability based only on factors the Department of Labor and Workforce Development measures on a regular basis. Other factors affect affordability, though, and some are unique to households and would be difficult to measure consistently:

- Hazard insurance and mortgage insurance
- Property taxes, which vary by area and property size
- Utilities, which can be substantial and vary depending on energy type
- Adjustable rate mortgages, where monthly payments can change dramatically based on interest rate shifts

Alaska is Big on Microbrews



Sales, jobs in craft breweries have shot up in recent years

Alaskans have long been fans of beer, and lately they've become even bigger fans of small breweries and their locally produced brews.

In 2012, Alaska ranked fourth in the nation for breweries per capita (see Exhibit 1), and fifth in small or "craft" breweries per capita.

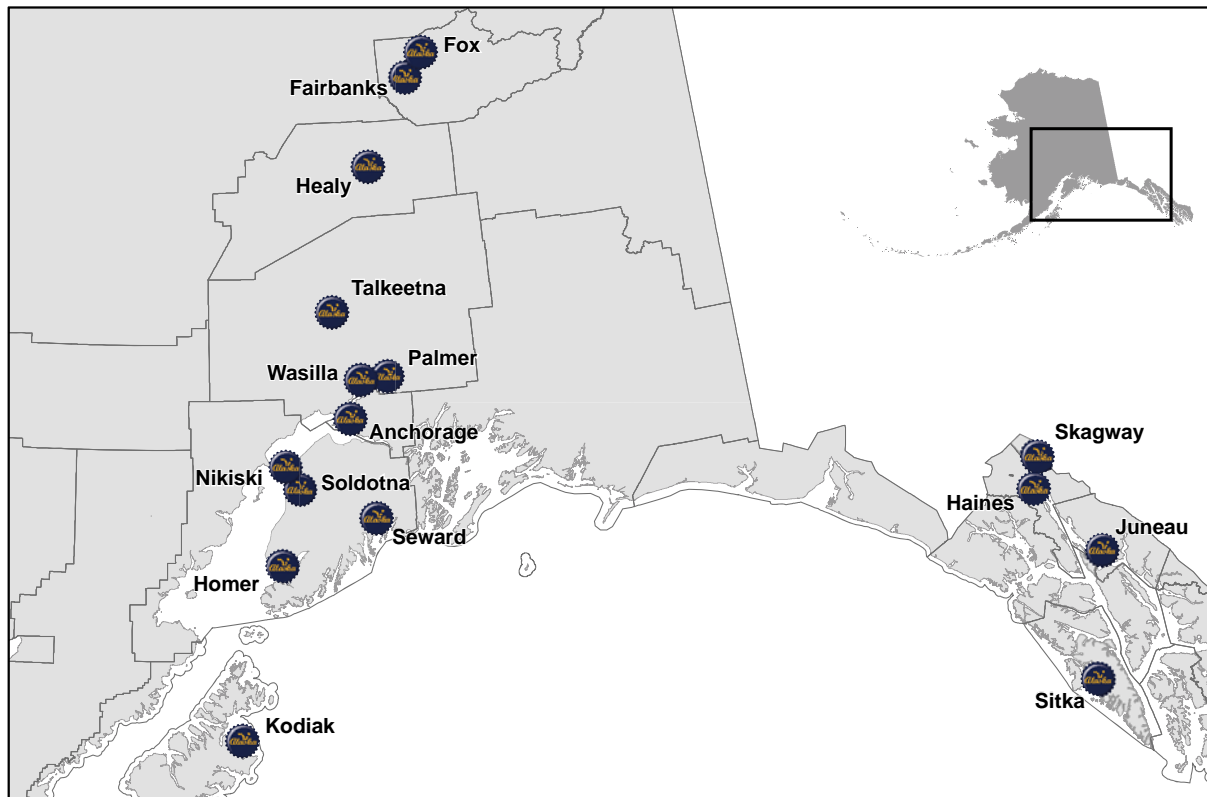
Though these brewing establishments are most concentrated in Anchorage, they're spread throughout the state in 16 communities from Kodiak and Juneau to Fairbanks and Denali Park. (See Exhibit 2.)

1 Brewers Per Capita Top-ranking states, 2012

- | Rank | |
|-----------|---------------|
| 1. | Vermont |
| 2. | Oregon |
| 3. | Montana |
| 4. | Alaska |
| 5. | Colorado |

Source: Brewers Association

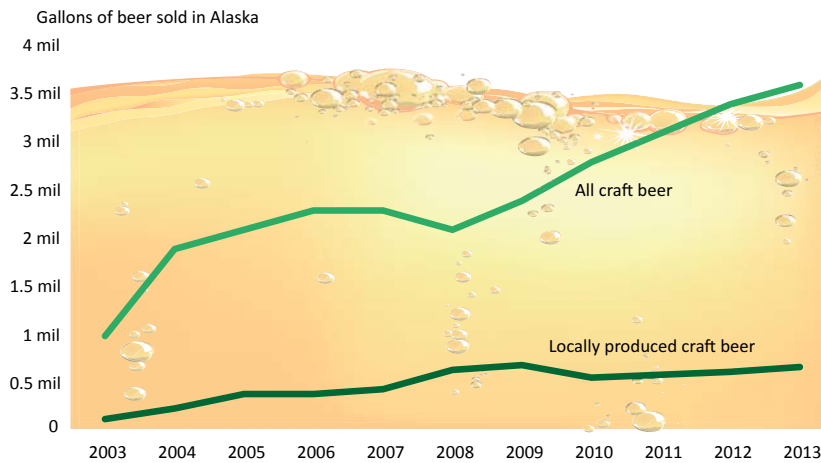
2 Alaska's Breweries and Brewpubs 2013



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

3 A Growing Market for Craft* Beers

Gallons sold in the state, fiscal years 2003 to 2013



*Craft breweries produce less than 6 million gallons a year.
Source: Alaska Department of Revenue

Alaska was craft beer but by 2013, its share had grown to 20 percent. (See Exhibit 4.) This trend isn't unique to Alaska, either, as national consumers are also spending more on craft beer, commonly referred to as microbrews.

Alaskans buy less 'big beer'

Meanwhile, beer purchases from major breweries have declined significantly in Alaska. (See Exhibit 4.) These large companies are all from out of state, and their product, known as "malt beverage," is taxed at a higher rate. (For more on how these drinks are categorized, see the sidebar on page 13.)

Two types of brewers

Alaska's brewers fall into two categories: breweries and brewpubs.

Breweries sell kegs, bottles, growlers, and cans to shoppers and businesses such as restaurants, bars, and stores. They emphasize manufacturing over retail, but have a small retail component to display products and allow consumers to buy fresh beer in growlers.

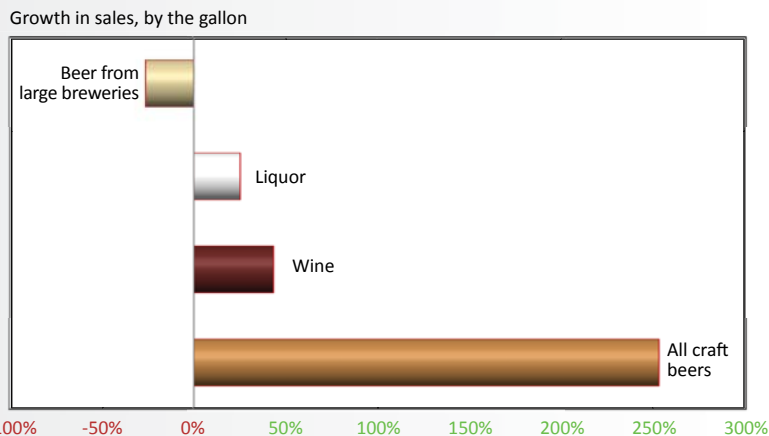
Many breweries are open to the public for tastings and may often serve food; however, their public hours are limited by law and so is the amount of beer their customers can consume on-site. However, the amount of beer they can brew and sell is unlimited. Juneau's Alaskan Brewing Company is an example. The Brewers Association ranked Alaskan the 24th largest brewer in the country and the 16th largest craft brewery in 2012.

Brewpubs emphasize retail and are more like restaurants that brew their own beer, serving customers on site. They too often sell their beer to other restaurants and stores, but unlike breweries, there's a legal limit on how much beer they can produce and sell off site.

Besides making beer, an increasing number of these businesses also produce hard ciders and nonalcoholic products such as root beer.

4 Craft Beer Sales Have Grown the Most

Growth in alcohol sold in Alaska from 2003 to 2013



Source: Alaska Department of Revenue

Sales of craft beer skyrocket

Sales of craft beer, or beer that comes from breweries producing less than 6 million gallons a year, have more than tripled in Alaska over the past 10 years from a million gallons to 3.6 million. Sales of locally produced craft beer increased more than fourfold over the same period. (See Exhibit 3.)

Both greatly outpaced the sales of wine and liquor. In 2003, 6 percent of alcohol consumed in

Beer has two classifications, each taxed differently

The Alaska Department of Revenue produces a variety of statistics on alcohol sales as a byproduct of its taxation authority. The sales and volume numbers for liquor and wine are straightforward but the figures for beer are a bit more complicated.

Beer has two categories, taxed at different rates — “qualifying beer,” which is taxed at a lower rate, and “malt beverages,” which are taxed at a higher rate. To be eligible for the qualifying beer category, a brewery sells its first 60,000 barrels in Alaska annually and these are taxed at a lower rate; this is meant to encourage local business.

Though all Alaska breweries and brewpubs fall under the “qualifying beer” category, so do other national breweries that sell their first 60,000 barrels in Alaska — this is because it’s not legal to tax products differently based on where they’re produced.

The “malt beverage” category, taxed at a higher rate, typically covers the large national breweries.

More brewers, more jobs

With the increase in sales, the number of brewing establishments in Alaska has more than tripled since 2002. (See Exhibit 5.) Brewery jobs grew from 61 in 2002 to 290 by 2013. (See Exhibit 6.) In 2012, total brewery payroll was \$7.6 million, paying an average wage of \$33,829.

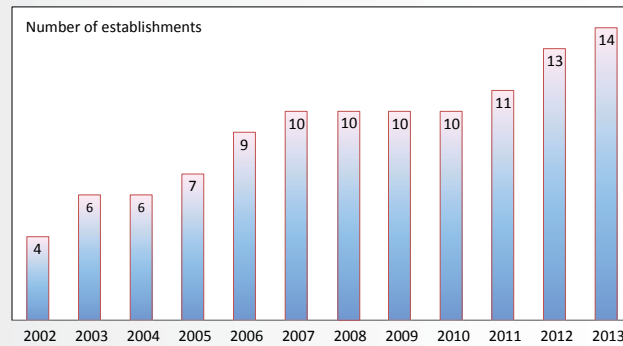
For brewpubs, total employment in 2013 was a little over 900, and total payroll in 2012 was nearly \$19 million.

More are in planning stage

More new breweries and brewpubs are apparently in the works, so this growth trend is likely to continue in the near future.

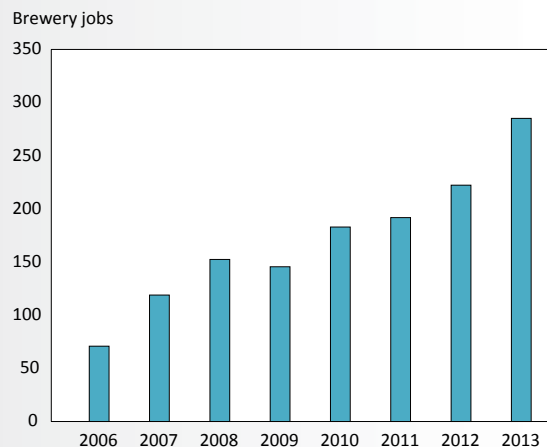
In a recent issue of the Anchorage Press, its long-time beer reviewer James Roberts said five new Alaska breweries were in the planning stages. And the national Brewers Association, which keeps a list of new possibilities by state, lists at least 12 in the planning stages for Alaska.

5 More Brewers Open in Alaska 2002 to 2013



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

6 Growth in Brewery* Jobs Alaska, 2006 to 2013



*These figures do not include brewpub employment.
Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

The Growth of Telecommunications

Alaska has faced a series of obstacles to better connectivity

Alaska is still playing catch-up in developing telecommunications infrastructure on par with the rest of the country, but we've made major strides in recent years and are better connected than ever. Five years ago, most of rural Alaska was largely without cellular phone service; now, wireless providers plan to connect Alaska villages to high speed mobile broadband networks.

For the majority of Alaskans who live in urban and suburban areas, the differences between their connectivity and their Lower 48 kin are small. In general, Alaskans pay more and get slower download speeds than the rest of the country, but broadband has become mainstream in urban areas and is spreading into rural Alaska. "Broadband" encompasses any consistent fast connection to the

Internet, whether accessed with a computer or a mobile device.

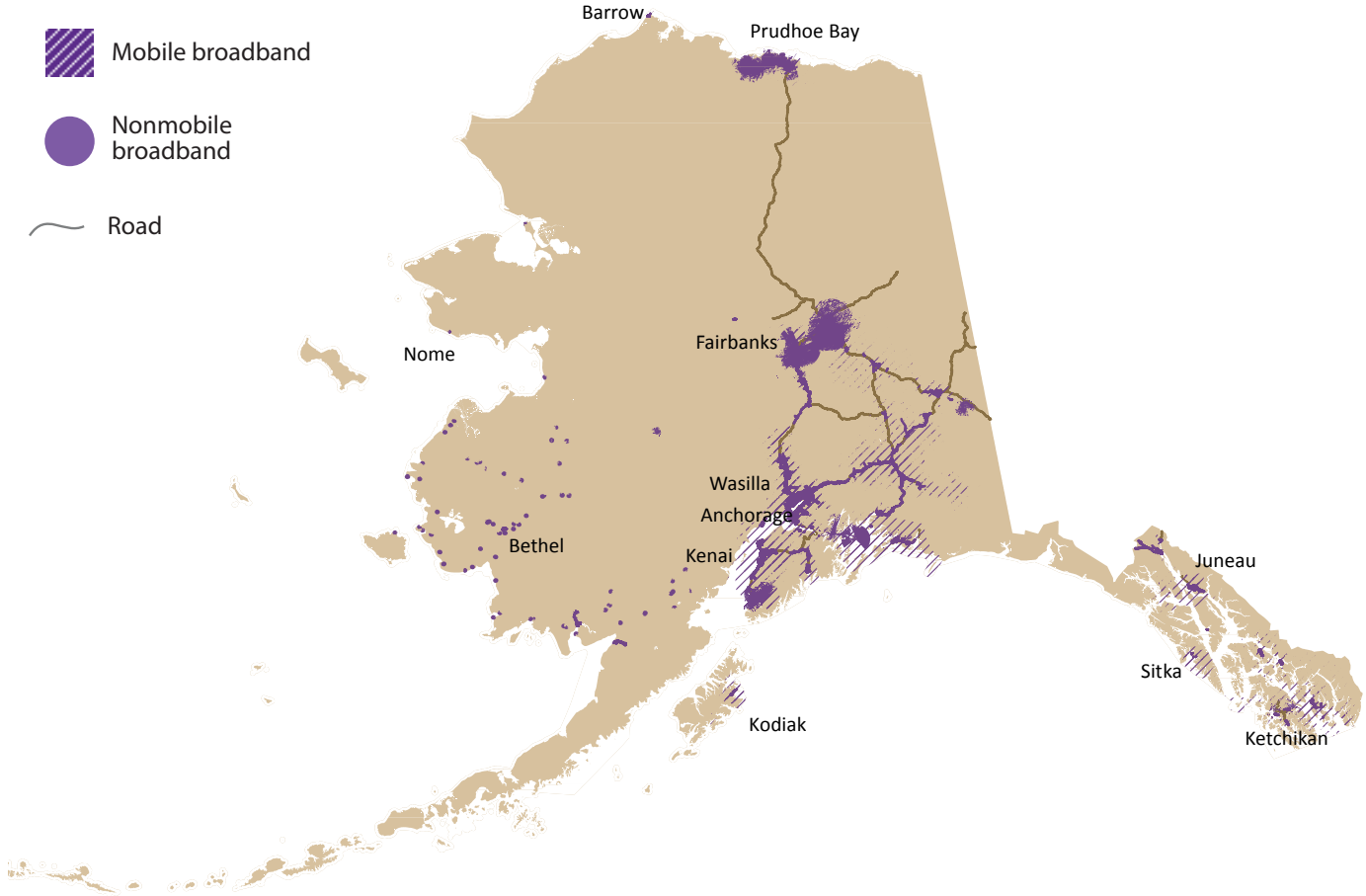
Nonetheless, Alaska's communication network still lags behind most of the developed world, placing us among the lowest-ranked states in terms of access, speed, and cost. The remoteness of Alaska communities has long been a challenge in developing infrastructure of any kind, but with communications, the vast distances and obstacles to travel posed by weather and terrain make digital communication even more important. Remote Alaskans could reap some of the largest benefits of broadband access by improving tele-health and distance education networks, enhancing public safety and emergency response systems, and generating economic activity through Internet access.



Above, the now-defunct radar station LIZ-2 at Point Lay was one of 30 stations under U.S. Air Force control on the Distant Early Warning Line that ran approximately 3,600 miles from Alaska across Northern Canada to Greenland. The curved White Alice antennae are shown on the left. LIZ-2 was commissioned in 1955 and dismantled in 1989. Photo by Air Force Tech. Sgt. Donald L. Wetterman

1 Sparse Broadband Coverage in Alaska

2013



Note: This map excludes satellite coverage, which could be available statewide.

Sources: Connect Alaska; Alaska Department of Labor and Workforce Development, Research and Analysis Section

Early communications in Alaska

Throughout Alaska's post-settlement history, geography has been an obstacle to long-distance communication. Post was the first communication network, and it was rudimentary in the early years. In the early 1800s, sending a letter to Seattle from interior or northern Alaska and receiving a response took more than three months, and it took up to a year to and from Washington, D.C.

Communication problems between Alaska army stations and national headquarters were the impetus to develop Alaska's first telecommunications network.

In 1900, Congress appropriated \$450,000 to build the Washington-Alaska Military Cable and Telegraph System, or WAMCATS. Telegraph wires

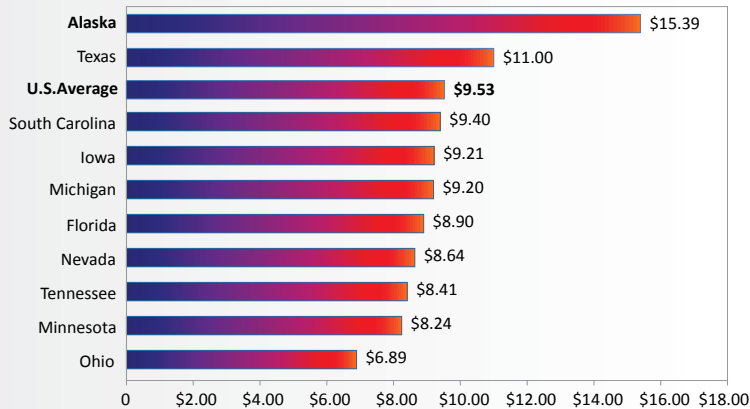
were strung from the Seward Peninsula and St. Michael to Tanana and Fairbanks, then connected to Alaska's Southcentral ports and Canada's telegraph system.

By 1903, a message from interior or western Alaska could be sent through Canada to Skagway, transported by steamer to Seattle, then resent by telegraph throughout the contiguous United States. This reduced a message's transit time to four days between Nome and Washington, D.C., under ideal circumstances.

Weather was harsh on telegraph wires, and freezing rain, falling trees, wind, and forest fires frequently interrupted service. The U.S. Army began replacing telegraph lines with a chain of radio antennae, initially spaced no further than 500 miles apart. By 1926, all telegraph lines in Alaska had

2 Fees Are Highest for Alaskans

Monthly broadband costs per MB speed, 2012



Source: Connect Nation Consumer Broadband Adoption Trends Survey, 2012

been replaced by the radio network, except the link across the Alaska-Canada border near Eagle.

In 1936, WAMCATS was renamed the Alaska Communication System.

War prompts more upgrades

The outbreak of World War II highlighted Alaska's geostrategic importance to the U.S., and the late 1940s and '50s brought substantial improvements to physical and communication infrastructure. The first overland telephone line that connected Alaska to the rest of the U.S. accompanied construction of the Alaska Highway and augmented the submarine telephone cables linking Southeast Alaska to the Lower 48.

The Cold War prompted continued development of Alaska's communication network, both to warn of Soviet air attacks and communicate with interceptor aircraft stationed in Alaska. High-frequency radio communication proved unreliable, so construction of the White Alice network began in 1955.

The White Alice network used a new, more reliable technology called tropospheric scatter. More than 70 new stations were built from the western Aleutians to the Arctic Coast and the southern panhandle, identifiable by the giant curved-billboard antennae protruding from the tundra. (See the photo on page 14.)

The White Alice system became the backbone of

Alaska's midcentury wireless telecommunication infrastructure, especially in rural Alaska. In 1970, over half of Alaska communities still weren't connected to the statewide telecommunications network. Of those with adequate ties to the outside world, the majority relied on White Alice or less sophisticated radio systems, and only two-fifths were linked by telephone lines or microwave.

The space age changes Alaska

Despite Cold War military escalation in Alaska, military networks were mainly used for civilian purposes. In 1969, Congress authorized the sale of the Alaska Communication System to RCA Global Communications, who renamed the Alaska operations unit Alascom.

Part of the agreement required Alascom to invest \$30 million to improve and expand existing infrastructure. In 1972, Alascom purchased the military's satellite earth station in Talkeetna, the state's only satellite link. Prior to the privatization of Alaska's telecommunication network and satellite access, the military controlled what little satellite connection Alaska had.

Television broadcasting started in the early 1950s in Anchorage and Ketchikan, then spread to Fairbanks, Juneau, and other large communities in the following years. Broadcasts were local, and all outside programming had to be taped and flown from Seattle to Anchorage, then distributed to the Interior and Southeast.

Most stations tried to air television shows on the same day of the week they originally played, so shows would broadcast one week late in Anchorage, two weeks late in Fairbanks, and up to three weeks late in Juneau.

The military allowed a special broadcast in 1969, teaming with an Anchorage TV station to downlink live feed of the Apollo moon landing. This was the first-ever live national TV event for Anchorage-area Alaskans, 18 years after the first televised live national broadcast in the Lower 48. There wouldn't be another live national broadcast in Alaska for two years, until the 1971 NFC Championship football game.

These live broadcasts would continue to be special events in Alaska until the 1980s, when television networks went to full satellite distribution.

Satellite technology revolutionized telecommunications in rural Alaska. Through Alascom's partnerships with state and federal agencies, small satellite earth stations sprang up in a handful of villages as part of a pilot program to test telehealth and distance education through voice-only networks.

In 1975, one television station began to broadcast in 16 rural communities. Throughout the next decade, Alascom, with the help of state funding, built more than 200 satellite earth stations and brought long-distance voice and television to nearly every community in the state. In 1982, Alascom launched its own satellite designated exclusively for Alaska service, the Aurora I.

The demands of data

Satellite nearly brought Alaska up to speed, but demand for technology grows faster than infrastructure, and bandwidth bottlenecks quickly slowed traffic.

Alaska connected to the global fiber optic network in 1991 when a spur was built off the North Pacific Cable between Oregon and Japan. The Alaska spur landed in Seward and connected to Anchorage. Alaska telecommunications companies rushed to lease bandwidth on the new fiber connection, and within a year it was at maximum capacity.

Fiber optics is the preferred method of carrying voice, video, and data because of superior capacity compared to other wired networks and a lack of delay compared to satellite.

Since then, additional subsea fiber optic cables have connected Southeast and Southcentral Alaska to the global network, and terrestrial fiber has been installed along much of the road system.

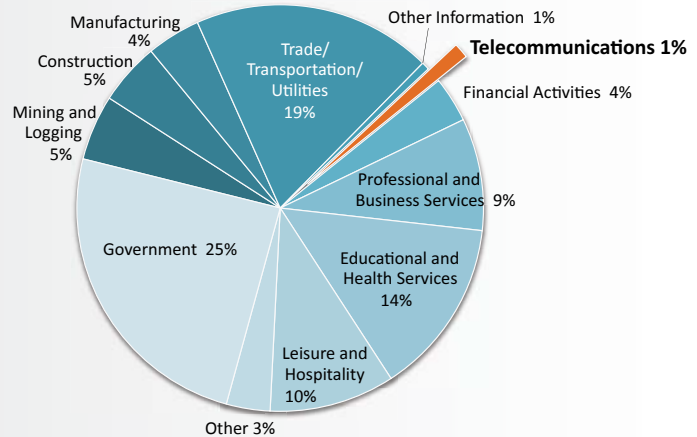
The missing middle mile

Wireless communication — like radio, tropospheric scatter, microwave, and satellite — helped rural Alaska leapfrog over many of the traditional technological infrastructure developments of the 20th century.

After the original WAMCATS telegraph wire deteriorated and was replaced by radio, rural communities weren't connected by wires and cables. But the data-intensive demands of modern broadband

3 Telecommunications A Small Industry

Alaska's industry makeup, 2013



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

access — especially two-way communication like video conferencing, gaming, or uploading — don't work as well with geosynchronous satellite communication. Though satellite data transfer improves constantly, the reality of a nearly 25,000 mile round trip between points A and B via satellite is difficult to overcome.

Several projects are in planning stages and one is under way to bring broadband to underserved areas in the state. The GCI TERRA project uses a combination of fiber optics and microwave transmitters to bring broadband to western Alaska. The small dots of connectivity on the map in Exhibit 1 in western Alaska are the TERRA network, which is still expanding.

Alaska recently received a one-time grant from the Federal Communications Commission to bring 3G and 4G mobile wireless service to 48 rural communities in the next few years. Most of rural Alaska has 2G coverage, which is not fast enough to be considered broadband.

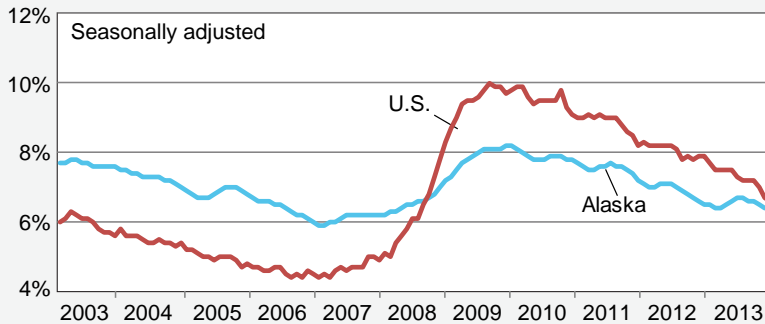
Small industry today, big impact

Alaska's first long-distance company, Alascom, had a monopoly in the early years and was instrumental in working with the state to build the back-

Continued on page 19

Employment Scene

1 Unemployment Rates January 2003 to February 2014

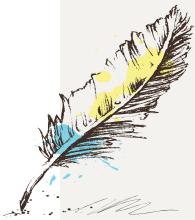


Source: Alaska Department of Labor and Workforce Development, Research and Analysis; and U.S. Bureau of Labor Statistics

2 Unemployment Rates Boroughs and census areas

	Prelim. 2/14	Revised 1/14	2/13
SEASONALLY ADJUSTED			
United States	6.7	6.6	7.7
Alaska Statewide	6.5	6.4	6.5
NOT SEASONALLY ADJUSTED			
United States	7.0	7.0	8.1
Alaska Statewide	7.8	7.4	7.4
Anchorage/Mat-Su Region	6.4	6.0	6.0
Municipality of Anchorage	5.7	5.3	5.3
Matanuska-Susitna Borough	8.9	8.5	8.5
Gulf Coast Region	9.0	8.8	8.8
Kenai Peninsula Borough	9.1	8.7	9.2
Kodiak Island Borough	5.7	6.7	5.6
Valdez-Cordova Census Area	12.6	12.0	11.7
Interior Region	8.1	7.8	7.9
Denali Borough	21.6	21.2	23.8
Fairbanks North Star Borough	6.7	6.5	6.7
Southeast Fairbanks Census Area	14.2	13.6	12.9
Yukon-Koyukuk Census Area	18.4	17.8	16.6
Northern Region	10.5	9.9	10.3
Nome Census Area	12.7	11.8	12.7
North Slope Borough	4.5	4.2	5.1
Northwest Arctic Borough	18.3	17.2	16.7
Southeast Region	9.0	8.6	8.3
Haines Borough	13.9	13.9	12.4
Hoonah-Angoon Census Area	26.6	25.9	24.4
Juneau, City and Borough of	5.6	5.4	5.3
Ketchikan Gateway Borough	8.9	7.9	8.3
Petersburg Census Area ¹	12.3	14.9	13.8
Prince of Wales-Hyder Census Area	20.5	19.1	17.0
Sitka, City and Borough of	7.2	7.0	6.7
Skagway, Municipality of	25.9	23.9	22.3
Wrangell, City and Borough of	13.7	12.8	11.8
Yakutat, City and Borough of	14.2	12.7	13.8
Southwest Region	14.1	14.3	13.2
Aleutians East Borough	8.7	9.6	9.2
Aleutians West Census Area	5.2	6.6	5.3
Bethel Census Area	17.4	16.3	16.3
Bristol Bay Borough	11.3	11.1	9.2
Dillingham Census Area	10.4	11.5	10.5
Lake and Peninsula Borough	11.6	11.2	10.2
Wade Hampton Census Area	25.8	24.9	23.5

Source: Alaska Department of Labor and Workforce Development, Research and Analysis; and U.S. Bureau of Labor Statistics



This month in Trends history

Headlines of the past several months have not been encouraging for the wood products industry. There seems to be consensus that the industry is in its worst shape in 30 years. The Wrangell mill closure in February is another sign that this industry is facing tough times. Yet our *Alaska Economic Trends* estimate for the wood products industry shows a net gain in employment in February.

APRIL 1984

Is all the talk about the industry a smokescreen or is something else affecting the employment numbers? In this case our numbers for February might be considered misleading. The survey from which we estimate employment depends on employment as of the week that includes the 12th of each month. In this case, the Wrangell Mill had not shut down during the week of February 12. Therefore, their employees are included in the employment numbers for the month of February.

The Department of Labor and Workforce Development has published *Alaska Economic Trends* as far back as 1961 and other labor market summaries since the late 1940s. Historical *Trends* articles are available at labor.alaska.gov/trends as far back as 1978, and complete issues are available from 1994.

Employer Resources

Two new rules for employers with federal contracts

The Office of Federal Contract Compliance Programs has revised the nondiscrimination and affirmative action regulations under Section 503 of the Rehabilitation Act of 1973 and the Vietnam Era Veterans Readjustment Assistance Act of 1974, or VEVRAA. The laws took effect March 24 and can be found at www.dol.gov/ofccp/regs/compliance/ofcpcpcomp.htm.

Per VEVRAA, federal contractors recruiting veterans must list most of their job openings with their local employment service office and send recruitment notification to the appropriate Employment Service Delivery System, which in Alaska is one of the 21 job centers. Notification must include:

- That they are a federal contractor
- That they desire priority referrals of protected veterans for job openings at all statewide locations
- The name and address of each hiring location
- Contact information for the person responsible for hiring at each location who can verify the information in the job listing and receive priority referrals
- Contact information for any outside job search company

used, such as a temporary employment agency assisting with hiring

Federal contractors can receive recruitment and employment assistance from employment specialists in statewide job centers. Staff can help list jobs in the Alaska Labor Exchange System, ALEXsys, and show contractors where to find federal compliance information. For federal data collection, the government requires ALEXsys to retain contractors' recruitment histories for three years.

To post a job on ALEXsys or to find a local job center or other employment resources, visit jobs.alaska.gov/employer.htm.

Job center staff will also help veterans or job seekers with disabilities apply for jobs with federal contractors, help them complete the application if needed, and encourage them to self-identify at the pre- and post-offer phases of recruitment.

Employer Resources is written by the Employment Security Division of the Alaska Department of Labor and Workforce Development.

TELECOMMUNICATIONS

Continued from page 17

bone of the modern telecom infrastructure.

GCI entered the scene in 1979, which was around the same time the FCC instituted a policy of "rate integration" in Alaska, which meant Alaskans shouldn't pay more for long distance than the rest of the nation.

Lower prices and improved service were the result of the "phone wars," which lasted through the 1980s and into the 1990s along with many mergers, takeovers, and new telecommunication firms. AT&T eventually purchased Alascom and became AT&T Alascom. GCI continued to gain customers across the state, and would ultimately become the largest network in Alaska. Alaska Communica-

tions Systems (the name was said to be partly in homage to the original Alaska Communication System that evolved from the first WAMCATS network) formed in the late 1990s with the purchase and merger of several smaller networks, and immediately became a statewide player.

Today, the industry has a small share of Alaska's overall employment but plays a significant role in many people's daily lives. Telecommunications employed about 4,100 a month on average in 2013, and employment has remained largely steady in the industry since 2000. (See Exhibit 3.) Changes in employment over the past 15 years have been driven by special projects and mergers and acquisitions.