

2018 Alaska Housing Assessment
Statewide Housing Summary
January 17, 2018

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My Fellow Alaskans:

Alaska Housing Finance Corporation (AHFC) is pleased to present the 2018 Alaska Housing Assessment.

This report offers a snapshot of housing characteristics across the state and focuses AHFC and other partners in work to achieve positive outcomes. It provides data that informs resource allocation, program management and evaluation decisions.

The assessment follows a similar assessment published in 2014. The 2018 Alaska Housing Assessment highlights current challenges related to housing, affordability, energy use and structural conditions from a statewide, regional and community perspective. It also forecasts future housing need based on estimated population changes, including aging Alaskans.

To summarize changes between 2014 and 2018, challenges for housing continue:

- Overcrowding impacts rural Alaska, with more than half of all households in some areas overcrowded;
- The statewide percentage of overcrowded homes is twice the national average;
- Nearly 79,000 households spend more than 30 percent of their income on costs related to housing;
- Approximately 14,600 housing units are energy inefficient, burdening residents with high costs. Significant progress has been made thanks to state investment in the weatherization and home energy rebate programs that improved 5,210 housing units between the time the reports were published;

Information reported for the first time in the 2018 Alaska Housing Assessment:

- Broadly, the current rate of construction in housing is insufficient to keep pace with Alaska's projected population;
- Demand for senior facility beds is increasing with the population of people older than the age 65 expected to double by 2030.

I would like to thank our partners who contributed to this assessment, especially Cold Climate Housing Research Center in Fairbanks for their research and authorship.

AHFC's mission is to provide Alaskans access to safe, quality and affordable housing. We remain committed to our work and we hope this assessment proves a useful resource for others working with us overcoming Alaska's housing challenges and improving the quality of life for Alaskans across the state.

I encourage you to read the following summaries and findings, and visit the housing profiles at www.ahfc.us for more about the quality of Alaska's housing. With any comments or questions, please contact Jimmy Ord in our Research & Rural Development department at jord@ahfc.us or 330-8446.

Sincerely,



Bryan Butcher
CEO/Executive Director

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Program History

Alaska Housing Finance Corporation (AHFC) commissioned Cold Climate Housing Research Center (CCHRC) to prepare a 2014 Housing Assessment. This Statewide Housing Assessment builds on that document and highlights current challenges of overcrowding, affordability, energy use and structural condition of homes throughout Alaska, and estimates future housing needs caused by population growth and an anticipated boom among the senior population.

Progress

As of 2016, there are 303,417 housing units spread throughout 12 Alaska Native Claims Settlement Act (ANCSA) regions in Alaska, 251,678 of which are occupied. This is 5,076 more occupied homes than were identified in the 2014 analysis.

Challenges Continue: Overcrowding

Alaska continues to face major challenges from overcrowding. Statewide, the percentage of homes that are too small for the number of tenants (overcrowded) is two times greater than the national rate of overcrowding. The highest rates of overcrowding are in rural areas where the population majority is Alaska Native, with nearly half of all households in some areas being overcrowded. A recently completed national assessment of American Indian, Alaska Native and Hawaiian housing needs found that overcrowding issues in tribal areas are mostly due to households taking in family members who would otherwise be homeless.¹ Thus a portion of Alaska's overcrowding problem is likely the expression of what would otherwise be homelessness. To alleviate overcrowding, it is estimated that more than 16,100 units need to be built.

Challenges Continue: Number of Units Not Meeting Demand

The current rate of new construction is inadequate to keep pace with Alaska's projected population growth. It is estimated that overall, the rate of construction for new housing would have to increase by an additional 255 units per year, or 11 percent, to meet demand (this rate varies considerably from region to region).² In order to meet housing demand from population growth and alleviate overcrowding by 2025, Alaska must increase construction of

¹ U.S. Department of Housing and Urban Development, Office of Policy Development and Research. (2017). *Housing Needs of American Indians and Alaska Natives in Tribal Areas: A Report From the Assessment of American Indian, Alaska Native, and Native Hawaiian Housing Needs*. Retrieved from https://www.huduser.gov/portal/native_american_assessment/home.html

² Per the U.S. Census Bureau, "a housing unit is a house, an apartment, a group of rooms, or a single room occupied or intended for occupancy as separate living quarters. Separate living quarters are those in which the occupants do not live and eat with other persons in the structure and which have direct access from the outside of the building or through a common hall."

new housing units by an additional 2,066 units per year, or 90 percent over the 2011–2015 five-year average.

Challenges Continue: Affordability

Nearly 79,000 households spend more than 30 percent of their income on costs related to housing. Under the U.S. Department of Housing and Urban Development's (HUD) definition, paying more than 30 percent affects a household's ability to pay for other basic needs. An examination of the average household's combined wages necessary to rent a two-bedroom home in Alaska versus the average Alaska renter's wage shows that an average household wage of \$23.25 per hour is needed to pay the state's average rent.³ This is higher than the current estimated statewide average renter wage of \$17.76 per hour. Extremely low-income households⁴ face the greatest affordability challenges, with a shortage of nearly 16,000 units of affordable housing available for this demographic.⁵

Challenges Continue: Shift in Population Needs

Alaska is on the verge of a boom in the senior citizen community, with the population of people older than age 65 projected by Alaska Department of Labor to nearly double by 2030 to 140,120 people.⁶ To meet demands of this growing population segment, Alaska will need to add an estimated 318 beds each year until 2030 to maintain current services; however, current services do not address current deficits in senior housing faced by regions throughout the state.⁷

Challenges Continue: Worn and Inadequate Construction

Alaska faces significant challenges from old and inadequate housing. Approximately 14,600 housing units are estimated to be very inefficient, burdening residents with unnecessarily high energy costs.⁸ These homes could benefit from cost-effective energy retrofits, which would relieve residents of energy bills and protect them from fluctuations in energy prices. More than 12,600 homes in Alaska, mostly in rural areas, still lack complete plumbing and/or kitchens.

³ Yentel, D., Aurand, A., Emmanuel, D., Errico, E., Leong, G. M., & Rodrigues, K. (2016). *Out of Reach 2016*. National Low Income Housing Coalition. Retrieved from http://nlihc.org/sites/default/files/oor/OOR_2016.pdf

⁴ Extremely low-income households are defined as earning less than 30% of the area median income.

⁵ Yentel, D., Aurand, A., Emmanuel, D., Errico, E., Leong, G. M., & Rodrigues, K. (2016). *Out of Reach 2016*. National Low Income Housing Coalition. Retrieved from http://nlihc.org/sites/default/files/oor/OOR_2016.pdf

⁶ Hunsinger, Eddie, Sandberg, E., & Brooks, L. (2016). "Alaska Population Projections 2015 to 2045." Alaska Department of Labor and Workforce Development, Research and Analysis Section.

⁷ Denali Daniels & Associates. (2015). Needs Assessment Report: Alaska State Plan for Senior Services: FY 2016–2019. Retrieved from http://dhss.alaska.gov/acoa/Documents/minutes/ACoA_NeedsAssessmentReport.pdf

⁸ Homes rated 1-star in the Alaska Home Energy Rating system are "very inefficient," typically using more than four times the energy of a new home built to AHFC's Building Energy Efficiency Standard. These 1-star buildings have disproportionately high costs to maintain a comfortable indoor environment.

More than half of all homes are at increased risk of moisture and indoor air quality issues because they are relatively airtight and lack modern ventilation systems.

The Goal: Maximized Impact

The 2018 Alaska Housing Assessment report is intended to provide an overview of the housing characteristics in Alaska so that interested parties can make informed decisions about resource allocation and housing program management.

Alaska Housing Needs: Key Facts

Alaska Housing Needs - Key Facts

78,959

households in Alaska are housing
cost-burdened



16,107

units need to be built to alleviate
overcrowding in the state



12,635

homes in Alaska lack complete
kitchens and/or plumbing



\$23.25

household hourly wage required to afford
the average 2-bedroom rental in Alaska



55%

of homes in Alaska are at higher risk for
moisture and indoor air quality issues



14,600

homes are rated 1-star, burdening
households with high energy costs



318

new senior living facility beds need to be added
annually to keep up with senior population growth



15,972

estimated shortage of affordable and available
housing units for extremely low-income households



11%

increase in new construction rate needed
to meet projected population growth

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COLD CLIMATE HOUSING RESEARCH CENTER

CCHRC

Special thanks to Association of Alaska Housing Authorities and the Research and Analysis section of the State of Alaska Department of Labor and Workforce Development

Introduction

Alaska's housing stock has evolved from culturally relevant, climate-appropriate homes built with local resources by indigenous peoples to hastily constructed pipeline-era homes to the durable 5- and 6-star homes being built today.

This report offers a snapshot of Alaska's housing according to best available data, with emphasis on the most widespread needs.⁹

Primary needs outlined in this report are the **housing gap, affordable housing, senior housing** and **retrofits**:

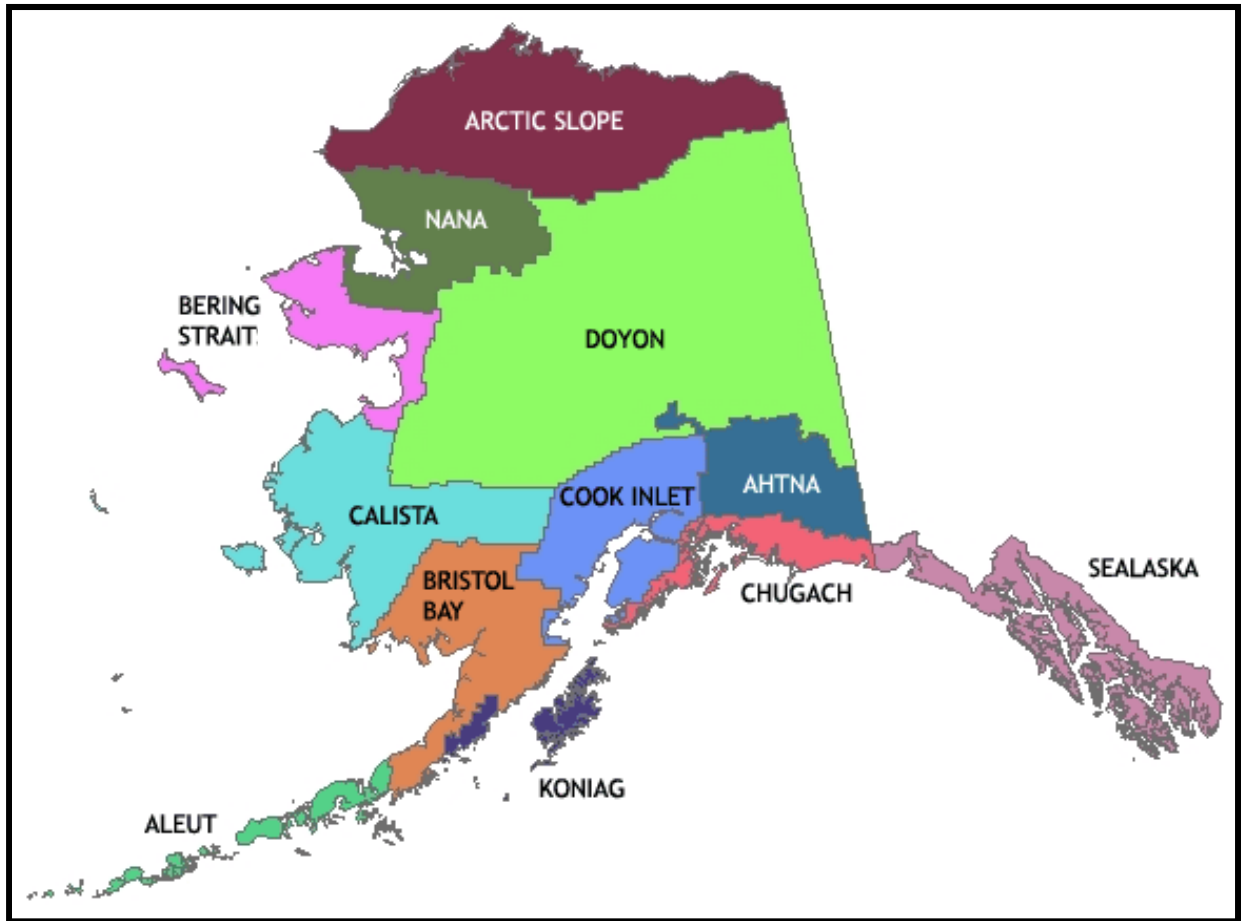
- The housing gap is a conservative estimate of new housing units needed to alleviate overcrowding and meet projected population growth.¹⁰
- Affordable housing needs details the housing cost burden throughout the state and challenges facing low-income Alaskans.
- The senior housing needs section projects future housing needs to accommodate Alaska's growing senior population.
- The retrofit needs section outlines energy, condition and indoor air quality issues in housing.

Where appropriate, housing needs are compared geographically using regions outlined by the Alaska Native Claims Settlement Act (ANCSA), as seen in Figure 1. For more comparisons and information about data sources and analysis methods, see Statewide Housing Characteristics section of this report. Because the Cook Inlet region dwarfs other regions in population, many of the following graphs do not include that region but are described in paragraph form. Dashboards and summaries are available for each census area and ANCSA region.

⁹ See Appendix for Energy Cost Analysis, Data Limitations, Selected Methodology and Glossary.

¹⁰ Per the U.S. Census Bureau, "a housing unit is a house, an apartment, a group of rooms, or a single room occupied or intended for occupancy as separate living quarters. Separate living quarters are those in which the occupants do not live and eat with other persons in the structure and which have direct access from the outside of the building or through a common hall."

Figure 1: Alaska Native Claims Settlement Act (ANCSA) regions



Housing Gap

Overview

The housing gap is an estimate of new housing units needed due to overcrowding and projected population growth. Estimates were generated using American Community Survey (ACS) five-year estimates¹¹ and Alaska Department of Labor population growth estimates.¹²

Many regions in Alaska are extremely overcrowded, with rates in some areas of Alaska reaching approximately 12 times the national average. Alaska would have to build an estimated 16,107 units to alleviate overcrowding. This is an approximately 4 percent increase over the 15,453 units estimated in the 2014 Housing Assessment.

Population is projected to grow in some areas, and this will require additional housing to be built. To overcome the projected housing gap caused by overcrowding and projected population growth by 2025, construction of new housing will need to increase by 2,066 units per year over the current five-year average construction rate. This represents a needed increase of 90 percent.¹³

¹¹ U.S. Census Bureau. (2016). *American Community Survey, 2010–2014 American Community Survey Five-year Estimates*.

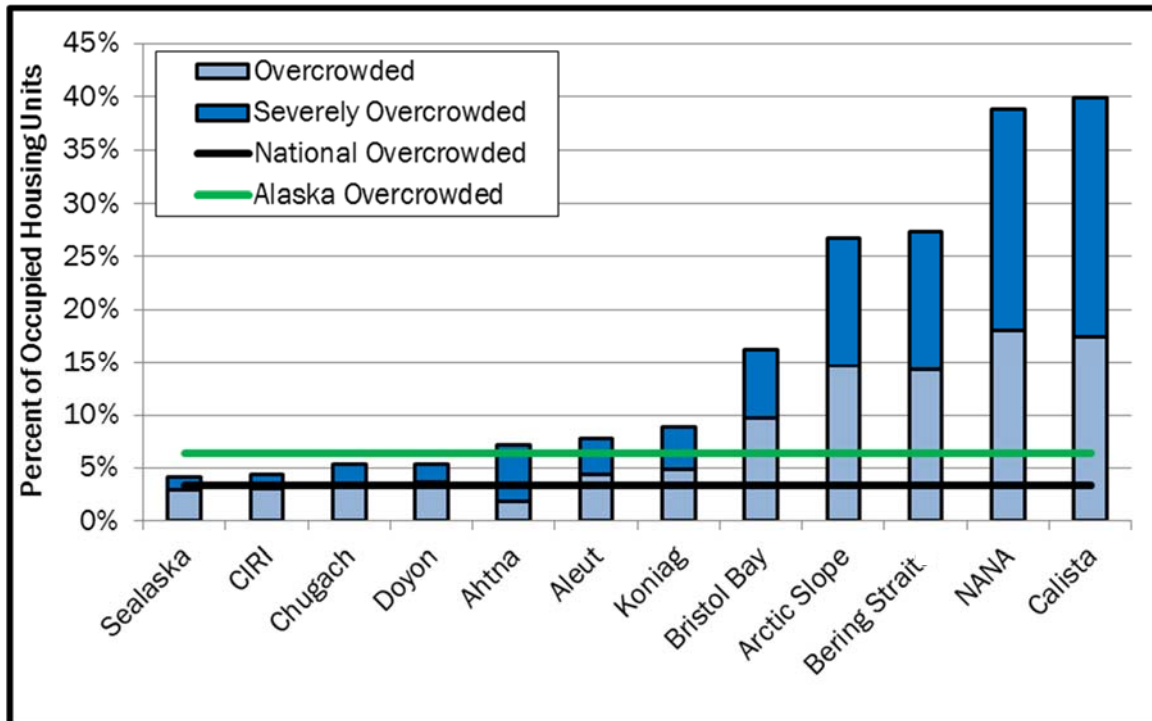
¹² Hunsinger, Eddie, Sandberg, E., & Brooks, L. (2016). "Alaska Population Projections 2015 to 2045." Alaska Department of Labor and Workforce Development, Research and Analysis Section.

¹³ Five-year average calculated based on new construction estimates between 2011 and 2015 from Alaska Department of Labor, Research and Analysis Section.

Overcrowding

Alaska has overcrowding rates that are approximately double the national average, and some regions of Alaska are extremely overcrowded.¹⁴ Figure 2 shows rates of overcrowding in ANCSA regions.

Figure 2: Overcrowding rates by ANCSA region



The national assessment of American Indian, Alaska Native and Hawaiian housing needs found that overcrowding was generally the manifestation of a homelessness problem in tribal housing.¹⁵ Cultures in tribal areas typically support taking in family and community members who need a place to stay, and while interviewed heads of household reported that they would not ask them to leave, they also suggested that most extra members of the household would prefer to live in their own housing unit if they could. Based on our findings that the highest rates of overcrowding correspond to the ANCSA regions with the largest percentages of Alaska Native people, a large portion of Alaska's overcrowding problem in rural Alaska is likely the expression of what otherwise would be homelessness.

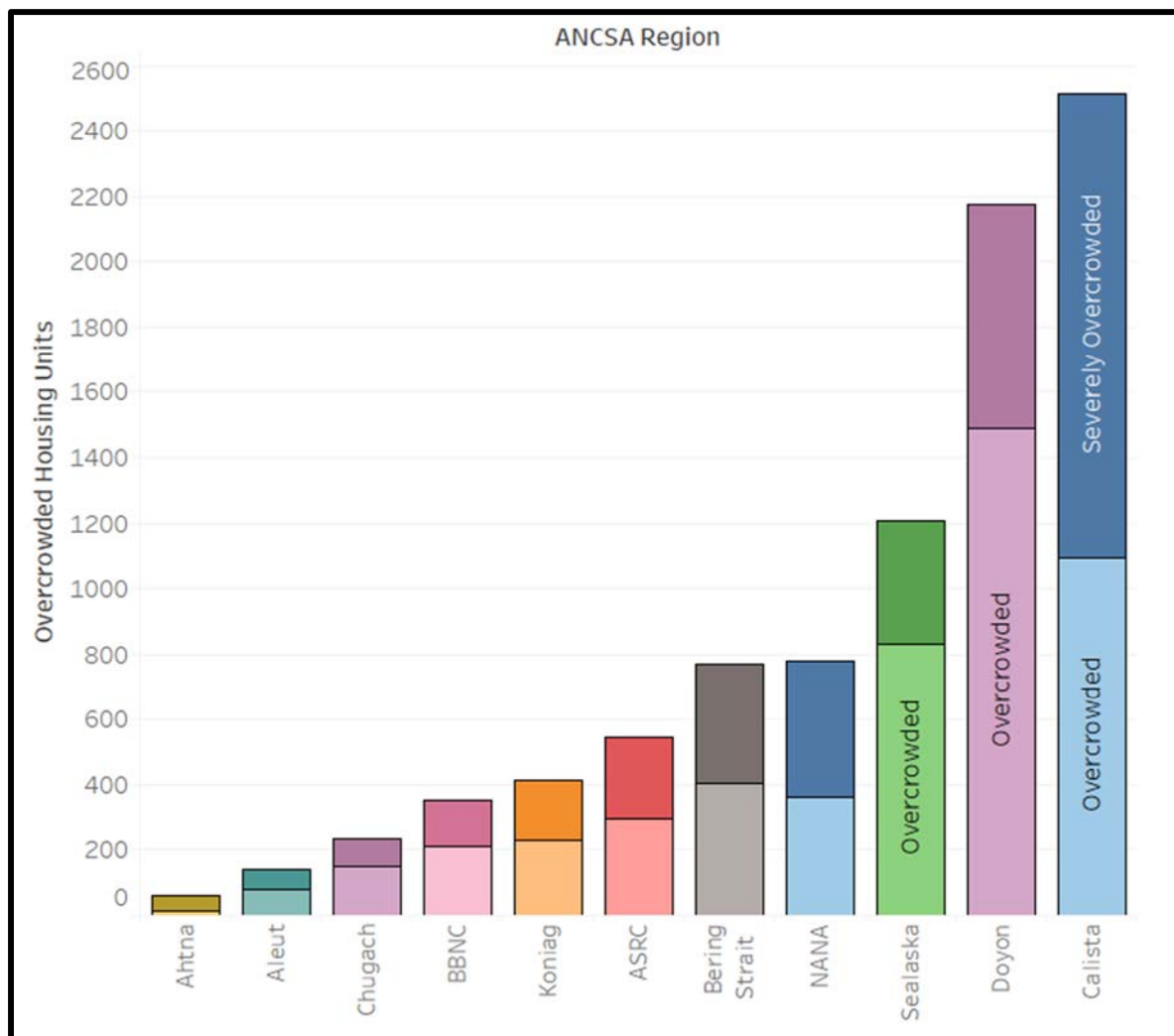
¹⁴ HUD defines a home as "overcrowded" if there is more than one person per room and "severely overcrowded" if there is more than 1.5 people per room. This is based on the level of crowding that negatively affects health and childhood education. For more details see the Overcrowding section in the Statewide Housing Characteristics Report.

¹⁵ U.S. Department of Housing and Urban Development, Office of Policy Development and Research. (2017). *Housing Needs of American Indians and Alaska Natives in Tribal Areas: A Report From the Assessment of American Indian, Alaska Native, and Native Hawaiian Housing Needs*. Retrieved from https://www.huduser.gov/portal/native_american_assessment/home.html

Overcrowding rates in rural Alaska are higher than in urban areas, affecting up to 50 percent of households in some rural regions. Even though only approximately 4.4 percent of households in the CIRI region are overcrowded, the total number of overcrowded units is highest (approximately 6,860 units) because of the region's population.

Figure 3 shows total overcrowded and severely overcrowded units for other ANCSA regions. Assuming that one new housing unit would need to be built to alleviate overcrowded conditions in one household, an estimated minimum of 16,107 units would be needed statewide to fully alleviate current overcrowding.

Figure 3: Overcrowding gap by ANCSA region (CIRI region not shown due to scale)¹⁶

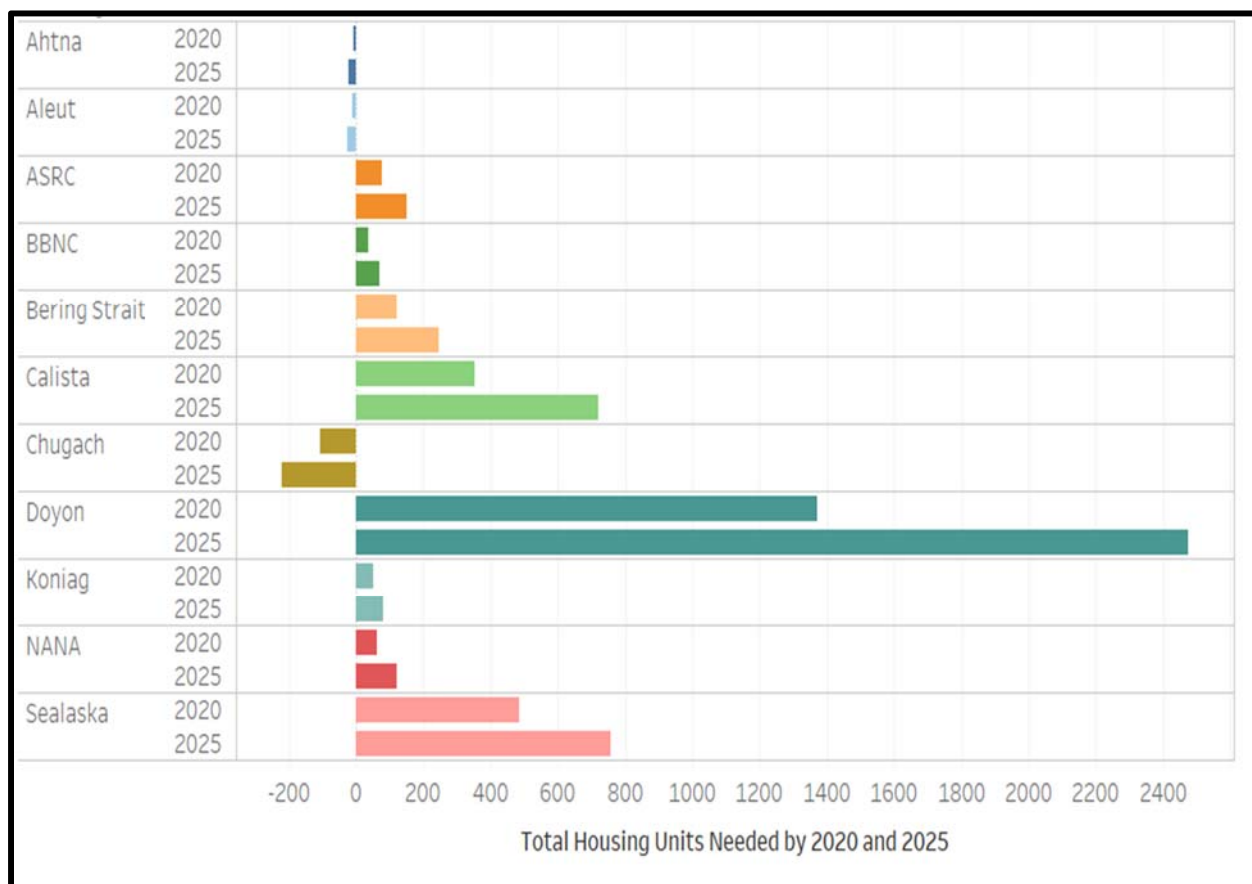


¹⁶ U.S. Census Bureau. (2016). *American Community Survey, 2010–2014 American Community Survey Five-year Estimates*.

Population Growth

Populations are growing in many regions in Alaska. New housing construction is not sufficient to meet projected demand, which could impact overcrowding and/or homelessness. New housing units required to meet population growth in 2020 and 2025 were calculated by dividing projected number of new people by average household size in each region.¹⁷ Figure 4 shows estimates for all regions except CIRI because its greater population dwarfs housing needs in the rest of the state, with the CIRI region needing an estimated 9,650 housing units by 2020 and 18,675 by 2025.

Figure 4: Estimated new housing units needed to meet projected population growth (CIRI region not shown due to scale)

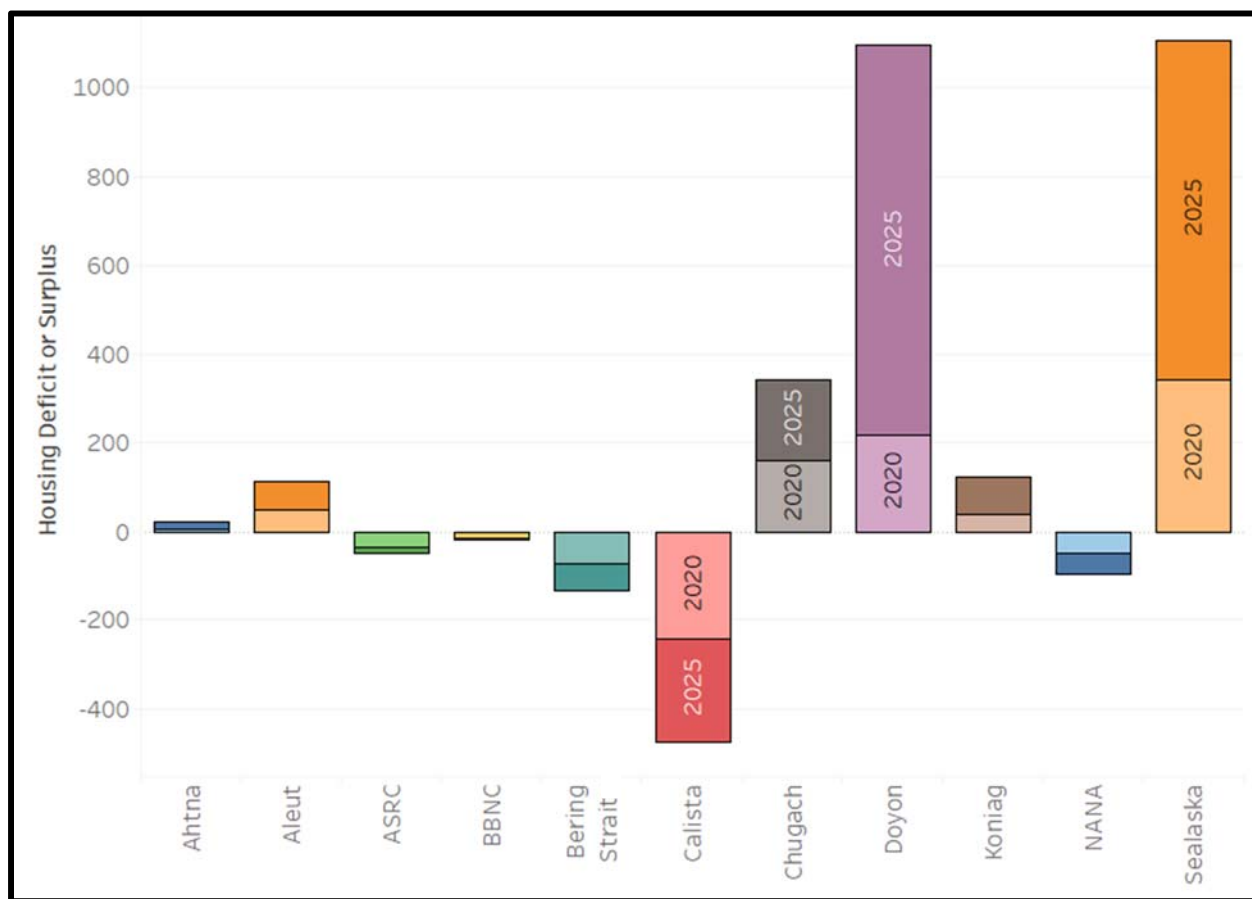


Housing demand was compared to new construction projections. New construction projections were created by calculating average construction rate over the past five years for each region and then using this rate to extrapolate an estimate of new units built by 2020

¹⁷ Hunsinger, Eddie, Sandberg, E., & Brooks, L. (2016). "Alaska Population Projections 2015 to 2045." Alaska Department of Labor and Workforce Development, Research and Analysis Section.

and 2025.¹⁸ Figure 5 shows results of this analysis, highlighting which regions will have a housing deficit and which will have a surplus if they continue with the same rate of construction. Housing deficits are shown as negative numbers; projected housing surpluses are shown as positive numbers. Again, the CIRI region is not included in the figure because its population is significantly higher than all other regions. The CIRI region has a very large projected housing deficit due to projected population growth outpacing new construction, with an estimated 4,330 additional units needed to meet demand by 2025.¹⁹ Even areas that are projected to have a surplus will very likely not have more housing units than are needed to house the population as most regions have a significant amount of overcrowding to overcome.

Figure 5: Housing deficit or surplus from population growth and new construction projections (CIRI region not shown due to scale)



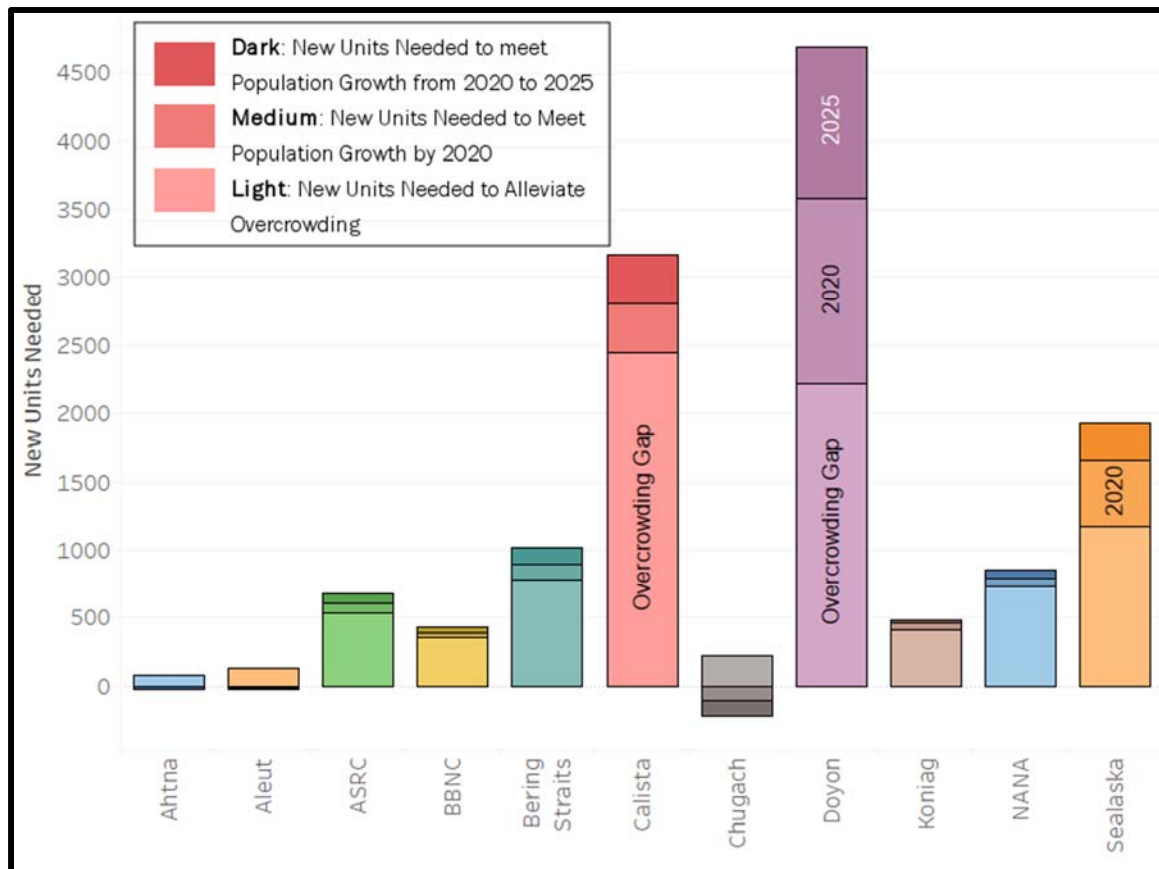
¹⁸ Dusenberry, Nicole. Personal email communication, 5/9/2016. 2000–2015 New Housing Units Workbook. Alaska Department of Labor and Workforce Development, Research and Analysis Division.

¹⁹ Ibid.

Total Housing Gap Estimates

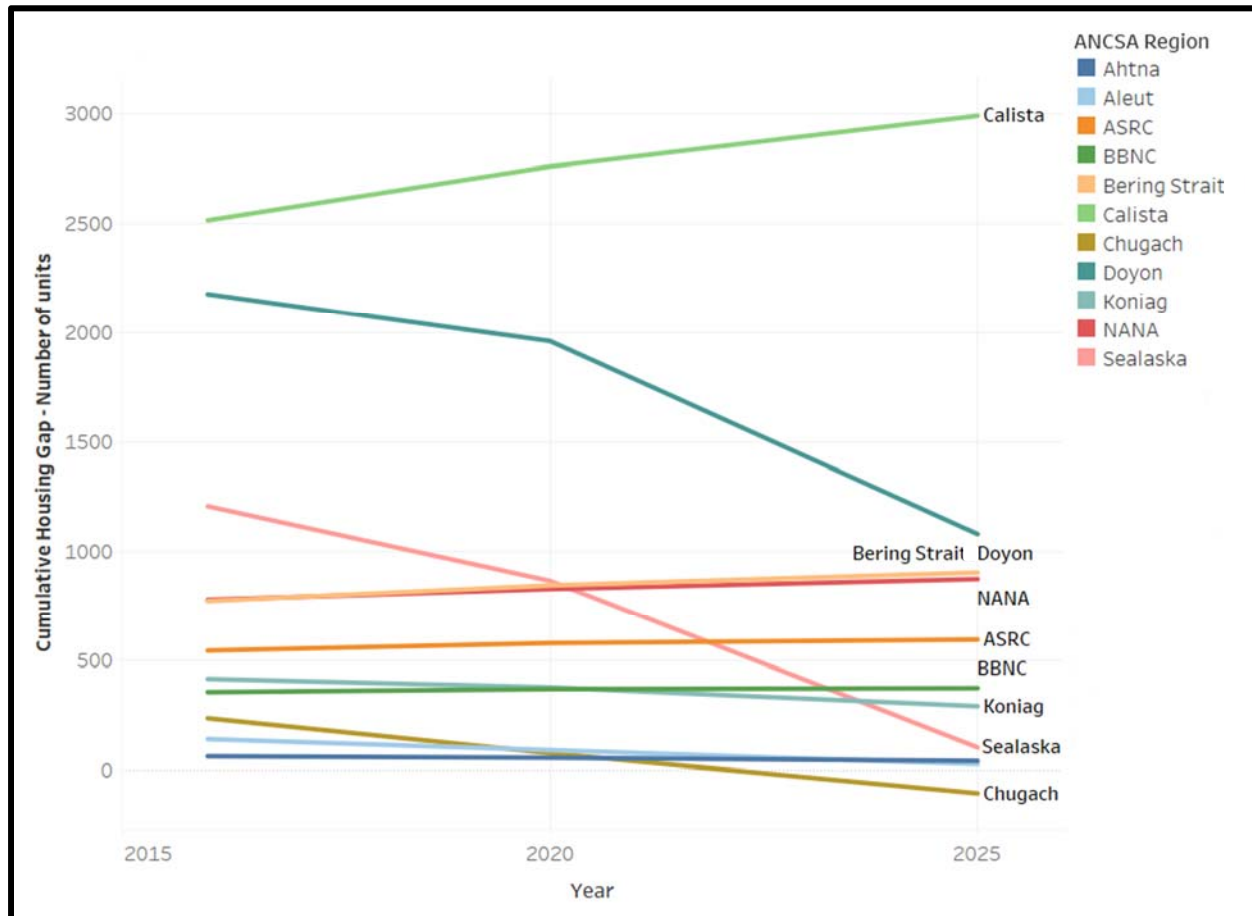
The total housing gap is an estimate of new housing units needed to both alleviate current overcrowding and meet demand caused by population growth. Unlike the housing deficit estimates identified in the previous section, total housing gap estimates do not include new construction projections; they simply project how many housing units will need to be built by 2025. Figure 6 shows total housing gap estimates for each ANCSA region, except CIRI, which needs approximately 25,781 new housing units by 2025 to alleviate overcrowding and meet demand from projected population growth. Unlike many other regions, the Chugach region has a rate of construction that can meet its projected population growth; however, its rate is insufficient to alleviate its current overcrowding issues. This is shown in Figure 6 as a net negative for new units needed to meet population growth, and a net positive for new units to meet existing overcrowding.

Figure 6: Total housing gap (CIRI region not shown due to scale)



While the housing gap is significant in some regions, construction of new housing by 2020 and 2025 has the potential to mitigate some need. Figure 7 shows projected total housing gap if construction of residential units remains the same as the past five years.

Figure 7: Estimated cumulative housing gap trend, assuming 2011–2015 average new construction rates (CIRI region not shown due to scale)



To adequately meet housing demand from population growth, an additional 255 housing units per year need to be built, an 11 percent increase over the previous five-year average. For new construction to fully alleviate overcrowding and keep up with population growth by 2025, the construction industry would need to build an additional 2,066 units per year than it has averaged over the previous five years, an increase of 90 percent.

New housing construction needs vary by area because population growth and construction rates differ between regions. The fast-growing Calista region will need to increase construction significantly from an average of 27 housing units a year to an average of 80 to meet population growth, or to 359 new units a year to alleviate overcrowding by 2025. Other areas, such as the Sealaska region, are on pace to meet housing demand created by population growth and need only to increase annual construction rates by 11 units per year to alleviate overcrowding by building one new additional unit for each overcrowded unit by 2025.

Affordable Housing Needs

New units must be built to meet the growing housing gap, and policies and programs can be used to promote affordability in housing. An insufficient housing stock will cause overcrowding and homelessness; these issues are compounded by concerns about affordability. The U.S. Department of Housing and Urban Development (HUD) considers households "cost-burdened" if they are spending more than 30 percent of their income on total housing costs, "very cost-burdened" if they are spending more than 35 percent of their income, and "severely cost-burdened" if they are spending more than 50 percent of their income on housing.²⁰ Data on severely cost-burdened households are not available on a regional level.

An estimated 31 percent (78,959) of households in Alaska are cost-burdened.²¹ This burden falls more heavily on renters than homeowners with an estimated 46 percent of renters (39,767) identified as cost-burdened or very cost burdened; whereas, approximately 23 percent of homeowners (39,191) are considered cost-burdened.

The poorest households in Alaska face the biggest gap in available affordable housing. Households are considered extremely low income if their income is at or below poverty level, which is defined as below 30 percent of Area Median Income (AMI).²² In Alaska, these extremely low-income households make up the majority (67 percent) of severely cost-burdened households.²³ The high cost burden of housing for these families increases likelihood of living in substandard housing, increases risk of eviction and leads to lower spending on basic necessities like health care and food.²⁴ Low-income households that are very cost-burdened on average spend 74 percent less on health care and 41 percent less on food than low-income households who live in affordable housing.²⁵ Even when housing that is affordable to extremely low-income households exists, there is competition from higher income renters in the private market. This in turn decreases the housing units that are effectively *available* to extremely low-income households. According to National Low Income Housing Coalition's estimates, Alaska has a shortage of 15,972 affordable and available housing units for extremely low-income households.

²⁰ This definition is debated as being out of date but no better definition currently exists. It is still the most widely accepted.

²¹ U.S. Census Bureau. (2016). *American Community Survey, 2010–2014 American Community Survey Five-year Estimates*.

²² Yentel, D., Aurand, A., Emmanuel, D., Errico, E., Leong, G. M., & Rodrigues, K. (2016). *Out of Reach 2016*. National Low Income Housing Coalition. Retrieved from http://nlihc.org/sites/default/files/oor/OOR_2016.pdf

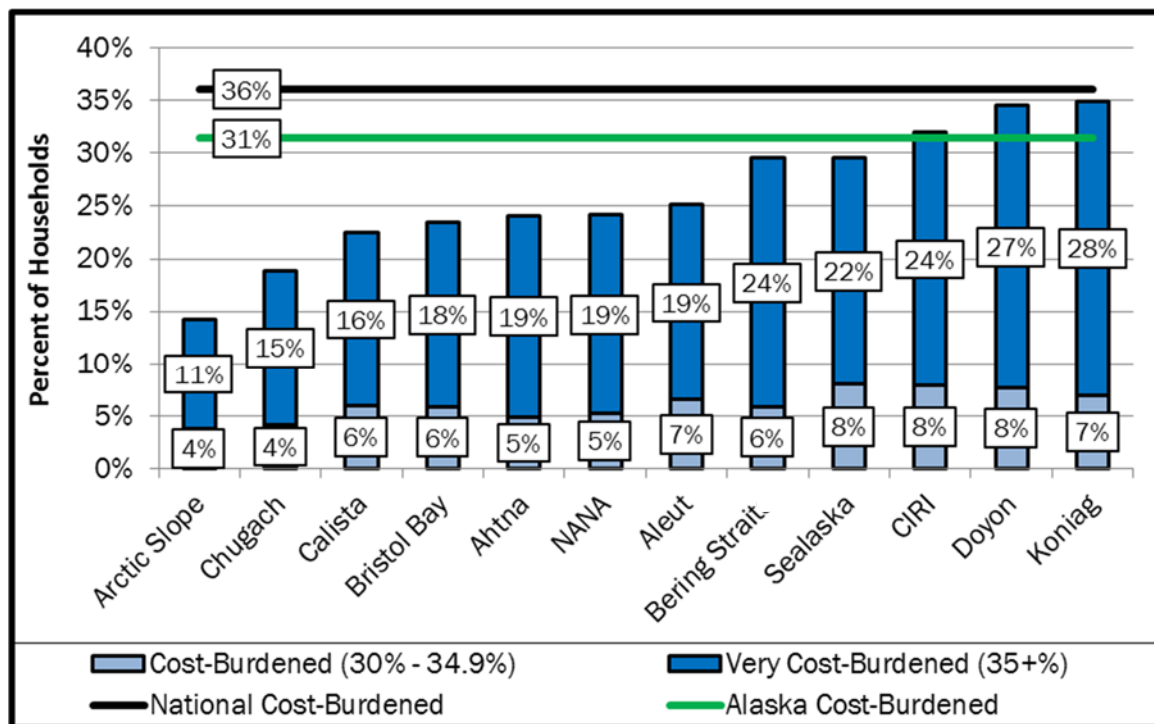
²³ Aurand, A., Emmanuel, D., Crowley, S., Errico, E., Leong, G. M., Rodrigues, K. (2016). *The GAP: Affordable Housing Gap Analysis 2016*. National Low Income Housing Coalition. Retrieved from http://nlihc.org/sites/default/files/Gap-Report_2016.pdf

²⁴ Joint Center for Housing Studies of Harvard University. (2016). *State of the Nation's Housing 2016*. Retrieved from http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/jchs_2016_state_of_the_nations_housing_lowres.pdf

²⁵ Ibid.

Alaska has slightly lower rates of cost-burdened households than the national average but many regions face significant affordability challenges. Figure 8 shows that the four most cost-burdened regions have 30 percent or more of their population cost-burdened. These regions represent the most urban environments. This is likely due to factors that include higher property values in some urban areas or high rents, which can be a significant part of households' housing costs. Also, cost-burdened estimates incorporate public assistance income and subsidies, which could affect relative urban/rural cost-burden estimates if public assistance programs affect different proportions of each population.

Figure 8: Percentage of cost-burdened households by ANCSA region



According to National Low Income Housing Coalition, the average wage of a single-income household that would be needed to afford a two-bedroom rental apartment in Alaska is \$23.25 per hour, which is the ninth highest in the U.S. This varies regionally, with the Aleutians West Borough having the highest wage required to rent a two-bedroom apartment, at \$28.90 per hour. Housing may still be affordable in regions where housing costs require a high wage if incomes in the area are commensurate. When comparing regional housing costs to median area incomes, the two least affordable regions in Alaska are Nome and Bethel census areas where income needed to afford a two-bedroom unit at fair market rent represents 114 percent and 100 percent of area median incomes, respectively.²⁶

²⁶ Yentel, D., Aurand, A., Emmanuel, D., Errico, E., Leong, G. M., & Rodrigues, K. (2016). *Out of Reach 2016*. National Low Income Housing Coalition. Retrieved from http://nlihc.org/sites/default/files/oor/OOR_2016.pdf

Senior Housing Needs

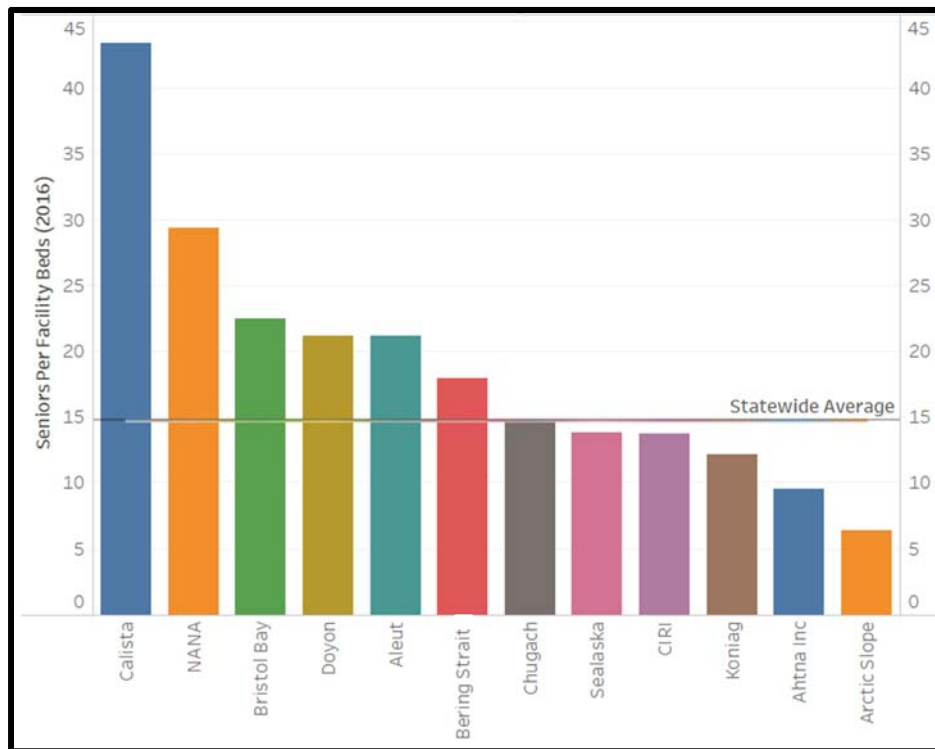
Alaska is on the cusp of a population boom with senior citizens ages 65 and older. Alaska Department of Labor estimates that the senior population will nearly double by 2030 to more than 140,000.²⁷ This rate is projected to grow faster than the general population with percentage of seniors expected to rise from approximately 10 percent to 17 percent of the state's total population.

According to data from AHFC's Senior Housing Office, there are living spaces ("beds") for 3,013 senior citizens in licensed independent senior housing facilities and 2,086 beds in licensed assisted living senior housing facilities.²⁸ Analysis found that the number of senior citizens per senior facility bed in each region varies widely. Calista has the most seniors per licensed facility bed at approximately 43 per unit, nearly three times higher than the statewide average of 15. The Arctic Slope region has the fewest seniors per licensed facility bed at six seniors per unit.

²⁷ Hunsinger, Eddie, Sandberg, E., & Brooks, L. (2016). "Alaska Population Projections 2015 to 2045." Alaska Department of Labor and Workforce Development, Research and Analysis Section.

²⁸ AHFC Senior Housing Office. (2016). *Inventory List: Assisted Living Homes / Facilities*. Revised 5/02/2016. Retrieved from <https://www.ahfc.us/senior-support/>

Figure 9: Number of senior citizens per senior facility bed²⁹



Even in areas with more independent and assisted-living facility beds per senior, such as Sealaska and CIRI, seniors reported a shortage of senior housing. Public elder listening sessions were held in Anchorage, Fairbanks, Juneau, Kenai Peninsula and Copper Center as a part of data collection for the Alaska Senior Needs Assessment. All regions reported a shortage of either affordable independent senior housing or assisted living facilities.³⁰ Researchers also surveyed more than 2,000 senior citizens and found that affordable and accessible housing was the third most important issue for them, closely behind health care and financial security.³¹

Elder listening sessions have identified an unmet need for senior housing facilities.³² With Alaska Department of Labor and Workforce Development projecting a rapidly growing senior population, significant numbers of senior housing facility beds will need to be built or

²⁹ Analysis based on data from the AHFC Senior Housing Office and Alaska Department of Labor estimates of senior citizens.

³⁰ Denali Daniels & Associates. (2015). Needs Assessment Report: Alaska State Plan for Senior Services: FY 2016–2019. Retrieved from http://dhss.alaska.gov/acoa/Documents/minutes/ACoA_NeedsAssessmentReport.pdf

³¹ Survey wording did not provide for more detailed breakdown of the terms “health care” and “financial security.”

³² Denali Daniels & Associates. (2015). Needs Assessment Report: Alaska State Plan for Senior Services: FY 2016–2019. Retrieved from: http://dhss.alaska.gov/acoa/Documents/minutes/ACoA_NeedsAssessmentReport.pdf

converted to meet demand.³³ Maintaining the existing ratio of senior housing beds to senior citizens requires an estimated 4,450 new beds be built or converted by 2030, or approximately 318 per year.³⁴

³³ Hunsinger, Eddie, Sandberg, E., & Brooks, L. (2016). "Alaska Population Projections 2015 to 2045." Alaska Department of Labor and Workforce Development, Research and Analysis Section.

³⁴ Estimates based on Alaska Dept. of Labor senior population growth estimates and AHFC senior housing database.

Retrofit Needs

Alaska has significant need to retrofit existing homes. The majority of homes were built in the 1970s and '80s, and many are drafty and face high energy costs due to construction techniques that are inadequate for subarctic climates. Many homes lack complete plumbing and kitchens, especially in rural areas. Further, many airtight homes face a higher risk for indoor air quality problems due to inadequate ventilation. Overall, an estimated 14,600 homes are very inefficient and in need of an energy retrofit, more than 12,600 homes lack complete kitchen and/or plumbing facilities and 56 percent of the housing stock is at moderate risk or greater for moisture and indoor air quality issues.

Inefficient Homes

Homes rated 1-star in AHFC's Home Energy Rating System are very inefficient, typically using more than four times the energy of a new home built to AHFC's Building Energy Efficiency Standard (BEES).³⁵ These 1-star buildings have disproportionately high costs to maintain a comfortable indoor environment. Rural Alaska has the highest percentage of these inefficient homes. Typically higher fuel prices and lower median incomes mean that these inefficient homes likely put a disproportionate energy cost burden on families in rural areas.

Data from AHFC's Weatherization Assistance Program shows that providing home energy retrofits to 1-star homes can be done cost-effectively, saving twice the energy per dollar as compared to retrofitting a more efficient 3-star home.³⁶ The state currently has an estimated 14,600 homes with a 1-star energy rating. Energy retrofits for these homes can cost-effectively reduce high energy costs for families and protect them against future energy price fluctuations.

Housing Condition Needs

A national report on housing needs of American Indians and Alaska Natives found that of all tribal areas, Alaska had the worst physical housing condition problems, with 36 percent of units surveyed having some type of physical problem.³⁷ The report summed problems as follows:

“Clearly, physical housing problems have been all but eliminated for U.S. households nationally, but that is certainly not true for American Indian / Alaska Native populations in tribal areas, where problems remain widespread.”

³⁵ Alaska Housing Finance Corporation's Building Energy Efficiency Standard sets energy use standards for thermal resistance, air leakage, moisture protection and ventilation in residential buildings.

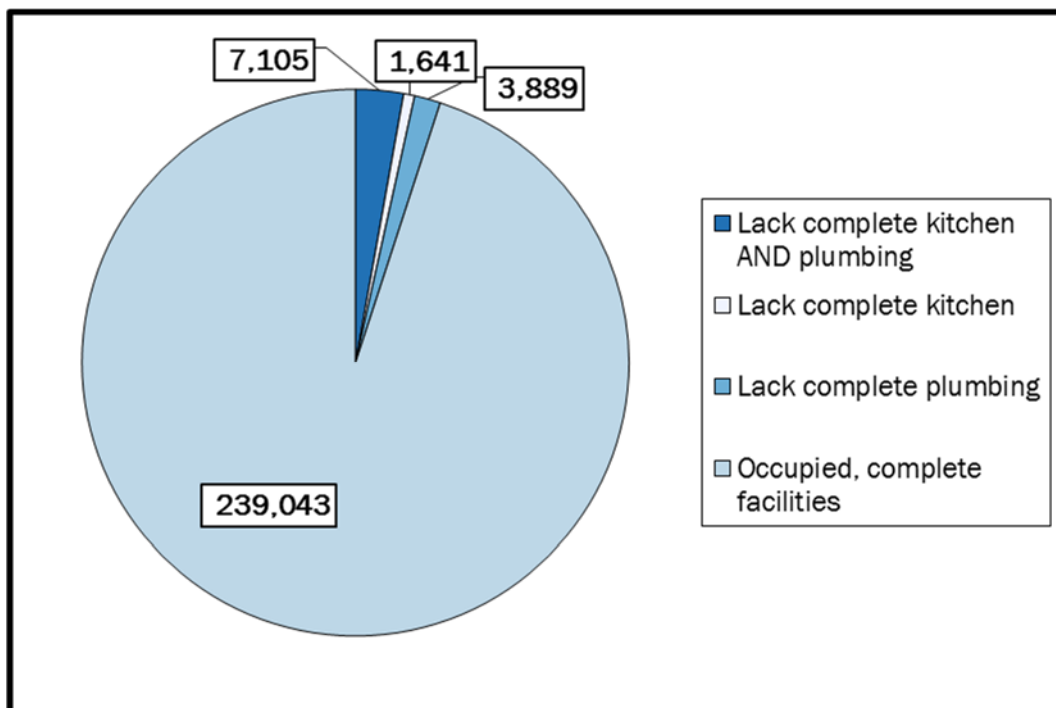
³⁶ Wiltse, N., Valentine, B., & Madden, D. (2014). *Weatherization Evaluation: Additional Findings*. Alaska Housing Finance Corporation.

³⁷ Pindus, N., Kingsley, G. T., Biess, J., Levy, D., Simington, J., & Hayes, C. (2017). *Final Report: Housing Needs of American Indians and Alaska Natives*. The Urban Institute. Retrieved from https://www.huduser.gov/portal/native_american_assessment/home.html

American Community Survey (ACS) data reports only on housing units that lack complete plumbing and/or kitchens, and not general condition problems, but ACS data tells a similar story as the national needs assessment: Rural Alaska faces significant housing challenges. While statewide an estimated 3.5 percent of housing units lack a complete kitchen and 4.4 percent lack indoor plumbing, in rural regions of Calista and Bering Straits 25.9 percent and 16.3 percent of housing units lack a complete kitchen, and 34.2 percent and 20.9 percent of housing units lack indoor plumbing, respectively.^{38, 39}

As shown in Figure 10, homes lacking a complete kitchen and plumbing is great, with 12,635 homes lacking one or both of these facilities statewide.

Figure 10: Occupied housing units lacking complete kitchen, plumbing or both



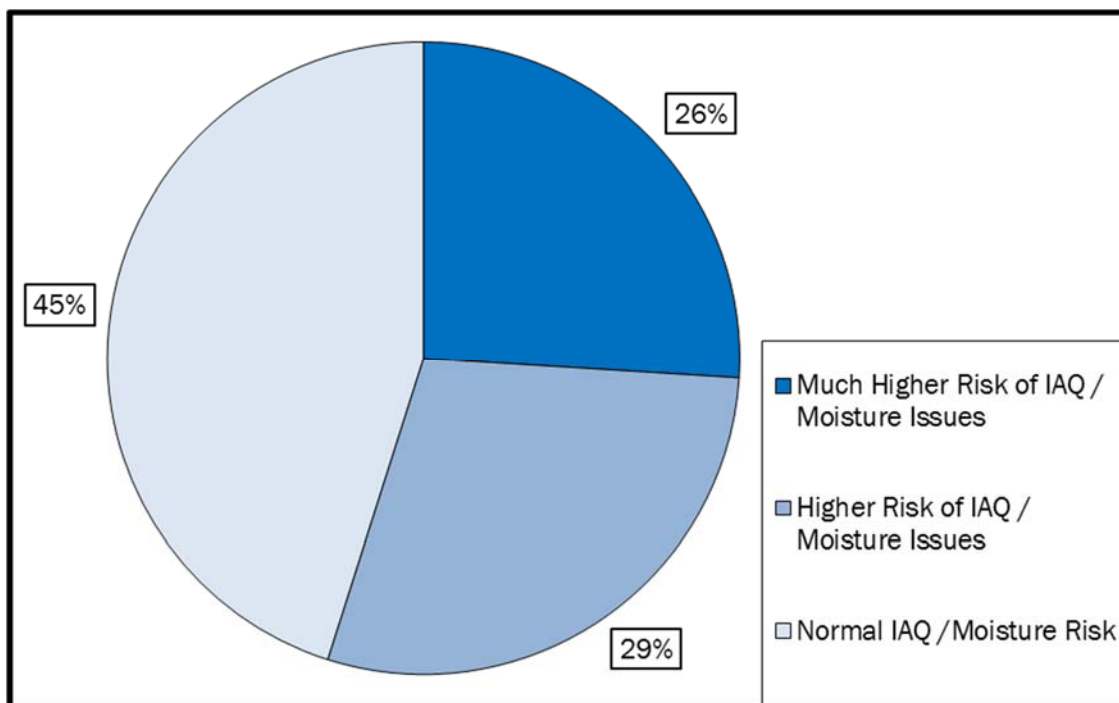
³⁸ U.S. Census Bureau. (2016). *American Community Survey, 2010–2014 American Community Survey Five-year Estimates*.

³⁹ "Complete kitchen" is defined as having a stove/range, refrigerator and sink with running water. "Complete plumbing" is defined as having hot and cold water, a shower or tub and flush toilet.

Indoor Air Quality

Alaska has had success in building and retrofitting homes to be more airtight, improving comfort and reducing energy costs; however, widespread adoption of modern continuous mechanical ventilation systems in homes happened later. Homes that are airtight and lack continuous mechanical ventilation are at increased risk for moisture and indoor air quality problems as they may not have a sufficient air exchange rate to remove indoor pollutants and excess moisture. Statewide, an estimated 56 percent (141,000) of occupied homes have a moderately higher risk of moisture and indoor air quality issues because they are relatively airtight and lack mechanical ventilation. Of these, 26 percent (64,800) are very airtight, and at high risk of air quality issues (Figure 11).⁴⁰ While these homes are at increased risk, the number of occupants in the home and occupant behavior plays a large role in indoor air quality. This means not all homes at increased risk will develop problems and some homes with lower risk could have indoor air quality problems based on how they are used.

Figure 11: Percent of occupied units at higher risk for indoor air quality and moisture issues



⁴⁰ “Airtight” is defined here as having less than 0.5 natural air changes per hour. “Very airtight” is defined as having less than 0.3 natural air changes per hour. These were chosen based on research showing that less air exchange is associated with negative health outcomes (Craven, C., et. al. 2017. *Indoor Air Quality: The Current State of Research*. Cold Climate Housing Research Center.)

Key Findings

Housing challenges facing Alaskans include an aging housing stock, a growing senior population, high housing costs and overcrowding. Understanding housing needs facing Alaskans is the first step toward addressing those needs. In that light, this assessment offers the following findings:

Of more than 257,000 occupied housing units in Alaska:

- More than 16,100 homes (6.3 percent) are overcrowded or very overcrowded.
- More than 31 percent (78,959) of households are housing cost-burdened.
- Alaska is a long way from meeting the needs of extremely low-income households—an estimated 16,000 additional affordable housing units are needed for this population segment.
- The population of senior citizens is expected to nearly double by 2030. To keep pace, more than 300 assisted and independent living facility beds must be added each year.
- More than 12,600 homes in Alaska, 4.9 percent, lack complete plumbing and/or kitchens.
- More than 50 percent of homes (141,000) are relatively airtight and lack mechanical ventilation, putting them at risk of moisture and indoor air quality issues.
- An estimated 14,600 homes have 1-star energy ratings. These homes cost residents more to heat than is necessary.
- Current construction in Alaska is not keeping pace with population growth. Construction will need to increase by an additional 255 units per year (11 percent) to meet demand from growing regional areas. Construction needs to increase by an additional 2,066 new units per year (90 percent) to fully alleviate overcrowding by 2025.