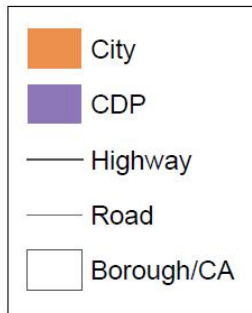


Northwest Arctic Borough



Map Prepared by:
Alaska Department of Labor
& Workforce Development

September 2011

Source: US Census
2010 TIGERline

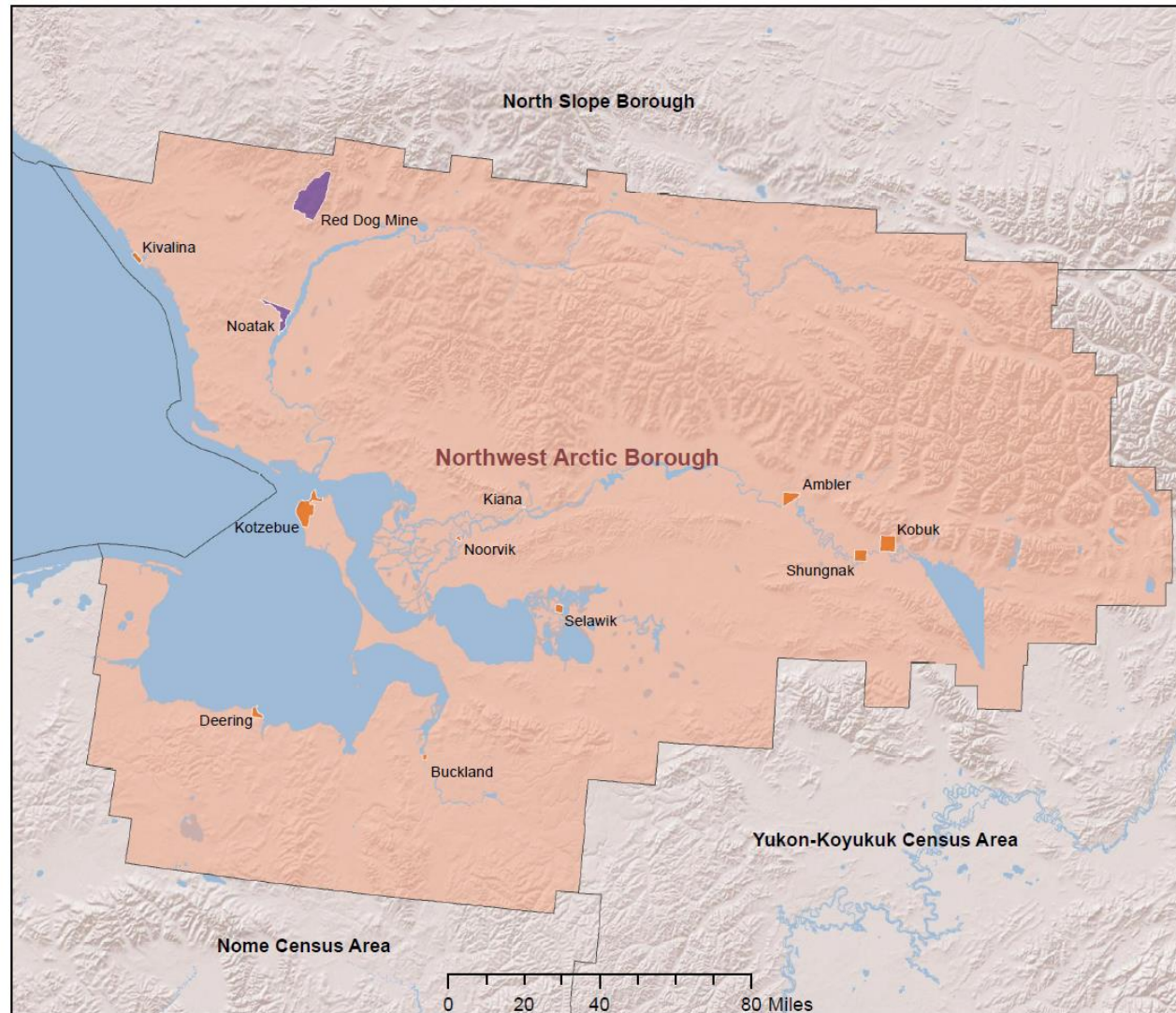


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Northwest Arctic Borough Dashboard

Population: The Alaska Department of Labor and Workforce Development's current (2012) population estimate for the Northwest Arctic Borough is 7,716—an increase of 7% from 2000.

Housing Units: There are currently 2,699 housing units in the Northwest Arctic Borough. Of these, 1,797 are occupied, 57 are for sale or rent, and the remaining 845 are seasonal or otherwise vacant units (Profile Figure C6).

Energy: The average home in the Northwest Arctic Borough is 941 square feet and uses 170,000 BTUs of energy per square foot annually, 24% more than the statewide average of 137,000 BTUs per square foot per year.

Energy Costs: Using AKWarm estimates, average annual energy cost for homes in the Northwest Arctic Borough is \$8,050, which is approximately 2.9 times more than the cost in Anchorage, and 3.8 times more than the national average (Profile Figure C13).

Energy Programs: Approximately 22% of occupied housing in the Northwest Arctic Borough has completed either the Home Energy Rebate, Weatherization, or BEES programs since 2008, compared to 21% statewide (Profile Figure C12).

Housing Quality: Within current housing stock, newer homes have better energy performance. On average, homes built in the 1960s are currently rated at 1-star-plus, compared to a current average rating of 4-stars for houses built after 2000.

Air-tightness: Within current housing stock, newer homes are tighter. On average, homes built in the last decade meet the 2009 BEES standard of 7 air-changes per hour at 50 pascals (ACH50). In contrast, homes built in the 1950s are 2.1 times leakier than those built since 2000 (Profile Figure C7).

Ventilation: An estimated 815 occupied housing units (or 45%) in the Northwest Arctic Borough are relatively air-tight and lack a continuous ventilation system. These houses are at higher risk of moisture and indoor air quality-related issues (Profile Figures C9-C10).

Overcrowding: 39% of occupied units are estimated to be either overcrowded (18%) or severely overcrowded (21%). This is roughly 13 times the national average, and makes the Northwest Arctic Borough the second most overcrowded census area in the state.

Affordability: On average, approximately 24% of households in the Northwest Arctic Borough spend more than 30% of total income on housing costs, which include rent, utilities, and energy costs. Based on average AKWarm estimates, annual energy costs constitute approximately 13% of census median area income for occupied housing.

Northwest Arctic Borough Summary

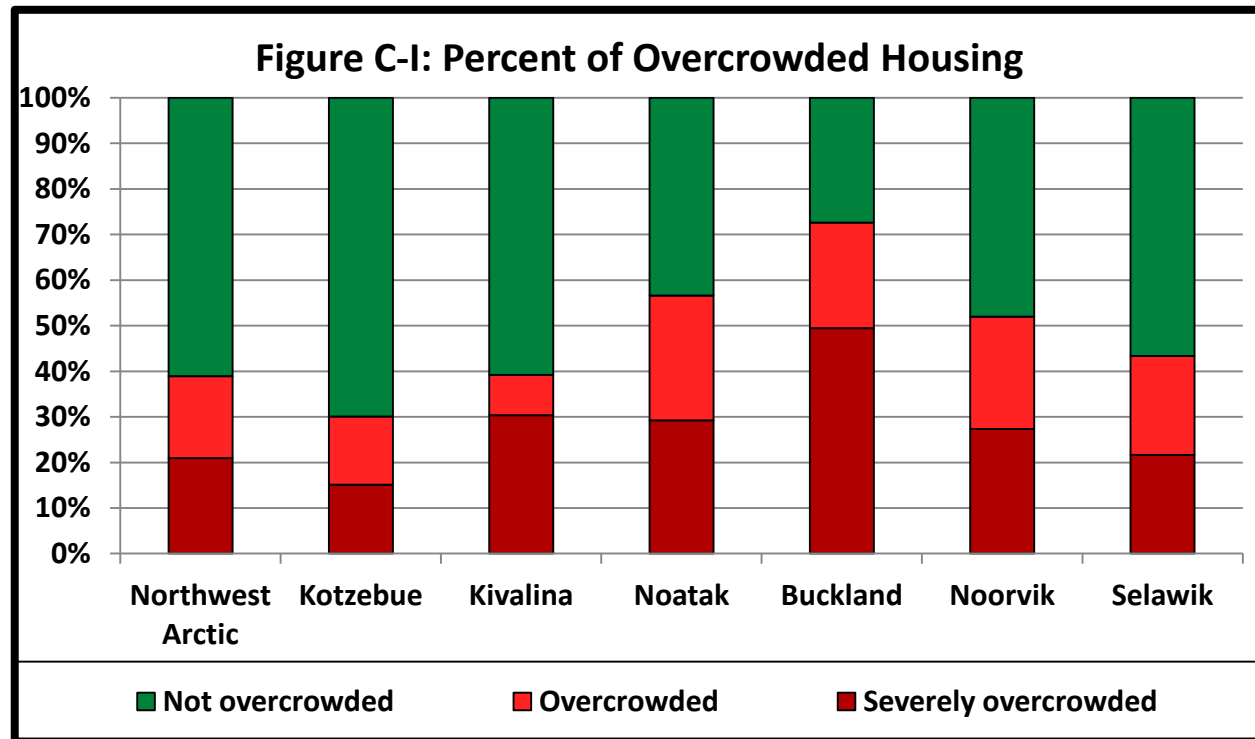
Community

The Northwest Arctic Borough census area is located on the western coast of Alaska, between the North Slope census area and the Nome Census area. It borders to the Yukon-Koyukuk census area to the east and the Bering Sea to the west. The census area makes up the NANA Native Corporation ANSCA region. Average home sizes in the Northwest Arctic range from 770 square feet in Kivalina to 1,258 square feet in Kotzebue. The overall average size for the census area, 941 square feet, is roughly half that found in urban Alaska.

Overcrowding

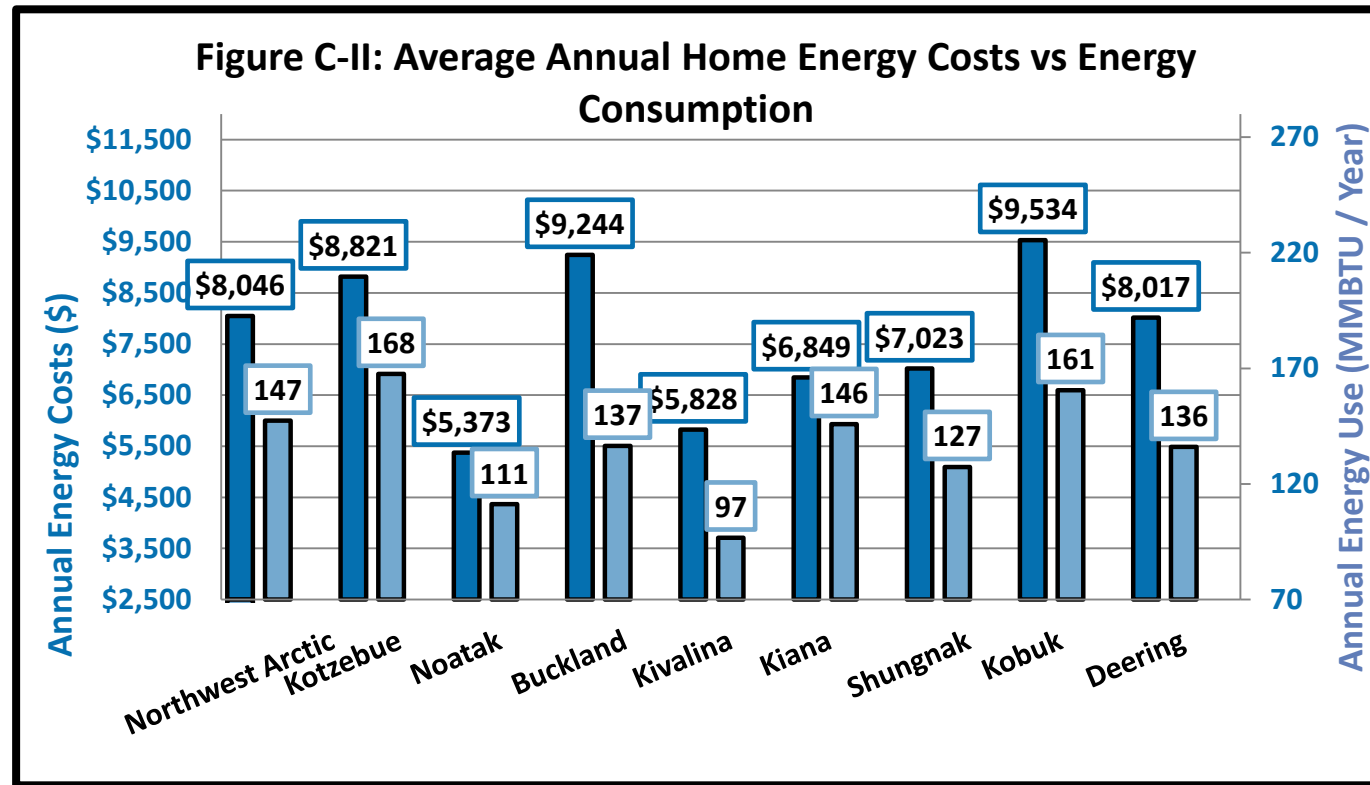
The Northwest Arctic census area has one of the highest levels of overcrowding in Alaska. Roughly 40% of all housing units in this area face overcrowding issues, with Buckland the most severe at 73% of households with more than one person per room. The lowest percentage of overcrowding is found in Deering, which still has over one in ten households (13%) considered overcrowded. Considering only the six most populous communities, overcrowding varies between 30% and 73% of households, with the regional hub of Kotzebue having nearly one in three households overcrowded (Figure C-1).

Approximately 2% of housing in the census area is available for sale or rent. Some communities, such as Noatak, have an estimated no available housing. The highest percentage of available housing is found in Ambler, where 6% of housing units are available for sale or rent.



Energy

Homes in the Northwest Arctic use an average of 147 million BTUs of energy each year for an average annual cost of \$8,046. The highest average annual energy costs are found in Kobuk, where residents pay approximately \$9,534 per year and have one of the higher average home heating indices in the census area at 8.7 BTUs/ft²/HDD. This is over \$4,000 more than the lowest average energy costs in the census area, \$5,373 in Noatak. Housing units in both

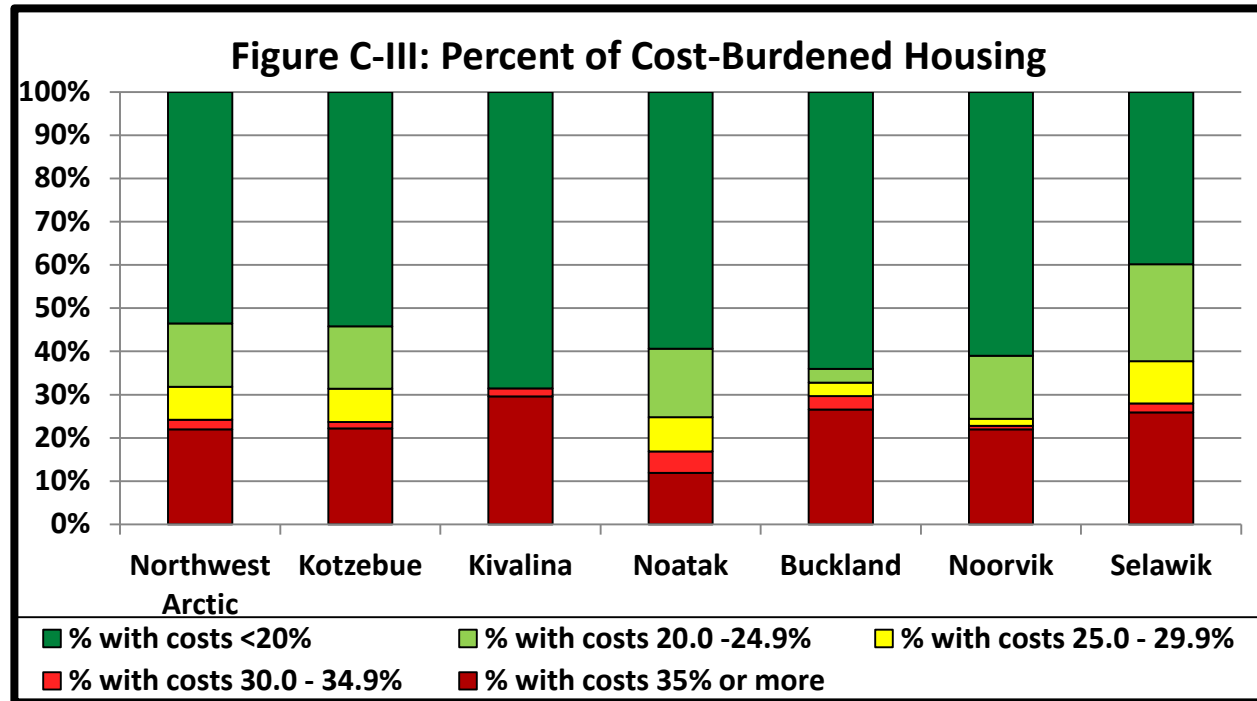


Housing units in both Kivalina and Noatak use less than two-thirds the energy of homes in Kotzebue (Figure C-II). Possible reasons for this lower use include that approximately 58% and 73% of units in Noatak and Kivalina have been weatherized, respectively, and housing in both communities averages around 400-500 square feet smaller than houses in Kotzebue.

Approximately 26% of units in the census area have completed the Home Energy Rebate, Weatherization, or a BEES program since 2003. The greatest participation is found in Deering where 93% of households have completed one of the programs. Kotzebue has had the lowest participation rate at 5%. Considering only the six most populous communities, participation rates vary from 5% to 73% in the energy programs. The proportion of households that have a continuous ventilation system or HRV installed has increased over time, peaking at slightly more than half of all homes built between 2005 and 2011.

Affordability

According to ACS estimates¹, between 8% (in Shungnak) and 41% (in Deering) of households in Northwest Arctic communities are cost-burdened, or spend more than 30% of household income on housing costs. Considering only the six most populous communities, cost-burdening varies from 17% to 31% of households (Figure C-III). Median household incomes for these communities range from \$36,875 to \$71,761. The highest median income of \$71,761 is found in Kotzebue. The lowest median income in the census area, \$31,250, is earned by the residents of Kobuk, which is not one of the six most populous communities.



Community, Regional, and Statewide Housing Characteristics

This census area summary only includes the highlights of housing characteristics at the census area level. Detailed data profile with charts and tables for both the census area and for each of the communities within it follow. The 2014 Alaska Housing Assessment provides a significant amount of data and analysis at statewide, ANCSA region, census area, and community levels. This assessment provides a statewide analysis of housing characteristics, how they compare to national numbers, and the estimated housing needs. Within the 2014 Alaska Housing Assessment, written summaries are available for each individual ANCSA region and census area, and data profiles are available for each community and

¹ CCHRC's analysis of ACS energy costs indicate that there are systematic underestimations for rural Alaska, which suggests that ACS-based cost burdened housing estimates are low. See Appendix A, "Analysis of American Community Survey Energy Cost Estimates" for more details.

census area characterizing the housing stock from the perspective of community, overcrowding, energy and affordability. These different tiers of information and analysis allow researchers, housing authorities, policymakers and others to generate answers to specific questions. For a detailed discussion of estimating housing need and comparison of methods to previous Housing Assessments, see Appendix B, "Statewide Need Assessment" of the 2014 Alaska Housing Assessment.

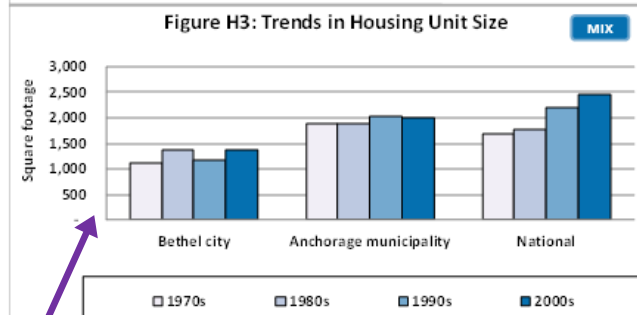
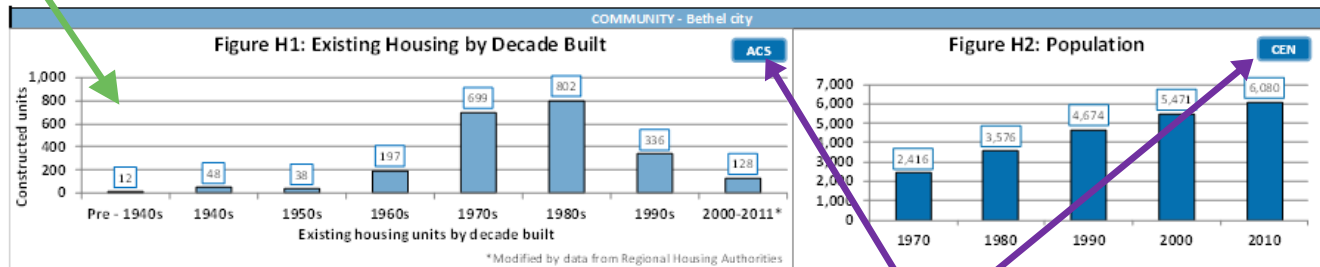
How to Interpret the Profile: Data Sources, Definitions & Clarifications

1

This graph show the breakdown of *current* housing stock by the decade in which the housing units were built. It does *not* show trends over time.

The Alaska Building Energy Efficiency Standard (BEES) was established by AHFC for the State of Alaska to promote the construction of energy efficient buildings. The standards for specific building components are divided into four climate zones, from Zone 6 in Southeast AK to Zone 9 on the North Slope.

Community Profile for:	Bethel city	ANCSA Region	Calista
Regional Housing Authority:	AVCP Regional Housing Authority	BEES Climate Zone (Heating Degree Days)	Zone 8 (13,334 HDD)



Data Source Key:

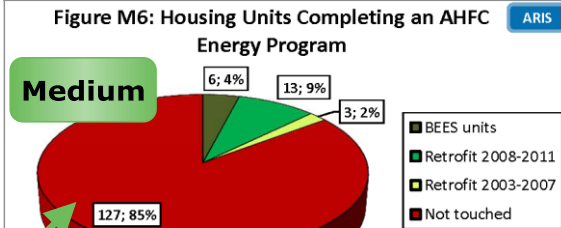
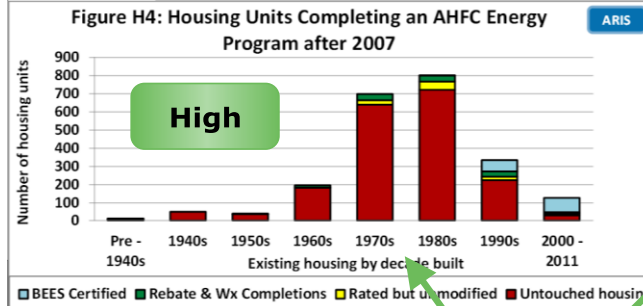
- 2011 American Community Survey 5 year estimates (ACS) **ACS**
- Alaska Retrofit Information System energy audits **ARIS**
- 2010 Decennial Census **CEN**
- Mixed data source; see individual graphs for details. **MIX**

Data Sources: National trends come from the 2009 Residential Energy Consumption Statistics published by the U.S. Energy Information Administration. Anchorage and census area data come from the Alaska Retrofit Information System.

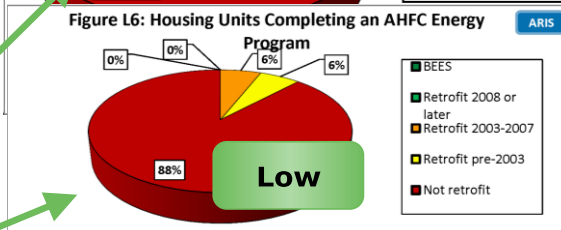
How to Interpret the Profile: Data Sources, Definitions & Clarifications

1

Energy program activity within communities with high, medium and low amounts of ARIS data available. (See p.7 of "How to Interpret" for detail on data levels).



Communities - AHFC Energy Program Activity
High Data - Reported by decade built for the housing units.
Medium Data - Reported by percent of total housing units touched.
Low Data - Have few or no post-2008 Weatherization/Rebate completions or BEES certifications in the ARIS database.



- PCE = Power Cost Equalization
- Average Annual Energy Cost with PCE: The cost to the household after it has been lowered by the PCE subsidy.
- Without PCE: The actual energy cost, including the amount paid by the State for PCE.

American Community Survey (ACS) Data:
Complete Plumbing: Includes hot & cold running water, a flush toilet, and a bathtub or shower within the home.
Complete Kitchen: Includes a sink with a faucet, a stove/range, and a refrigerator.

Houses Lacking Complete Plumbing or Kitchen Facilities	# Households	% Households
Lack complete plumbing	3	10%
Lack complete kitchen	0	0%

Estimated Total Community Space Heating Fuel Use by Type		
Fuel Oil	20,816	(gallons)
Nat Gas	-	(ccf)
Electricity	15,459	(kWh)
Wood	3	(cords)
Propane	-	(gallons)
Coal	-	(tons)

Avg Annual Energy Cost with PCE	\$5,265
Avg Annual Energy Cost without PCE	\$6,643

Estimated Energy Prices as of January 2013	
#1 Fuel oil cost (\$ / gallon)	\$5.16
Electricity with PCE (\$/kWh)	\$0.03
Electricity cost without PCE (\$/kWh)	\$0.27

Weatherization Program Retrofits (funding increased in 2008)	
Date Range	Units
2008-2011	17
2003-2007	-
1990-2002	10

Housing Stock Estimates	
All Housing	Nu
All Occupied Housing	
All Housing	
Vacant housing for Sale or Rent	

Units weatherized before 2008 are eligible to participate in the program again. (Data source: Alaska Housing Finance Corporation).

How to Interpret the Profile: Data Sources, Definitions & Clarifications

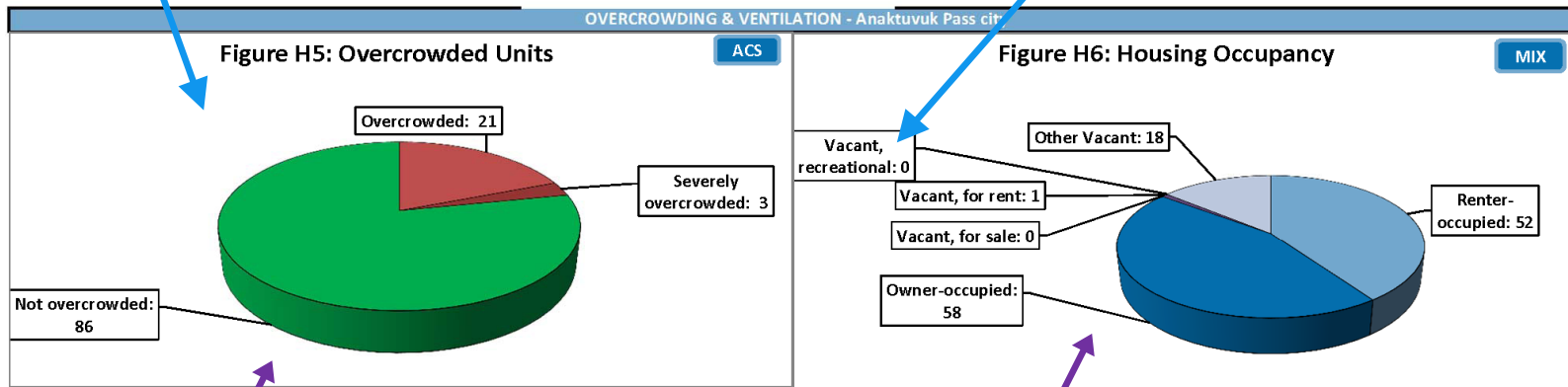
2

Overcrowded: Housing units with more than 1 person per room

Severely Overcrowded: Housing units with more than 1.5 people per room.

"Rooms" include bedrooms, living rooms, dining rooms, kitchens, and other finished, separated spaces, but not including bathrooms, porches, balconies, foyers, halls, or unfinished basements.

Recreational: For seasonal, recreational, or occasional use.



Data Source:
2011 American Community Survey 5-year estimates

Data Sources: The number of owner-occupied, renter-occupied, and total vacant units are taken from the 2011 ACS 5-year estimates. Data for vacancy type, only available from the decennial Census, were derived by taking the decennial census ratios by vacancy type and applying them to the total number of vacant units.

How to Interpret the Profile: Data Sources, Definitions & Clarifications

2

Heat Recovery: Continuous mechanical ventilation with heat recovery operated with automatic controls.

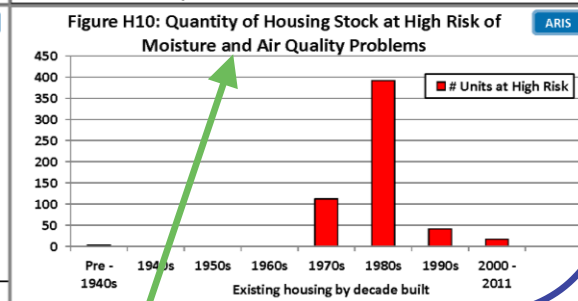
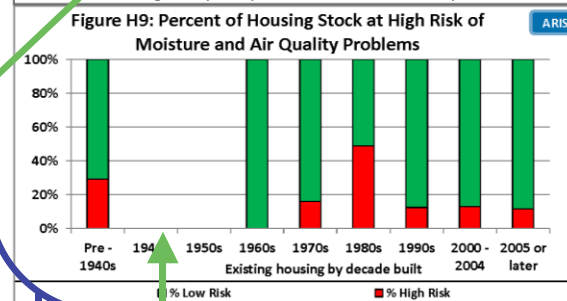
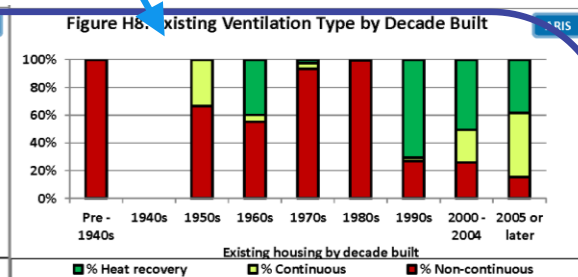
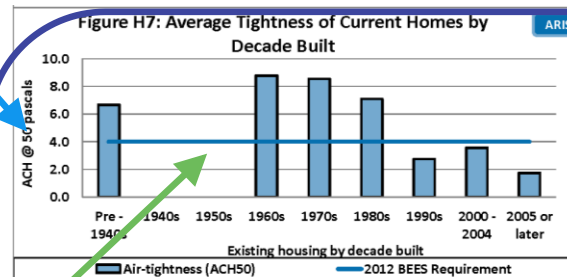
Continuous: Mechanical ventilation without heat recovery operated with automatic controls.

Non-Continuous ventilation: Includes homes with range and/or bath fans not operated using automatic controls.

ACH50: The results of a blower door test to measure building air leakage. Smaller numbers indicate tighter buildings. Tighter buildings lose less heated air to the outside and thus use less energy for space heating.

The 2012 Building Energy Efficiency Standard (BEES) for air-tightness is for reference only, as it was implemented after the majority of homes in Alaska were built.

Data Source:
Alaska Retrofit Information System



Decades with no bar lack sufficient data for reporting. They should not be considered zero quantities.

High Risk of Moisture and Air Quality Problems: Note that moisture or poor indoor air quality have not been physically measured; these houses are considered "at-risk" because they are relatively air tight (less than 0.5 estimated natural air changes per hour) and do not have a continuous ventilation system.

How to Interpret the Profile: Data Sources, Definitions & Clarifications

Rating stars and points are based on AHFC's AkWarm energy rating system.

Average annual energy cost:
Includes all end uses. Costs are estimated using January 2013 energy prices, and include reductions from the PCE program.

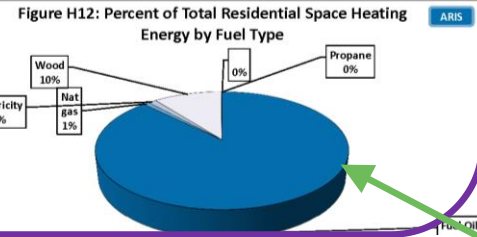
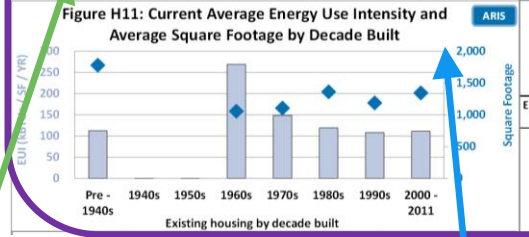
Space Heating, DHW, Appliances:
Estimated annual energy for the end uses of: Space Heating, Domestic Hot Water, and all other energy including lights, appliances, and electronics.

ECI: Energy Cost Index,
the amount of money spent on energy per year divided by square footage.

The number of AkWarm records from each decade built that were used to calculate the averages reported.

Current Residential Units by Year Built	Number of Records	Avg Energy Rating	Avg Energy Rating Points	Avg Sq. Feet	Avg Annual Energy Cost (with PCE)	Avg Annual Energy Use (million BTUs)	Avg Ann Energy by Use (million Btus)			Avg. EUI (kBtu/SqFt)	Avg. ECI (\$ / \$ / SqFt)	Avg. Home Heating Index
							Space Heating	DHW	Appliances			
OVERALL	419	3-star	70.7	1,237	\$ 8,065	160	102	27	26	132	\$ 6.97	6.5
Pre- 1940	7	3-star	68.3	1,779	\$ 11,107	199	145	21	33	113	\$ 6.66	6.4
1940-49	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1950-59	3	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1960-69	15	2-star	52.3	1,056	\$ 11,087	287	225	35	27	269	\$ 10.60	16.0
1970-79	71	2-star plus	64.5	1,106	\$ 7,961	153	105	21	25	149	\$ 8.09	7.8
1980-89	113	3-star plus	74.7	1,361	\$ 8,239	157	100	30	26	119	\$ 6.40	5.8
1990-99	111	4-star	79.9	1,187	\$ 6,395	122	57	21	20	108	\$ 5.58	4.7
2000-2004	71	3-star plus	77.5	1,388	\$ 8,435	143	80	35	27	118	\$ 7.24	5.2
2005 or later	28	5-star	91.9	1,233	\$ 4,504	92	39	28	25	79	\$ 3.82	2.5

Home Heating Index:
The energy used per square foot per year divided by the area's heating degree days.



Data Source:
AkWarm ratings from AHFC's Alaska Retrofit Information System (ARIS).

Average energy characteristics of the *current* housing stock by decade built (high data communities) or by pre-/post-retrofit and new construction categories (medium data communities).

Energy Use Intensity (EUI) is the total amount of energy used per year per square foot of floor space.

This is the community's breakdown by fuel type of the energy (BTUs) used for home space heating. It is not the percent of housing using a given fuel in primary space heating devices. Because wood burning devices are inefficient, they may use a significant portion of total energy even if no homes in a community use wood as a primary fuel.

How to Interpret the Profile: Data Sources, Definitions & Clarifications

3

Average building envelope characteristics of the *current* housing stock by decade built (high data communities) or by pre-/post-retrofit and new construction categories (medium data communities).

ACH50: The results of a blower door test to measure building leakiness. Smaller numbers indicate tighter buildings.

R-value: the capacity to resist heat flow. The higher the value, the better the insulator.

U-value: the conductance to heat flow. The lower the value, the better the insulator.

Data Sources: AkWarm ratings from AHFC's Alaska Retrofit Information System (ARIS).

Current Bethel city Housing Envelope Characteristics By Decade Built

Current Residential Units by Year Built	Number of Records	ACH 50	Ceiling R	Above Grade Wall R	Below Grade Wall R	Above Grade Floor R	On Grade Floor R	Below Grade Floor R	Door U	Garage Door U	Window U
OVERALL	419	6.4	23	17	7	30	NR	2	0.36	0.27	0.54
Pre- 1940	7	6.7	26	21	NR	30	NR	NR	0.30	NR	0.40
1940- 49	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1950- 59	3	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1960- 69	15	8.8	16	14	NR	21	NR	NR	0.44	NR	1.65
1970- 79	71	8.5	20	15	NR	29	NR	NR	0.39	NR	0.57
1980- 89	113	7.1	29	17	NR	32	NR	NR	0.30	NR	0.44
1990- 99	111	2.7	56	31	NR	50	NR	NR	0.19	0.12	0.29
2000- 2004	71	3.6	13	21	NR	36	NR	NR	0.27	0.23	0.40
2005 or later	28	1.7	41	22	NR	41	NR	NR	0.20	NR	0.31
BEES 2009 - Climate Zone 8		7.0	38	30	15	38	15	15	0.22	0.22	0.22
BEES 2012 - Climate Zone 8		4.0	48	30	15	38	15	15	0.22	0.22	0.22

The number of AkWarm records from each decade built that were used to calculate the averages reported.

"NR" is used when there are insufficient records to protect the confidentiality of the occupants.

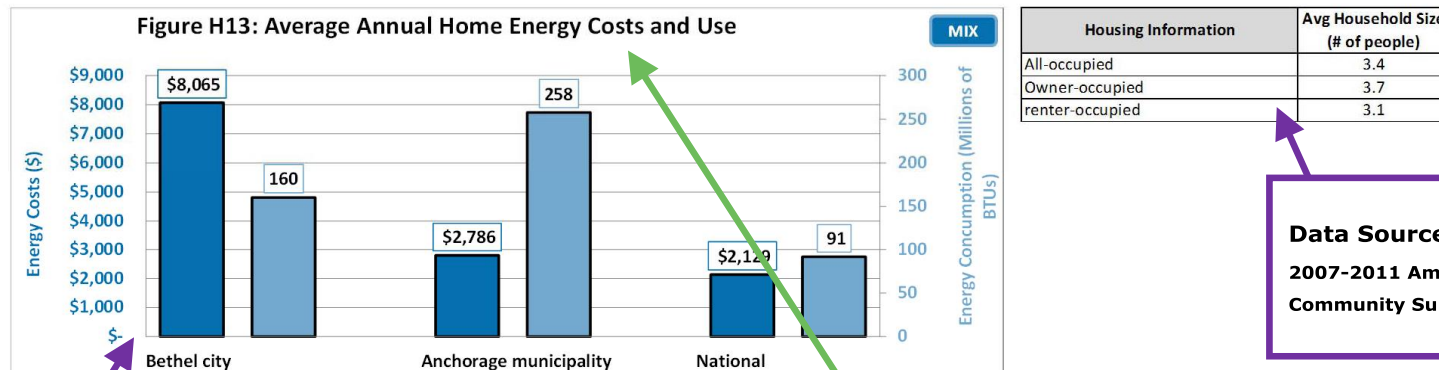
Color Coding--
Green: the average value meets or exceeds the 2012 BEES requirement.
Yellow: value is 75-99% of the 2012 BEES requirement.
Red: value is less than 75% of the 2012 BEES requirement.

How to Interpret the Profile: Data Sources, Definitions & Clarifications

4

Communities are categorized in this report by the amount of ARIS data available, and reporting is more extensive for locations with more data. Data quantities are defined as--
High: ARIS records exist for housing units built in 7 of the 9 date ranges use in this report, and there are either more than 50 records or records totaling 20 percent or more of the total number of housing units.
Medium: There are three or more ARIS records. Data are presented for an "overall" group if there are "As Is" ARIS records totaling at least 10% of the community's occupied housing units.
Low: There are fewer than three ARIS records for the location.

Community Template - Data Quantity: High



Data Source:
2007-2011 American Community Survey

Data Sources: Census Area and Anchorage data come from AFHC's Alaska Retrofit Information System.
National figures come from the U.S. Energy Information Administration's 2009 Residential Energy Consumption Statistics (RECS) for "cold"/"very cold" climate regions.

Average annual home energy costs and usage estimates are for all end uses, including space heating, domestic hot water, lighting and appliances. Costs are estimated using January 2013 energy prices and include reductions from the PCE program.

How to Interpret the Profile: Data Sources, Definitions & Clarifications

4

Data Source:
2007-2011
American
Community
Survey.

"Value" is determined by responses to the ACS question: "How much do you think this house and lot, apartment, or mobile home (and lot, if owned) would sell for if it were for sale?"

Household income includes all earnings from salaries, stocks, gifts, public assistance, etc.

Data Source: Median income comes from 2007-2011 ACS estimates; energy costs come from AHFC's Alaska Retrofit Information System (ARIS).

Owner-occupied House with Mortgage, Median Value
\$226,800
Owner-occupied House without a Mortgage, Median Value
\$119,600

Median Annual Household Income	
Housing Units	Household Income
All-occupied	\$ 91,302
Renter-occupied	\$ 70,170
Owner-occupied	\$ 107,908
w/ mortgage	\$ 111,167
w/o mortgage	\$ 70,400

Median Household Expenses		
	Monthly	Annual
All-occupied	\$ 1,369	\$ 16,428
Gross rent	\$ 1,201	\$ 14,412
Owner-occupied	\$ 1,610	\$ 19,320
Housing units w/ mortgage	\$ 1,854	\$ 22,248
Housing units w/out a mortgage	\$ 680	\$ 8,160
Avg % of Median Income Spent on Energy	8.8%	

Figure H14: Affordability - Housing Costs as a Percent of Income

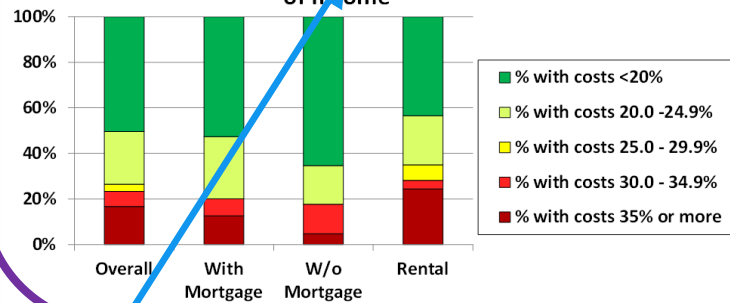
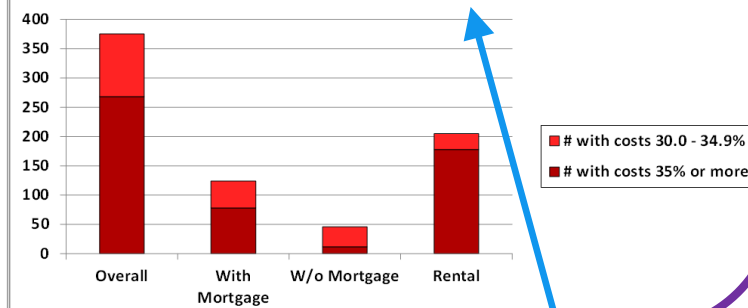


Figure H15: Number of Cost-Burdened Housing Units



Rental housing costs: Contract rent, fuels, utilities.

Owner housing costs: Mortgage payments, property taxes, insurance, fuels, utilities, condo fees.

Households are considered "cost burdened" if they spend 30% or more of total household income on housing costs. Households spending more than this amount on housing costs may have difficulty affording basic necessities such as food, transportation, and medical care.

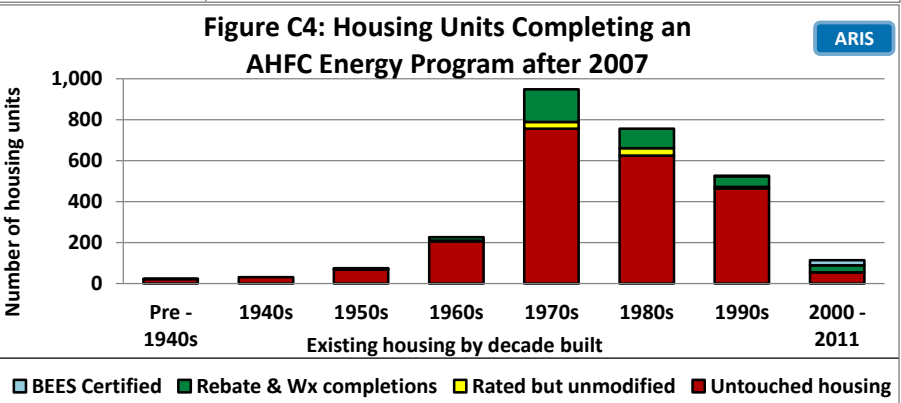
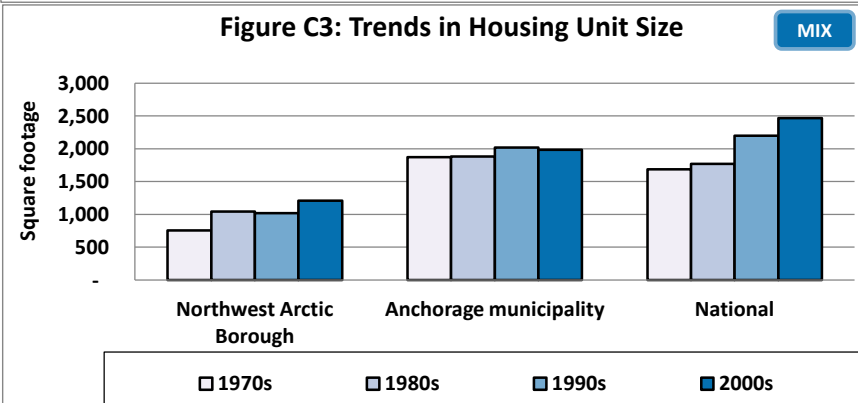
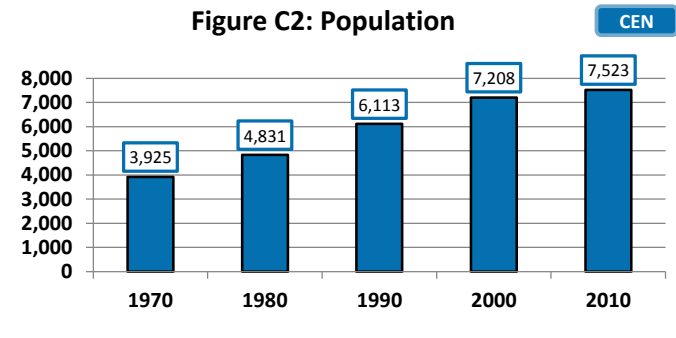
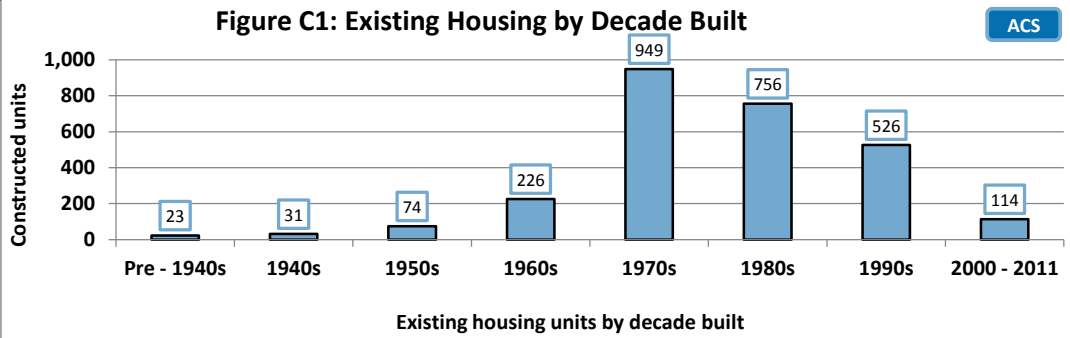
Census Area Profile for: Northwest Arctic Borough

ANCSA Region: Nana Regional Corporation

Regional Housing Authority: Northwest Inupiat Housing Authority

BEES Climate Zone (Heating Degree Day Range): Zone 8 (12,600 - 16,800 HDD)

COMMUNITY - Northwest Arctic Borough



Houses Lacking Complete Plumbing or Kitchen Facilities	Households	
	Number	Percent
Lack complete plumbing	341	19%
Lack complete kitchen	264	15%

Avg Annual Energy Cost with PCE	\$8,046
Avg Annual Energy Cost without PCE	\$10,115

Weatherization Retrofits (funding increased 2008)	
Date Range	Units
2008 - 2011	316
2003 - 2007	72
1990 - 2002	117

Estimated Total Annual Community Space Heating Fuel Use		
Fuel Oil	1,140,921	(gallons)
Natural Gas	-	(ccf)
Electricity	635,947	(kWh)
Wood	1,944	(cords)
Propane	-	(gallons)
Coal	-	(tons)

Housing Need Indicators	Number of Units	% Occupied Housing
Overcrowded	699	39%
Housing cost burdened	373	21%
1 Star Homes	441	25%

Housing Stock Estimates	Number of Units
All Housing	2,699
All Occupied Housing	1,797
All Vacant housing	902
Vacant Housing for Sale or Rent	57

OVERCROWDING & VENTILATION - Northwest Arctic Borough

Figure C5: Overcrowded Units

ACS

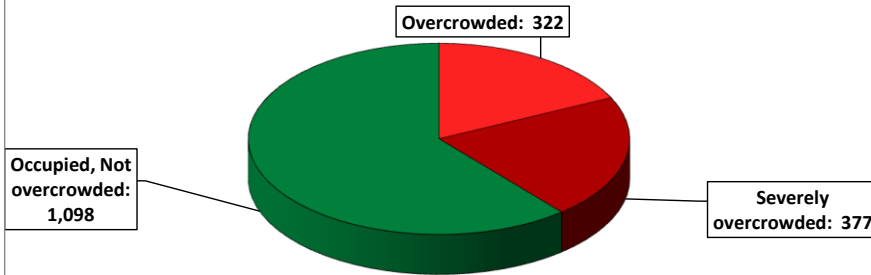


Figure C6: Housing Occupancy

MIX

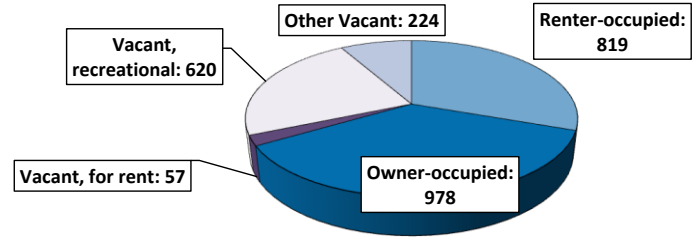


Figure C7: Average Air-Tightness of Current Homes by Decade Built

ARIS

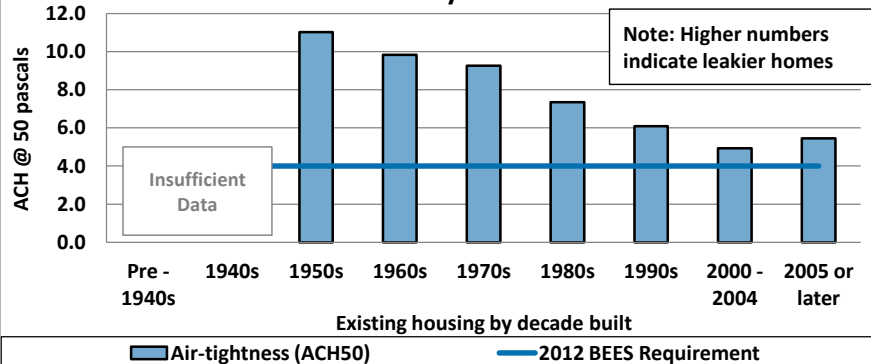


Figure C8: Existing Ventilation Type by Decade Built

ARIS

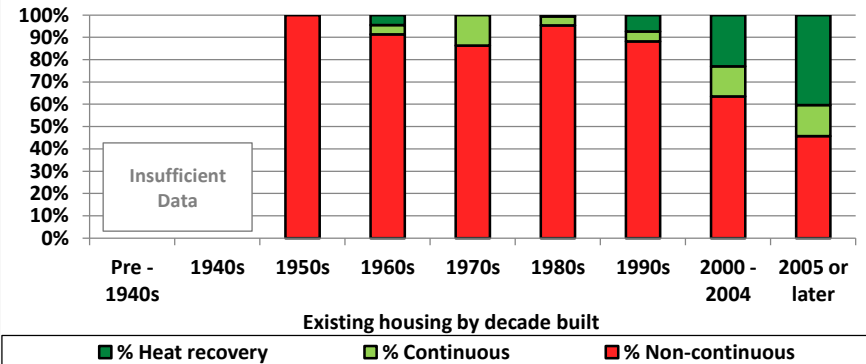


Figure C9: Percent of Housing Stock at High Risk of Moisture and Air Quality Problems

ARIS

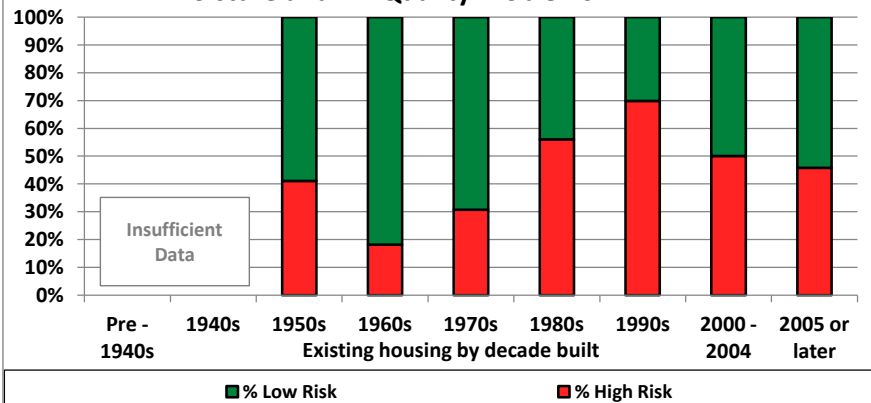
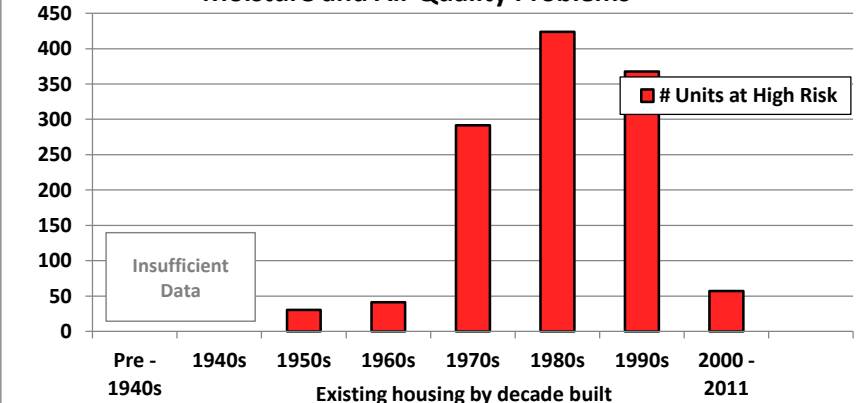


Figure C10: Quantity of Housing Stock at High Risk of Moisture and Air Quality Problems

ARIS



ENERGY - Northwest Arctic Borough												
Current Northwest Arctic Borough Housing Energy Characteristics By Decade Built												
Current Residential Units by Year Built	# of AkWarm Records	Avg Energy Rating Stars	Avg Energy Rating Points	Avg Sq. Feet	Avg. Annual Energy Cost (with PCE)	Avg. Annual Energy Use (million BTUs)	Avg Ann Energy by End Use (million Btus)			Avg. EUI (kBtUs / SF)	Avg. ECI (\$ / SF)	Avg. Home Heating Index
							Space Heating	DHW	Appliances			
OVERALL	517	2-star plus	62.7	941	\$8,046	147	105	20	23	170	\$9.19	7.6
Pre- 1940	2	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1940- 49	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1950- 59	6	2-star	50.8	1,051	\$8,130	180	138	19	22	254	\$7.28	13.4
1960- 69	35	1-star plus	47.4	1,060	\$8,550	161	133	4	24	177	\$10.13	9.1
1970- 79	349	2-star	53.6	756	\$7,188	141	110	9	21	206	\$10.06	10.4
1980- 89	223	3-star	68.5	1,042	\$8,914	162	109	30	23	167	\$9.14	7.2
1990- 99	106	3-star plus	74.4	1,018	\$8,053	131	80	27	23	131	\$8.05	5.1
2000- 2004	58	4-star plus	83.0	1,210	\$8,866	143	77	42	23	122	\$7.77	4.0
2005 or later	40	4-star	81.1	1,078	\$7,390	121	71	27	24	114	\$6.99	4.2

Figure C11: Current Average Energy Use Intensity and Average Square Footage by Decade Built

ARIS

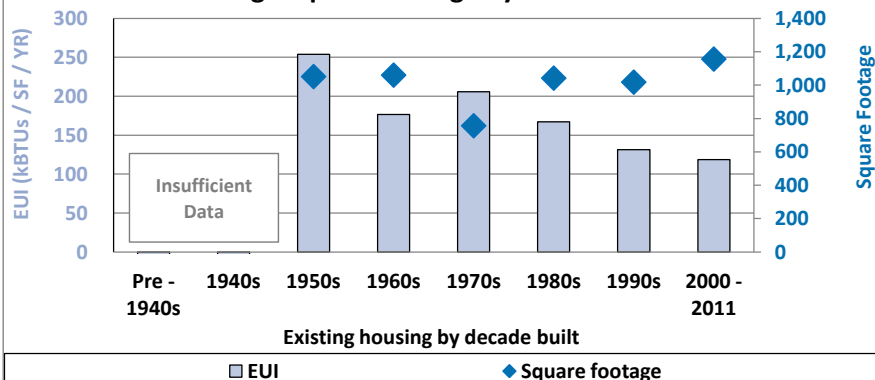
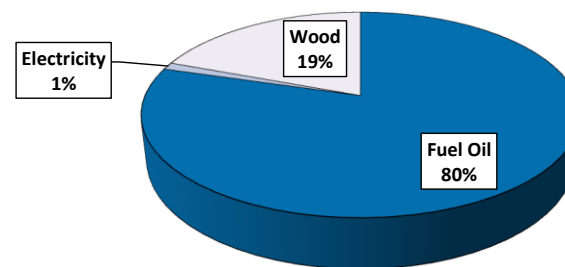


Figure C12: Percent of Total Residential Space Heating Energy by Fuel Type

ARIS

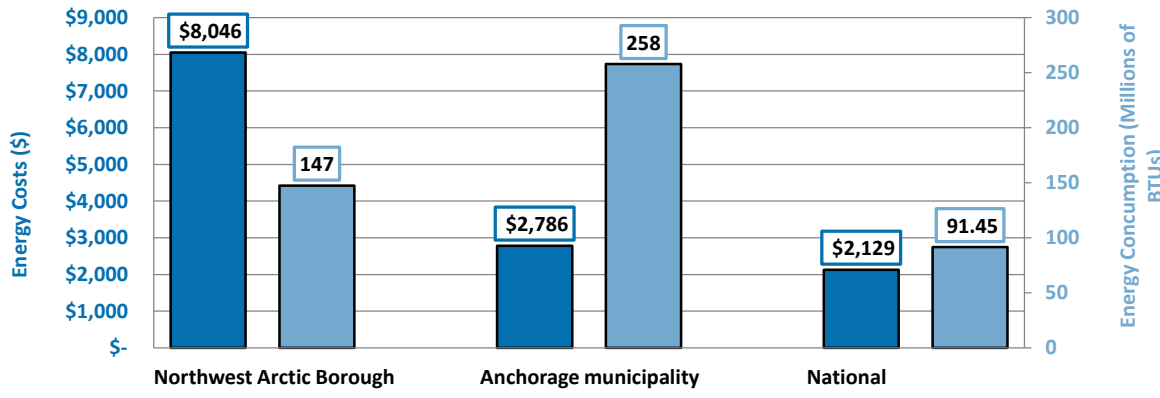


Current Northwest Arctic Borough Housing Envelope Characteristics By Decade Built											
Current Residential Units by Year Built	# of AkWarm Records	ACH 50	Ceiling R	Above Grade Wall R	Below Grade Wall R	Above Grade Floor R	On Grade Floor R	Below Grade Floor R	Door U	Garage Door U	Window U
OVERALL	517	7.6	28	16	NR	29	3	NR	0.42	0.18	0.52
Pre- 1940	2	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1940- 49	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1950- 59	6	11.0	23	14	NR	27	NR	NR	0.49	NR	0.56
1960- 69	35	9.8	20	13	NR	21	NR	NR	0.64	NR	0.75
1970- 79	349	9.3	21	14	NR	24	NR	NR	0.51	NR	0.64
1980- 89	223	7.4	32	16	NR	31	NR	NR	0.38	NR	0.47
1990- 99	106	6.1	33	17	NR	34	NR	NR	0.33	NR	0.43
2000- 2004	58	4.9	47	25	NR	42	NR	NR	0.32	NR	0.38
2005 or later	40	5.5	46	20	NR	38	NR	NR	0.19	NR	0.35

BEES 2009 - Climate Zone 8	7.0	38	30	15	38	15	15	0.22	0.22	0.22
BEES 2012 - Climate Zone 8	4.0	48	30	15	38	15	15	0.22	0.22	0.22

AFFORDABILITY - Northwest Arctic Borough

Figure C13: Average Annual Home Energy Cost and Use



Housing Information	Avg Household Size (# of people)
All-occupied	3.9
Owner-occupied	4.3
Renter-occupied	3.4

Median Value of Owner-occupied House with Mortgage
\$167,800

Median Value of Owner-occupied House without a Mortgage
\$115,200

Median Annual Household Income	
Housing Units	Household Income
All-occupied	\$ 59,893
Renter-occupied	\$ 55,234
Owner-occupied	\$ 63,148
w/ mortgage	\$ 78,500
w/o mortgage	\$ 54,762

Median Housing Costs		
	Monthly	Annual
All-occupied	\$ 887	\$ 10,644
Gross rent	\$ 1,074	\$ 12,888
Owner-occupied	\$ 798	\$ 9,576
Housing units w/ mortgage	\$ 1,280	\$ 15,360
Housing units w/out a mortgage	\$ 654	\$ 7,848

Avg % of Median Income Spent on Energy
13.4%

Figure C14: Affordability - Housing Costs as a Percent of Income

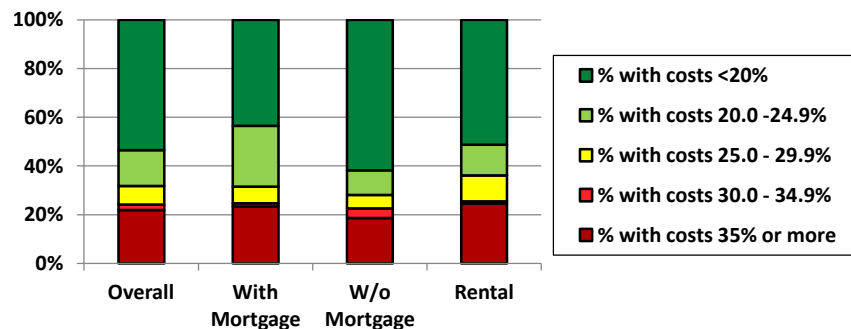
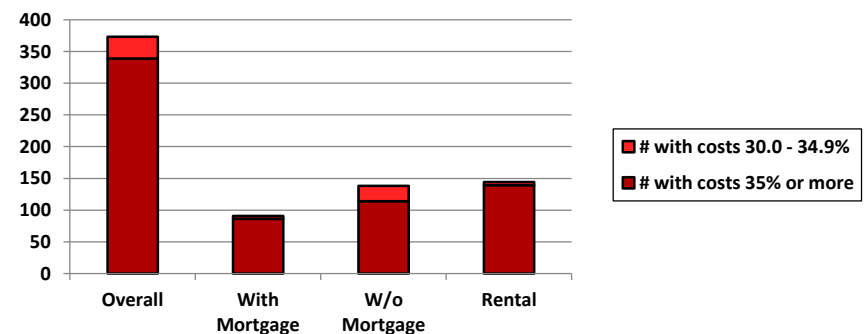


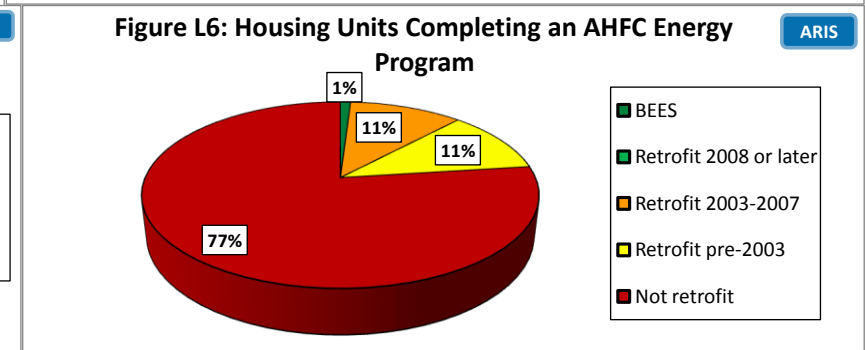
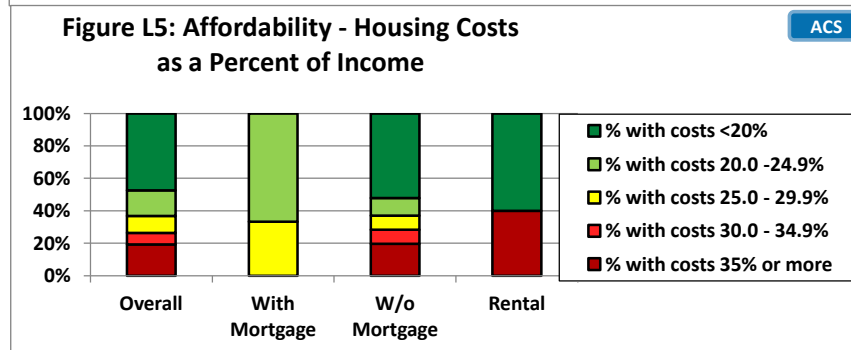
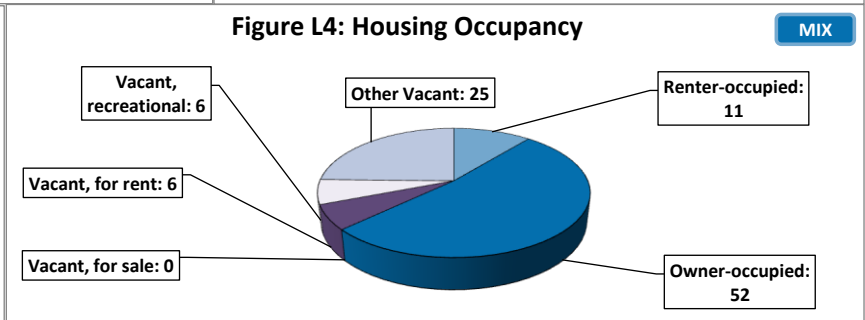
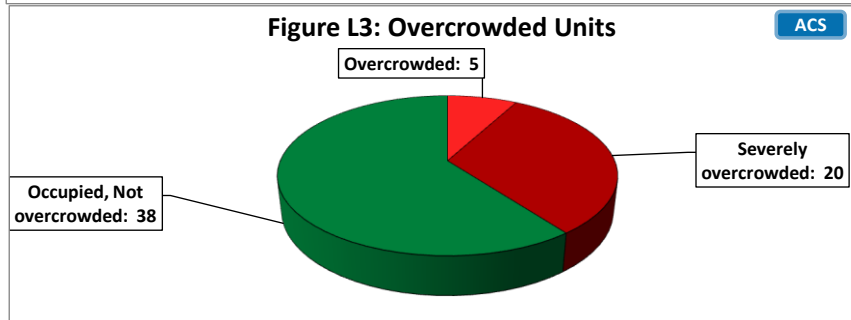
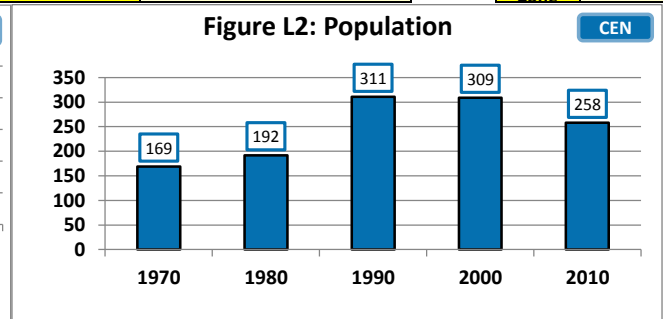
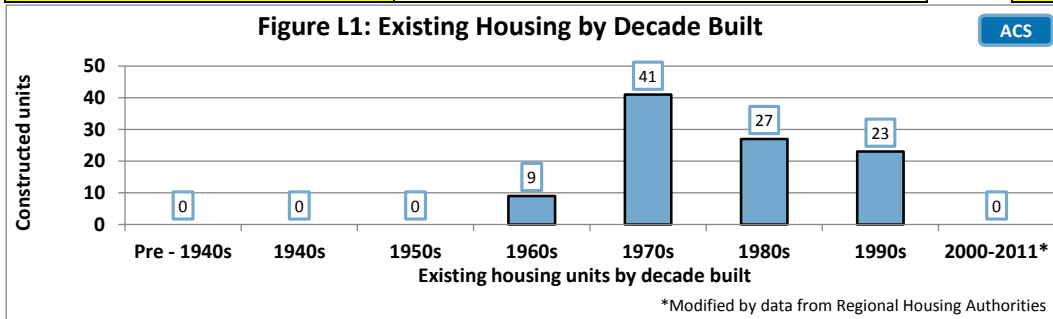
Figure C15: Number of Cost-Burdened Housing Units



Community Profile for: Ambler city

ANCSA Region: Nana Regional Corporation

Climate Zone: 8



Owner-occupied House with Mortgage, Median Value
\$67,500

Owner-occupied House without a Mortgage, Median Value
\$79,400

Estimated Energy Prices as of January 2013	
#1 Fuel oil cost (\$ / gallon)	\$ 9.30
Electricity with PCE (\$/kWh)	\$ 0.21
Electricity without PCE (\$/kWh)	\$ 0.61

Median Annual Household Income	
Housing Units	Household Income
All-occupied	\$ 57,625
Renter-occupied	\$ 41,250
Owner-occupied	\$ 58,056
w/ mortgage	\$ 44,375
w/o mortgage	\$ 58,889

Median Housing Costs		
	Monthly	Annual
All-occupied	\$ 511	\$ 6,132
Gross rent	\$ 1,313	\$ 15,756
Owner-occupied	\$ 489	\$ 5,868
Housing units w/ mortgage	\$ 775	\$ 9,300
Housing units w/out a mortgage	\$ 456	\$ 5,472

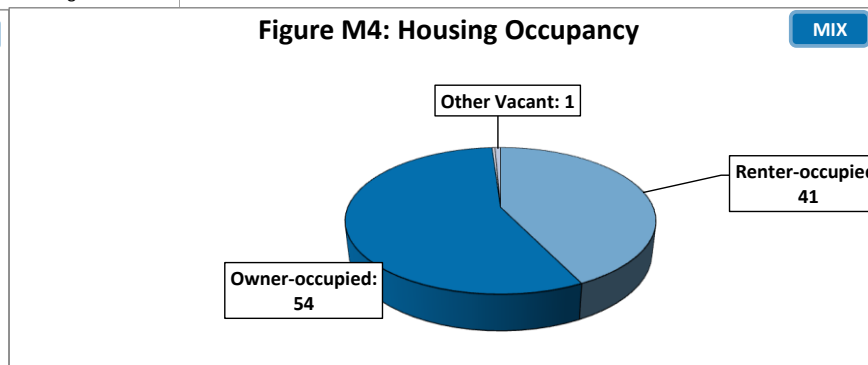
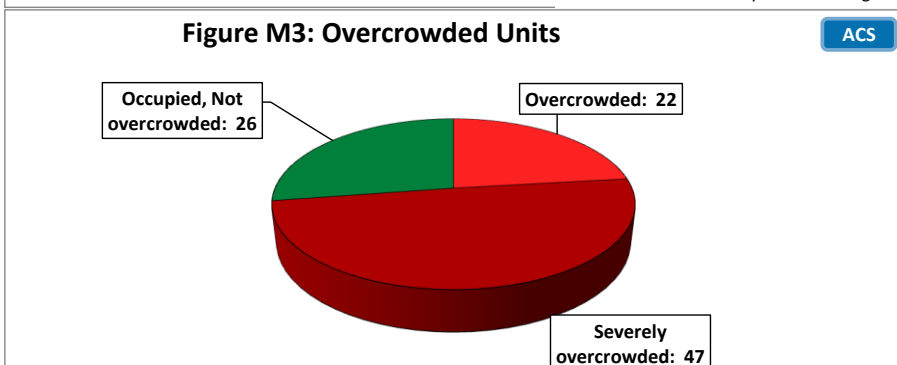
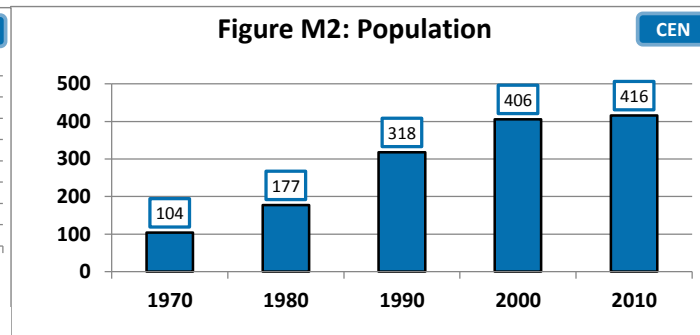
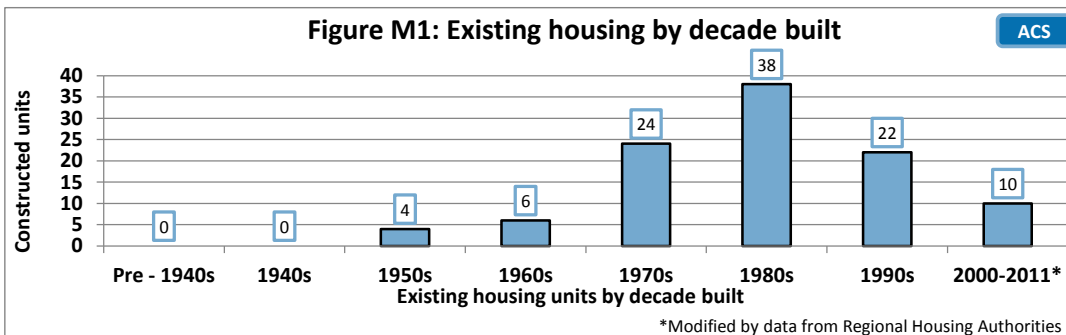
Housing Stock Estimates	
	Number of Units
All Housing	100
All Occupied Housing	63
All Vacant housing	37

Community Profile for: Buckland city

ANCSA Region: Nana Regional Corporation

Regional Housing Authority: Northwest Inupiat Housing Authority

BEES Climate Zone (Heating Degree Days): Zone 8 (16,462 HDD)



Buckland city Housing Energy Characteristics											
Residential Unit Categories	Number of records	Avg Energy Rating Stars	Avg Energy Rating Points	Avg Sq. Feet	Avg. Ann Energy Cost w/ PCE	Avg. Ann Energy Use (million BTUs)	Avg. EUI (kBtus/SF)	Avg. ECI	Avg. Home Heating Index	% Tight Homes, No Ventilation	
Pre-retrofit units	54	3-star plus	77.2	1,030	\$ 9,654	143	141	\$9.62	4.7	78%	
Retrofit units	45	4-star	82.4	1,029	\$ 8,779	129	128	\$8.75	3.6	91%	
New construction	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Overall	99	4-star	79.6	1,029	\$ 9,244	137	135	\$9.21	4.2	84%	

Buckland city Housing Envelope Characteristics											
Residential Unit Categories	Number of Records	ACH 50	Ceiling R	Above Grade Wall R	Below Grade Wall R	Above Grade Floor R	On Grade Floor R	Below Grade Floor R	Door U	Garage Door U	Window U
Pre-retrofit units	54	5.9	37	19	NR	38	NR	NR	0.28	NR	0.43
Retrofit units	45	5.2	58	19	NR	36	NR	NR	0.20	NR	0.33
New construction	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Overall	99	5.7	42	19	NR	37	NR	NR	0.25	NR	0.40

BEES 2009	7.0	38	30	15	38	15	15	0.22	0.22	0.22
BEES 2012	4.0	48	30	15	38	15	15	0.22	0.22	0.22

Figure M5: Average Annual Home Energy Costs and Use

MIX

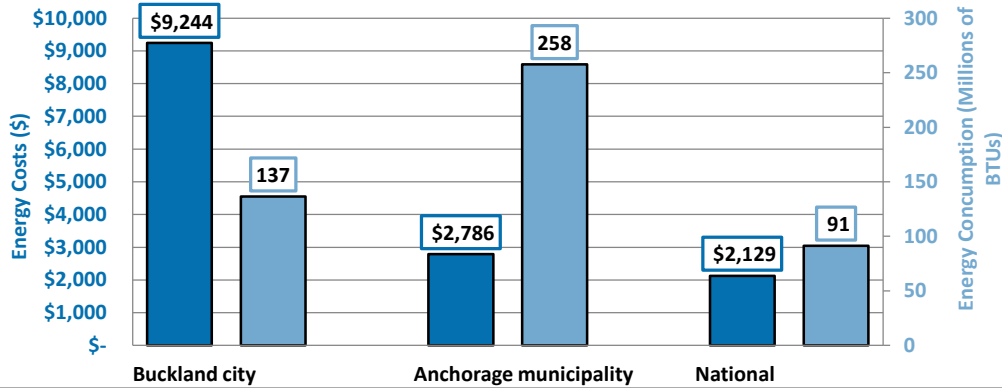
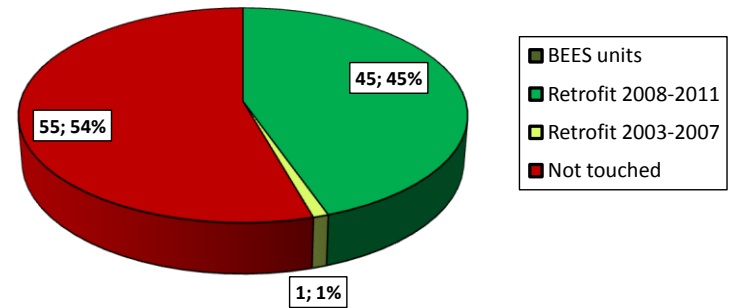


Figure M6: Housing Units Completing an AHFC Energy Program

ARIS



AFFORDABILITY - Buckland city

Owner occupied House with Mortgage, Median Value
\$152,300
Owner-occupied House without a Mortgage, Median Value
\$114,300

Median Annual Household Income	
Housing Units	Household Income
All-occupied	\$ 42,188
Renter-occupied	\$ 50,417
Owner-occupied	\$ 36,667
w/ mortgage	\$ 62,500
w/o mortgage	\$ 25,000

Median Housing Costs		
	Monthly	Annual
All-occupied	\$ 710	\$ 8,520
Gross rent	\$ 717	\$ 8,604
Owner-occupied	\$ 707	\$ 8,484
Housing units w/ mortgage	\$ 833	\$ 9,996
Housing units w/out a mortgage	\$ 618	\$ 7,416

Estimated Energy Prices as of January 2013	
#1 Fuel oil cost (\$ / gallon)	\$ 7.42
Electricity with PCE (\$/kWh)	\$ 0.44
Electricity without PCE (\$/kWh)	\$ 0.71

Average Annual Energy Cost	
With PCE	\$9,244
Without PCE	\$10,882

Avg % Median Income spent on Energy	21.9%
--	-------

Housing Stock Estimates	Number of Units
All Housing	96
All Occupied Housing	95
All Vacant housing	1
Vacant Housing for Sale/Rent	0

Figure M7: Affordability - Housing Costs as a Percent of Income

ACS

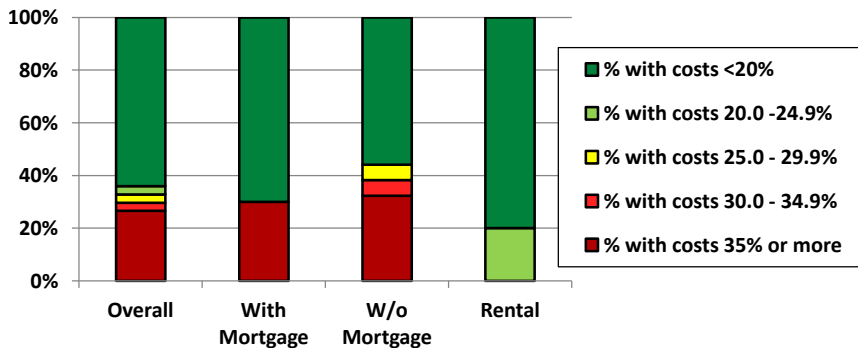
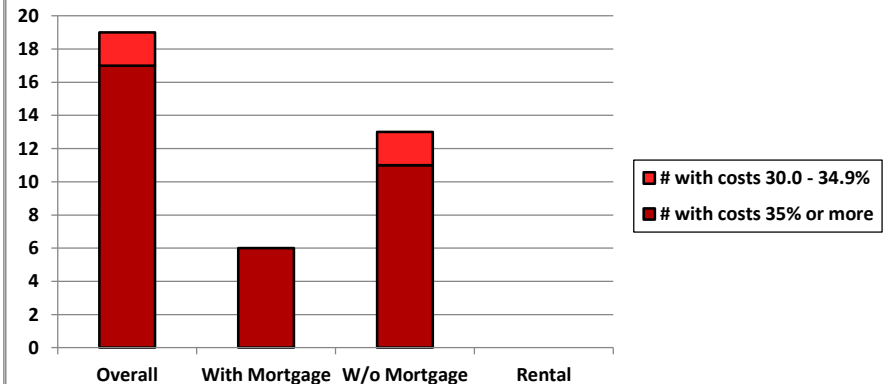


Figure M8: Number of Cost-Burdened Housing Units

ACS

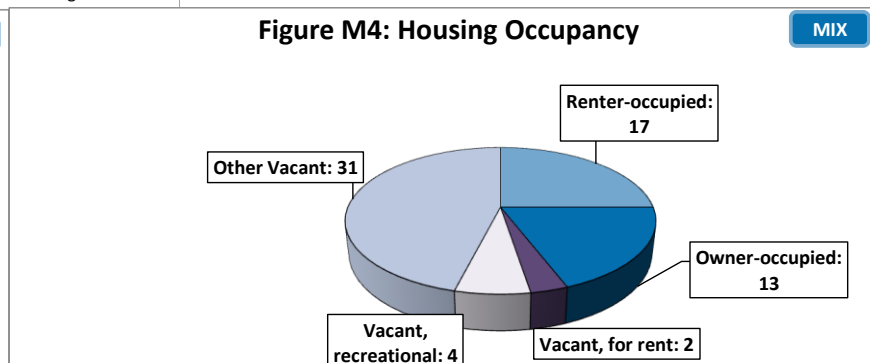
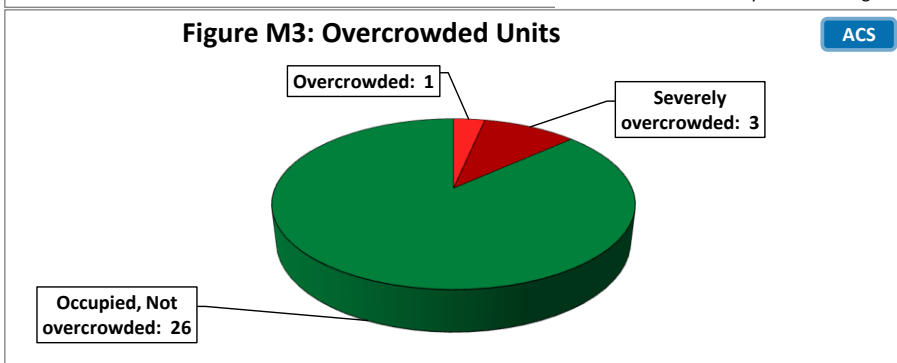
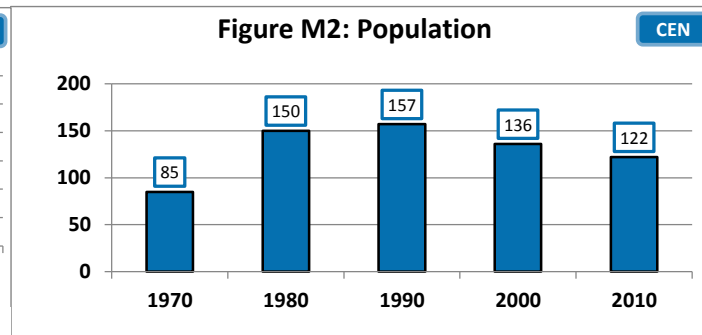
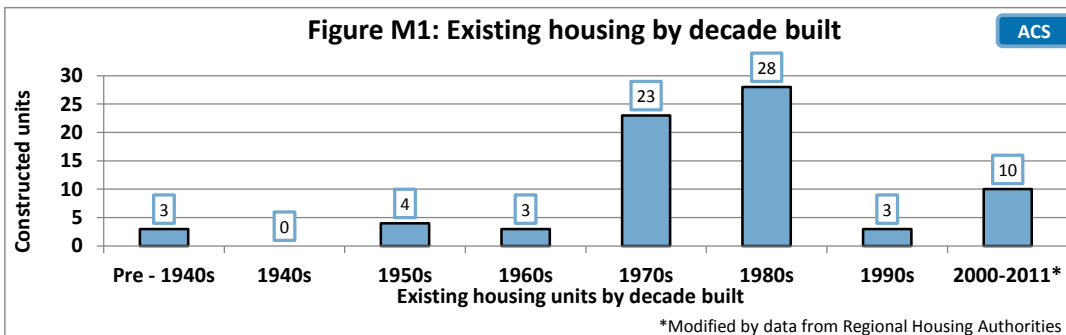


Community Profile for: Deering city

ANCSA Region: Nana Regional Corporation

Regional Housing Authority: Northwest Inupiat Housing Authority

BEES Climate Zone (Heating Degree Days): Zone 8 (16,462 HDD)



Deering city Housing Energy Characteristics

Residential Unit Categories	Number of records	Avg Energy Rating Stars	Avg Energy Rating Points	Avg Sq. Feet	Avg. Ann Energy Cost w/ PCE	Avg. Ann Energy Use (million BTUs)	Avg. EUI (kBtus/SF)	Avg. ECI	Avg. Home Heating Index	% Tight Homes, No Ventilation
Pre-retrofit units	27	3-star	71.8	948	\$ 8,555	167	181	\$9.58	8.4	67%
Retrofit units	28	4-star	80.9	965	\$ 7,249	92	97	\$7.92	3.4	79%
New construction	0	NR	NR	NR	NR	NR	NR	NR	NR	NR
Overall	55	3-star plus	75.6	955	\$ 8,017	136	146	\$8.90	6.4	72%

Deering city Housing Envelope Characteristics

Residential Unit Categories	Number of Records	ACH 50	Ceiling R	Above Grade Wall R	Below Grade Wall R	Above Grade Floor R	On Grade Floor R	Below Grade Floor R	Door U	Garage Door U	Window U
Pre-retrofit units	27	5.7	24	19	NR	38	NR	NR	0.41	NR	0.43
Retrofit units	28	4.2	62	26	NR	41	NR	NR	0.22	NR	0.38
New construction	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Overall	55	5.1	32	22	NR	39	NR	NR	0.33	NR	0.41

BEES 2009	7.0	38	30	15	38	15	15	0.22	0.22	0.22
BEES 2012	4.0	48	30	15	38	15	15	0.22	0.22	0.22

Figure M5: Average Annual Home Energy Costs and Use

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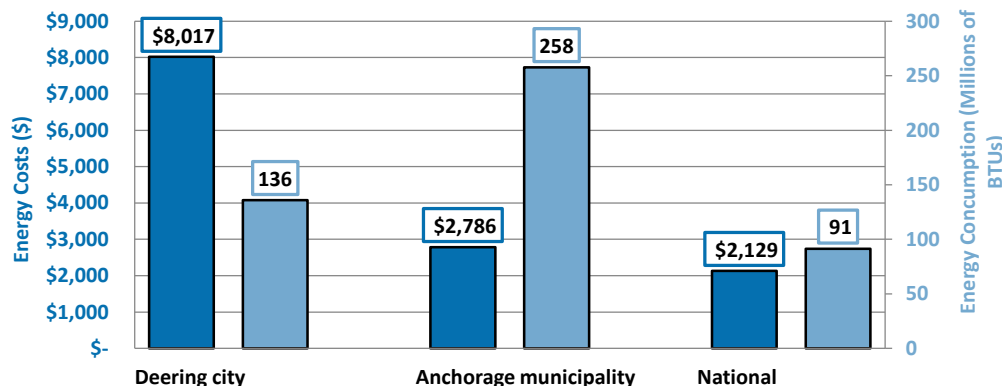
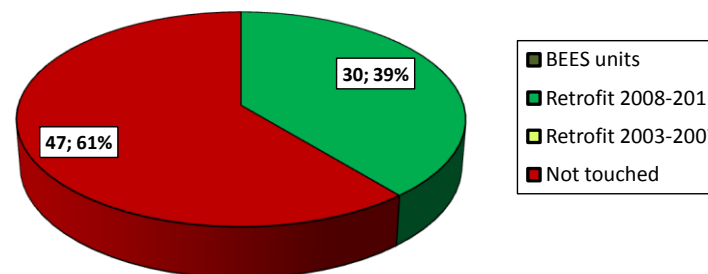


Figure M6: Housing Units Completing an AHFC Energy Program

ARIS



AFFORDABILITY - Deering city

Owner occupied House with Mortgage, Median Value
\$23,100

Owner-occupied House without a Mortgage, Median Value
\$56,700

Estimated Energy Prices as of January 2013	
#1 Fuel oil cost (\$ / gallon)	\$ 6.44
Electricity with PCE (\$/kWh)	\$ 0.44
Electricity without PCE (\$/kWh)	\$ 0.77

Median Annual Household Income	
Housing Units	Household Income
All-occupied	\$ 36,250
Renter-occupied	\$ 55,313
Owner-occupied	\$ 33,438
w/ mortgage	\$ 21,563
w/o mortgage	\$ 35,000

Average Annual Energy Cost	
With PCE	\$8,017
Without PCE	\$9,948

Avg % Median Income spent on Energy	22.1%
-------------------------------------	-------

Median Housing Costs		
	Monthly	Annual
All-occupied	\$ 785	\$ 9,420
Gross rent	\$ 738	\$ 8,856
Owner-occupied	\$ 825	\$ 9,900
Housing units w/ mortgage	\$ 763	\$ 9,156
Housing units w/out a mortgage	\$ 950	\$ 11,400

Housing Stock Estimates	Number of Units
All Housing	68
All Occupied Housing	30
All Vacant housing	38
Vacant Housing for Sale/Rent	2

Figure M7: Affordability - Housing Costs as a Percent of Income

ACS

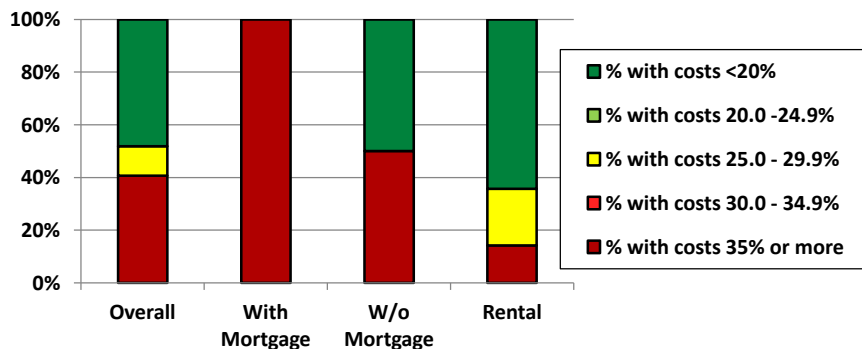
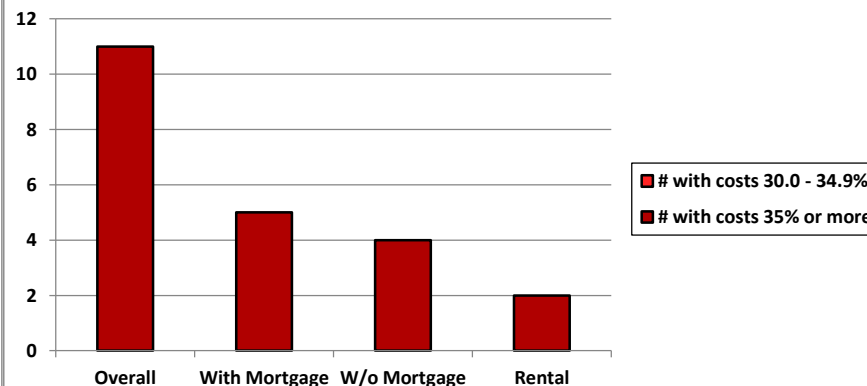


Figure M8: Number of Cost-Burdened Housing Units

ACS

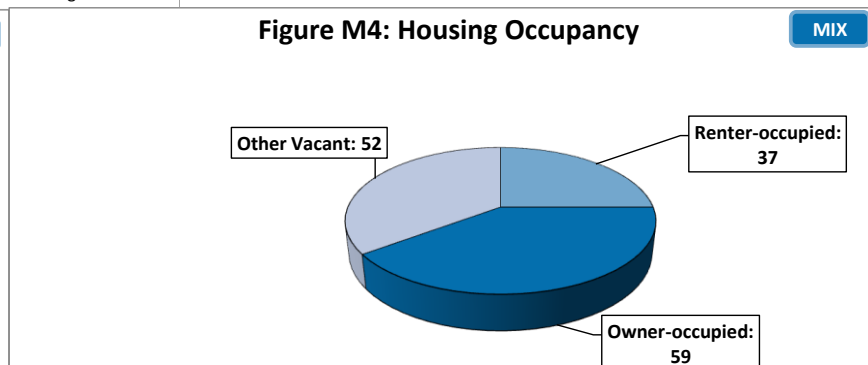
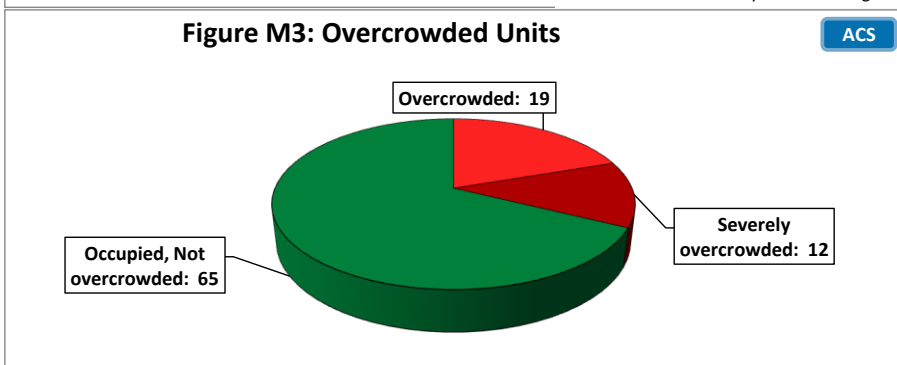
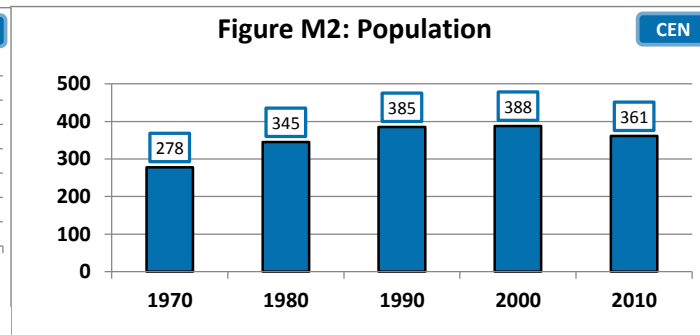
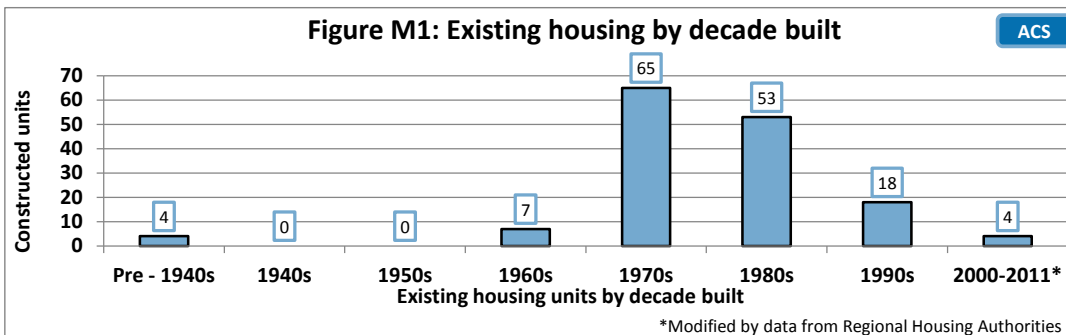


Community Profile for: Kiana city

ANCSA Region: Nana Regional Corporation

Regional Housing Authority: Northwest Inupiat Housing Authority

BEES Climate Zone (Heating Degree Days): Zone 8 (15,675 HDD)



Kiana city Housing Energy Characteristics											
Residential Unit Categories	Number of records	Avg Energy Rating Stars	Avg Energy Rating Points	Avg Sq. Feet	Avg. Ann Energy Cost w/ PCE	Avg. Ann Energy Use (million BTUs)	Avg. EUI (kBtus/SF)	Avg. ECI	Avg. Home Heating Index	% Tight Homes, No Ventilation	
Pre-retrofit units	33	2-star	53.7	853	\$ 7,237	157	195	\$8.60	10.2	56%	
Retrofit units	31	3-star plus	76.5	914	\$ 5,419	106	118	\$5.88	5.1	72%	
New construction	1	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Overall	65	2-star	58.8	872	\$ 6,849	146	178	\$8.00	9.1	59%	

Kiana city Housing Envelope Characteristics											
Residential Unit Categories	Number of Records	ACH 50	Ceiling R	Above Grade Wall R	Below Grade Wall R	Above Grade Floor R	On Grade Floor R	Below Grade Floor R	Door U	Garage Door U	Window U
Pre-retrofit units	33	8.0	23	13	NR	25	NR	NR	0.76	NR	0.67
Retrofit units	31	6.2	36	19	NR	31	NR	NR	0.19	NR	0.37
New construction	1	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Overall	65	7.8	24	13	NR	25	NR	NR	0.69	NR	0.63

BEES 2009	7.0	38	30	15	38	15	15	0.22	0.22	0.22
BEES 2012	4.0	48	30	15	38	15	15	0.22	0.22	0.22

Figure M5: Average Annual Home Energy Costs and Use

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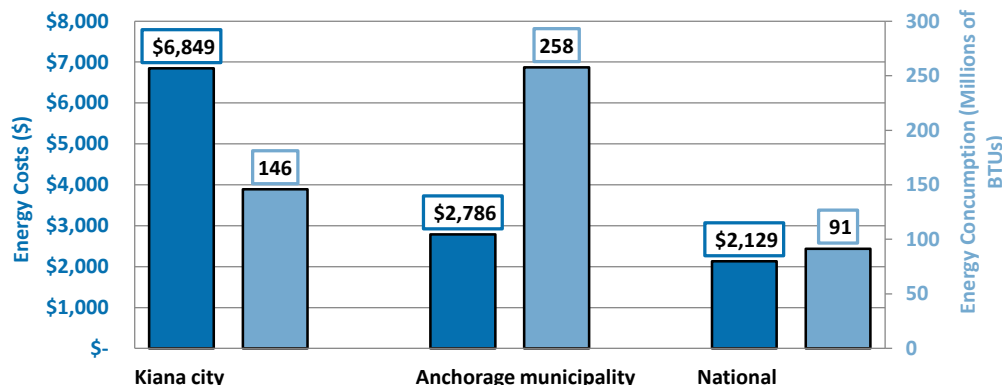
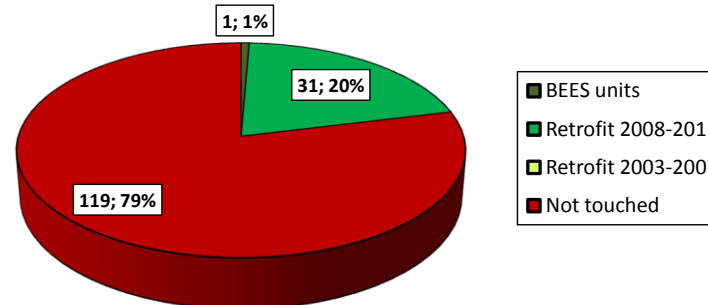


Figure M6: Housing Units Completing an AHFC Energy Program

ARIS



AFFORDABILITY - Kiana city

Owner occupied House with Mortgage, Median Value
\$162,500

Owner-occupied House without a Mortgage, Median Value
\$142,200

Estimated Energy Prices as of January 2013	
#1 Fuel oil cost (\$ / gallon)	\$ 7.00
Electricity with PCE (\$/kWh)	\$ 0.21
Electricity without PCE (\$/kWh)	\$ 0.64

Median Annual Household Income	
Housing Units	Household Income
All-occupied	\$ 52,500
Renter-occupied	\$ 26,875
Owner-occupied	\$ 62,813
w/ mortgage	\$ 36,875
w/o mortgage	\$ 63,438

Average Annual Energy Cost	
With PCE	\$6,849
Without PCE	\$9,144

Avg % Median Income spent on Energy	13.0%
-------------------------------------	-------

Median Housing Costs		
	Monthly	Annual
All-occupied	\$ 844	\$ 10,128
Gross rent	\$ 792	\$ 9,504
Owner-occupied	\$ 875	\$ 10,500
Housing units w/ mortgage	\$ 1,050	\$ 12,600
Housing units w/out a mortgage	\$ 817	\$ 9,804

Housing Stock Estimates	Number of Units
All Housing	148
All Occupied Housing	96
All Vacant housing	52
Vacant Housing for Sale/Rent	0

Figure M7: Affordability - Housing Costs as a Percent of Income

ACS

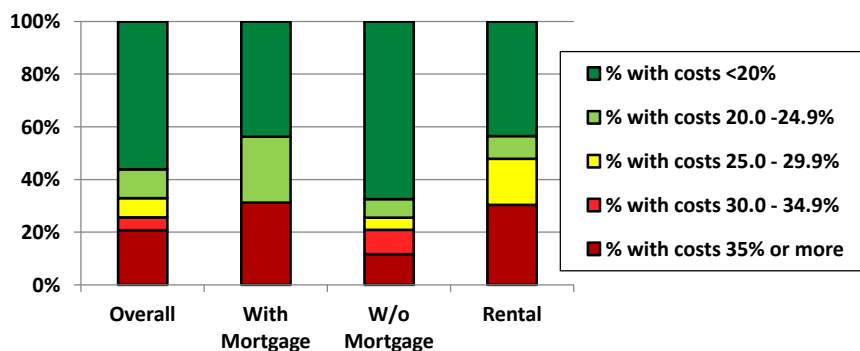
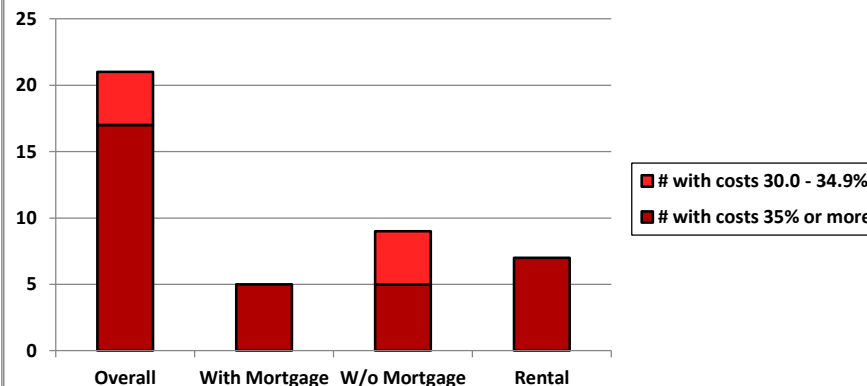


Figure M8: Number of Cost-Burdened Housing Units

ACS



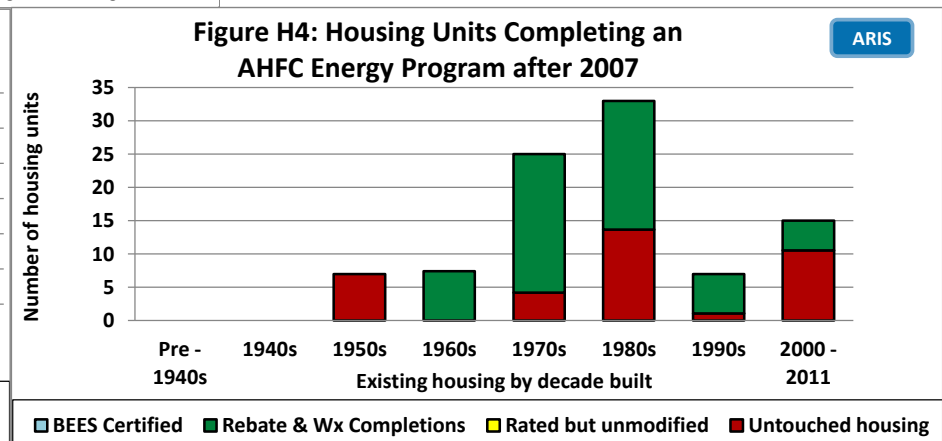
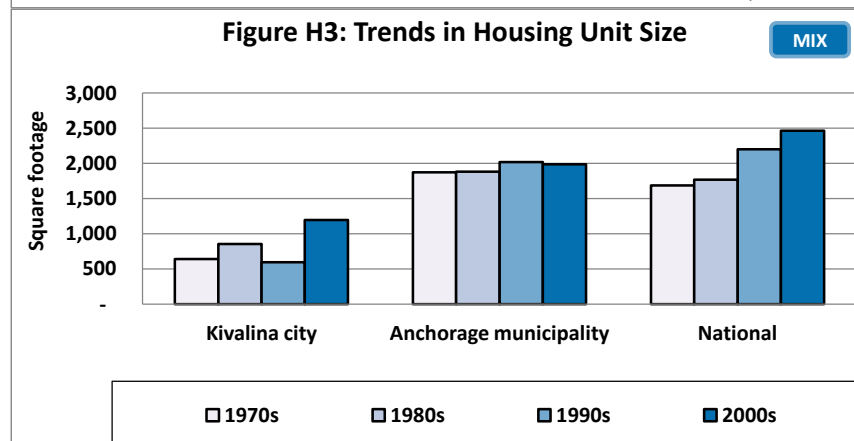
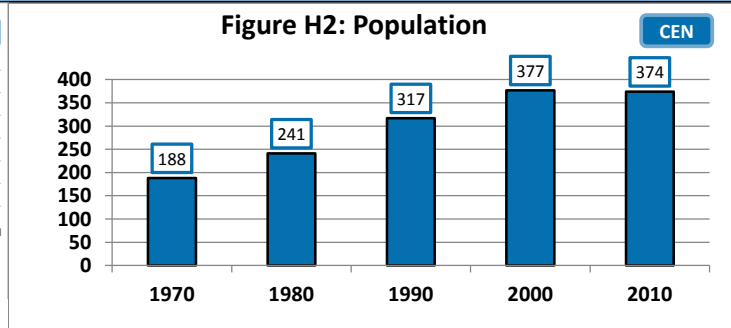
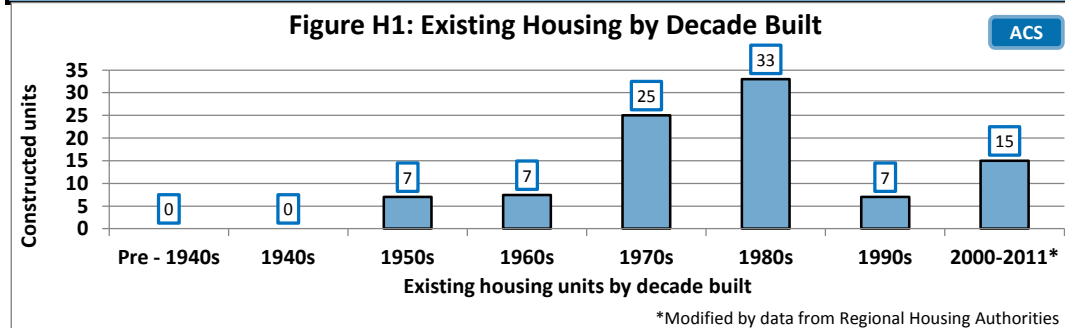
Community Profile for: Kivalina city

ANCSA Region: Nana Regional Corporation

Regional Housing Authority: Northwest Inupiat Housing Authority

BEES Climate Zone (Heating Degree Days): Zone 8 (16,758 HDD)

COMMUNITY - Kivalina city



Houses Lacking Complete Plumbing or Kitchen Facilities	Households	
	Number	Percent
Lack complete plumbing	79	100%
Lack complete kitchen	71	90%

Avg Annual Energy Cost with PCE	\$5,828
Avg Annual Energy Cost without PCE	\$8,037

Weatherization Program Retrofits (funding increased in 2008)	
Date Range	Units
2008-2011	58
2003-2007	NR
1990-2002	NR

Estimated Total Annual Community Space Heating Fuel Use		
Fuel Oil	33,860	(gallons)
Nat Gas	-	(ccf)
Electricity	17,967	(kWh)
Wood	8	(cords)
Propane	-	(gallons)
Coal	-	(tons)

Estimated Energy Prices as of January 2013	
#1 Fuel oil cost (\$ / gallon)	\$7.75
Electricity with PCE (\$/kWh)	\$0.21
Electricity cost without PCE (\$/kWh)	\$0.63

Housing Stock Estimates	Number of Units
All Housing	85
All Occupied Housing	79
All Vacant housing	6
Vacant Housing for Sale or Rent	1

OVERCROWDING & VENTILATION - Kivalina city

Figure H5: Overcrowded Units

ACS

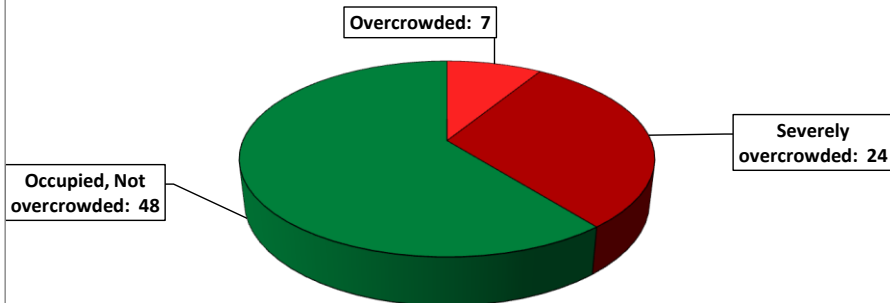


Figure H6: Housing Occupancy

MIX

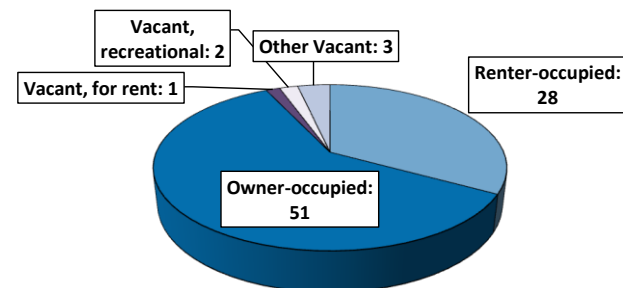


Figure H7: Average Air-Tightness of Current Homes by Decade Built

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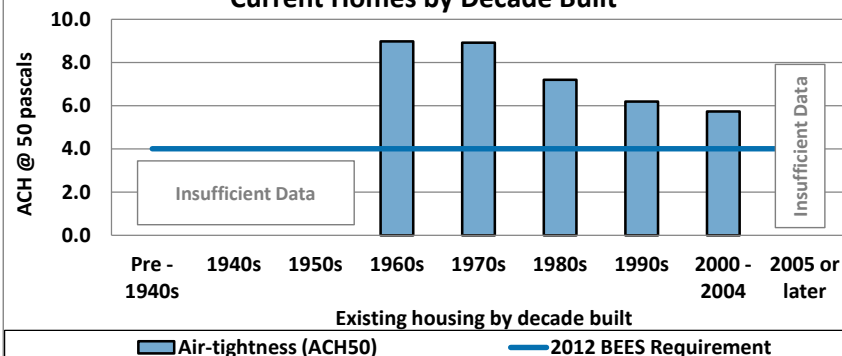


Figure H8: Existing Ventilation Type by Decade Built

ARIS

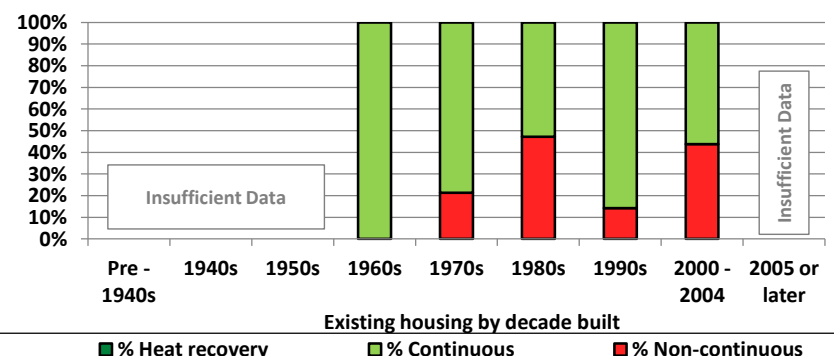


Figure H9: Percent of Housing Stock at High Risk of Moisture and Air Quality Problems

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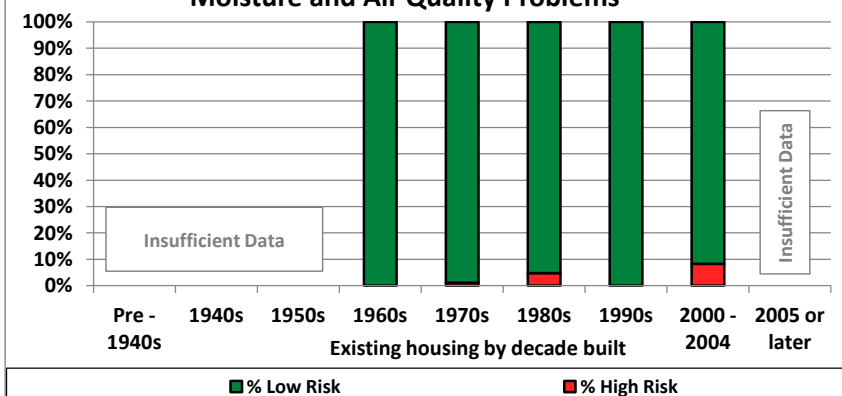
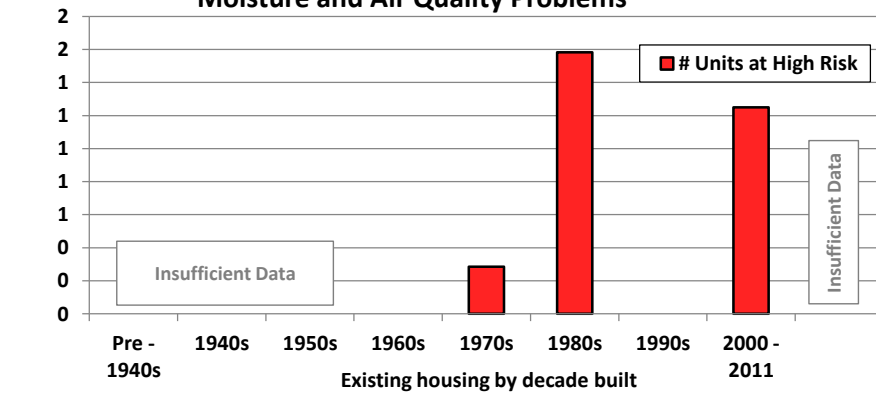


Figure H10: Quantity of Housing Stock at High Risk of Moisture and Air Quality Problems

ARIS



ENERGY - Kivalina city												
Current Kivalina city Housing Energy Characteristics By Decade Built												
Current Residential Units by Year Built	Number of Records	Avg Energy Rating Stars	Avg Energy Rating Points	Avg Sq. Feet	Avg. Annual Energy Cost (with PCE)	Avg. Annual Energy Use (million BTUs)	Avg Ann Energy by End Use (million Btus)			Avg. EUI (kBtus/SF)	Avg. ECI (\$ / SF)	Avg. Home Heating Index
							Space Heating	DHW	Appliances			
OVERALL	58	3-star	71.3	770	\$ 5,828	97	61	13	23	129	\$ 7.77	5.1
Pre- 1940	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1940- 49	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1950- 59	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1960- 69	13	3-star plus	73.1	482	\$ 2,844	46	30	0	16	100	\$ 6.14	3.9
1970- 79	42	3-star	68.7	639	\$ 4,181	71	52	0	19	116	\$ 6.90	5.3
1980- 89	38	3-star	70.0	855	\$ 7,480	123	69	30	24	146	\$ 8.89	4.9
1990- 99	12	3-star	69.5	593	\$ 3,780	61	43	0	18	105	\$ 6.49	4.5
2000- 2004	10	4-star plus	85.6	1,196	\$ 8,186	140	67	50	23	117	\$ 6.84	3.5
2005 or later	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Figure H11: Current Average Energy Use Intensity and Average Square Footage by Decade Built

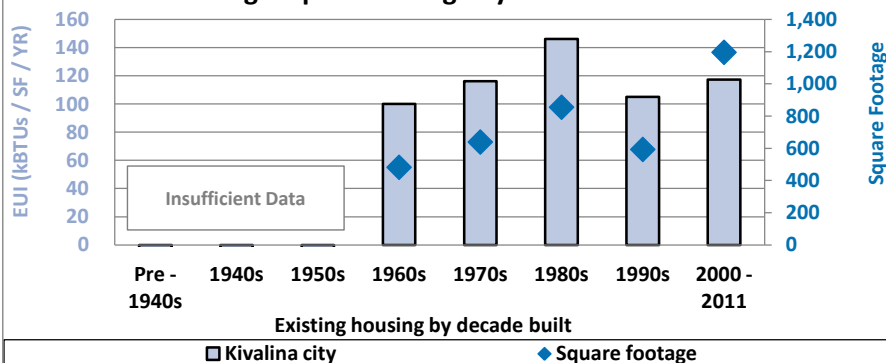
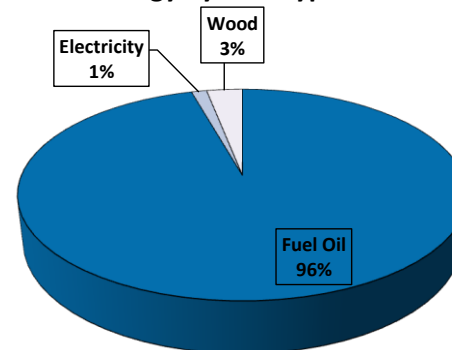


Figure H12: Percent of Total Residential Space Heating Energy by Fuel Type

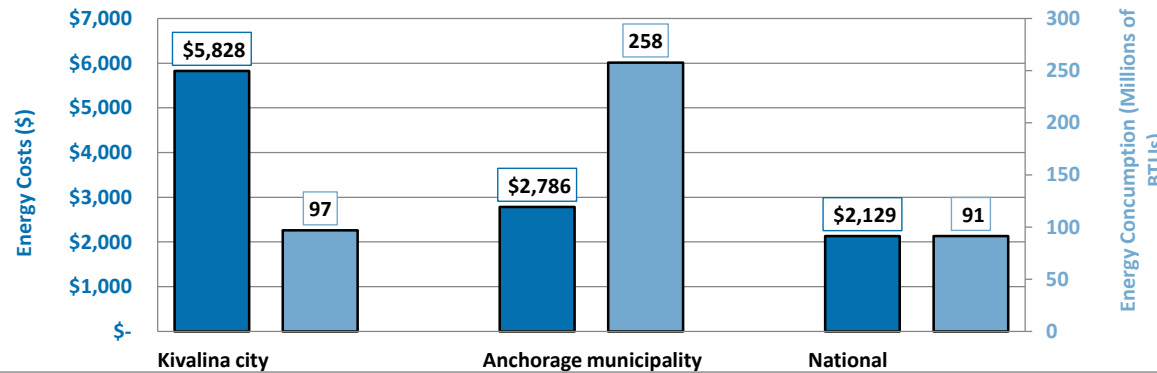


Current Kivalina city Housing Envelope Characteristics By Decade Built											
Current Residential Units by Year Built	Number of Records	ACH 50	Ceiling R	Above Grade Wall R	Below Grade Wall R	Above Grade Floor R	On Grade Floor R	Below Grade Floor R	Door U	Garage Door U	Window U
OVERALL	58	7.9	34	19	NR	30	NR	NR	0.35	NR	0.48
Pre- 1940	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1940- 49	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1950- 59	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1960- 69	13	9.0	39	19	NR	30	NR	NR	0.19	NR	0.39
1970- 79	42	8.9	34	18	NR	27	NR	NR	0.28	NR	0.45
1980- 89	38	7.2	37	20	NR	30	NR	NR	0.44	NR	0.52
1990- 99	12	6.2	40	19	NR	25	NR	NR	0.19	NR	0.39
2000- 2004	10	5.7	68	45	NR	67	NR	NR	0.33	NR	0.38
2005 or later	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

BEES 2009 - Climate Zone 8	7.0	38	30	15	38	15	15	15	0.22	0.22	0.22
BEES 2012 - Climate Zone 8	4.0	48	30	15	38	15	15	15	0.22	0.22	0.22

AFFORDABILITY - Kivalina city

Figure H13: Average Annual Home Energy Costs and Use



Housing Information	Avg Household Size (# of people)
All-occupied	4.8
Owner-occupied	5.2
renter-occupied	4.1

Owner-occupied House with Mortgage, Median Value
\$162,500

Owner-occupied House without a Mortgage, Median Value
\$118,800

Median Annual Household Income	
Housing Units	Household Income
All-occupied	\$ 60,156
Renter-occupied	\$ 28,750
Owner-occupied	\$ 67,813
w/ mortgage	NR
w/o mortgage	\$ 68,125

Median Housing Costs		
	Monthly	Annual
All-occupied	\$ 590	\$ 7,080
Gross rent	NR	NR
Owner-occupied	\$ 574	\$ 6,888
Housing units w/ mortgage	NR	NR
Housing units w/out a mortgage	\$ 571	\$ 6,852

Avg % of Median Income Spent on Energy	9.7%
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Figure H14: Affordability - Housing Costs as a Percent of Income

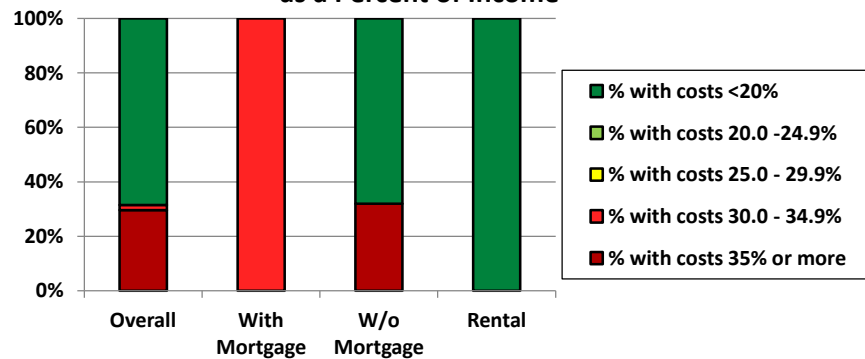
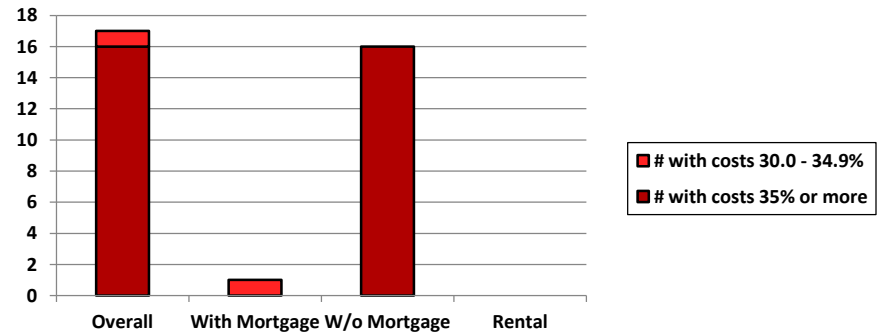


Figure H15: Number of Cost-Burdened Housing Units

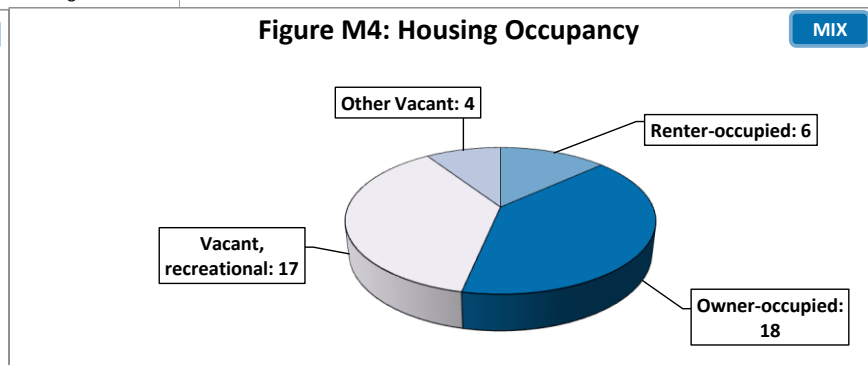
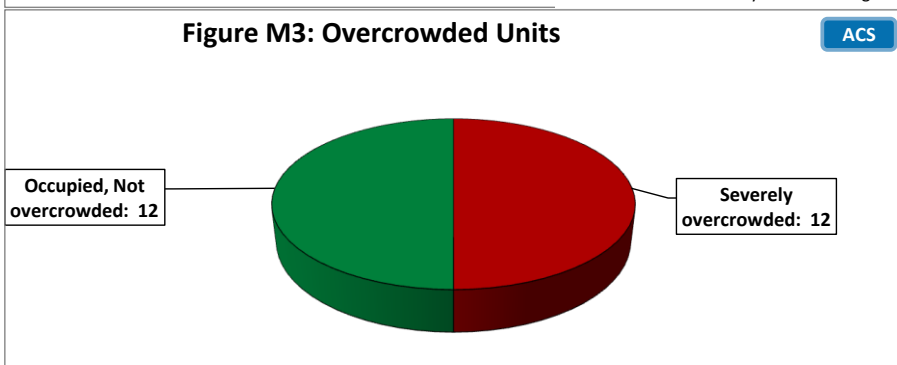
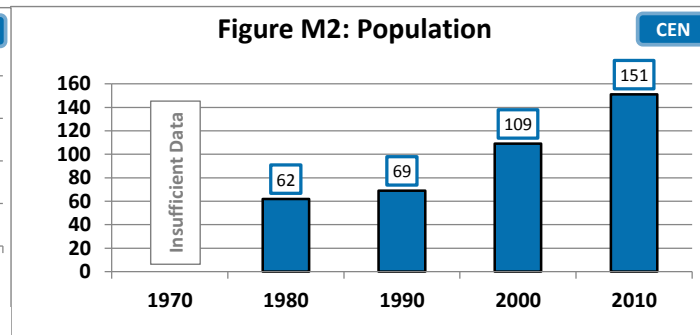
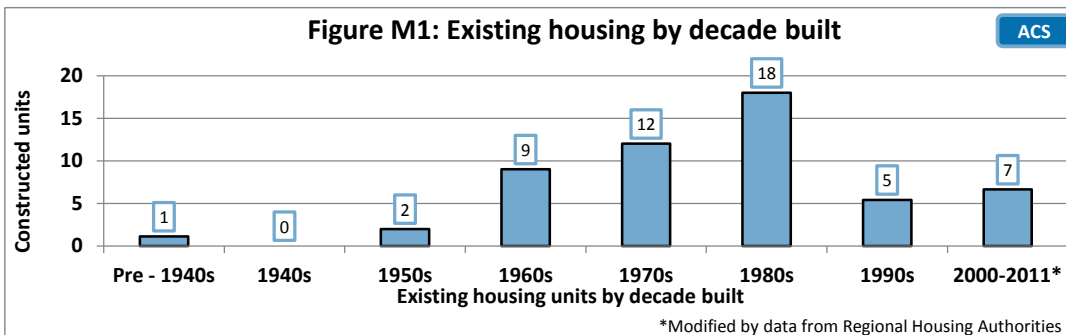


Community Profile for: Kobuk city

ANCSA Region: Nana Regional Corporation

Regional Housing Authority: Northwest Inupiat Housing Authority

BEES Climate Zone (Heating Degree Days): Zone 8 (15,716 HDD)



Kobuk city Housing Energy Characteristics

Residential Unit Categories	Number of records	Avg Energy Rating Stars	Avg Energy Rating Points	Avg Sq. Feet	Avg. Ann Energy Cost w/ PCE	Avg. Ann Energy Use (million BTUs)	Avg. EUI (kBtus/SF)	Avg. ECI	Avg. Home Heating Index	% Tight Homes, No Ventilation
Pre-retrofit units	22	3-star	68.8	961	\$ 9,984	202	270	\$11.46	13.1	75%
Retrofit units	21	4-star plus	84.2	1,011	\$ 9,020	114	115	\$9.13	3.7	100%
New construction	0	NR	NR	NR	NR	NR	NR	NR	NR	NR
Overall	43	3-star plus	76.0	984	\$ 9,534	161	197	\$10.38	8.7	87%

Kobuk city Housing Envelope Characteristics

Residential Unit Categories	Number of Records	ACH 50	Ceiling R	Above Grade Wall R	Below Grade Wall R	Above Grade Floor R	On Grade Floor R	Below Grade Floor R	Door U	Garage Door U	Window U
Pre-retrofit units	22	7.9	33	11	NR	32	NR	NR	0.19	NR	0.36
Retrofit units	21	5.1	57	20	NR	34	NR	NR	0.19	NR	0.33
New construction	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Overall	43	6.7	40	13	NR	33	NR	NR	0.19	NR	0.34

BEES 2009	7.0	38	30	15	38	15	15	0.22	0.22	0.22
BEES 2012	4.0	48	30	15	38	15	15	0.22	0.22	0.22

Figure M5: Average Annual Home Energy Costs and Use

MIX

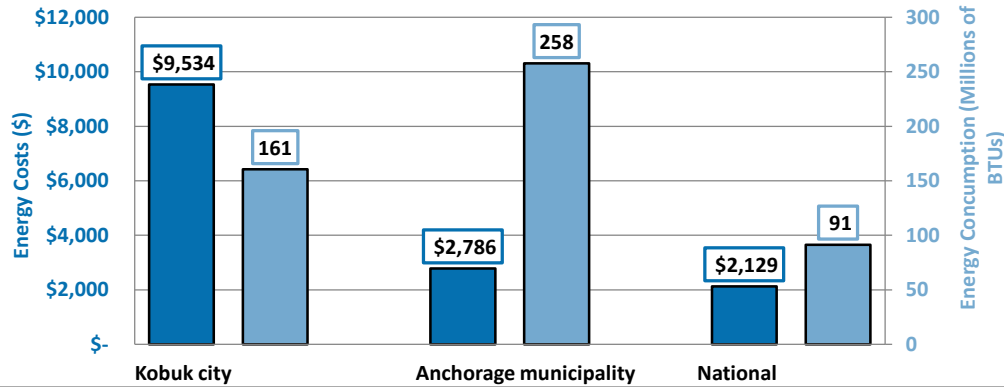
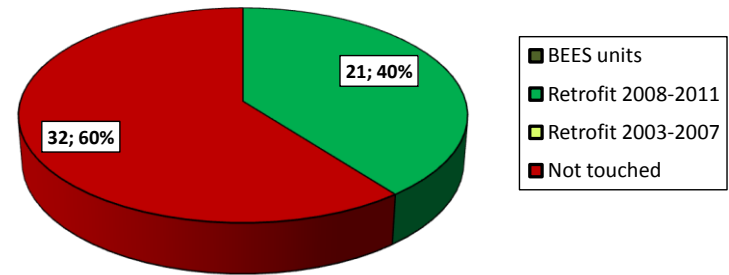


Figure M6: Housing Units Completing an AHFC Energy Program

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AFFORDABILITY - Kobuk city

Owner occupied House with Mortgage, Median Value
\$275,000
Owner-occupied House without a Mortgage, Median Value
\$85,000

Median Annual Household Income	
Housing Units	Household Income
All-occupied	\$ 31,250
Renter-occupied	\$ 51,250
Owner-occupied	\$ 28,750
w/ mortgage	NR
w/o mortgage	\$ 30,000

Median Housing Costs		
	Monthly	Annual
All-occupied	\$ 775	\$ 9,300
Gross rent	\$ 950	\$ 11,400
Owner-occupied	\$ 750	\$ 9,000
Housing units w/ mortgage	NR	NR
Housing units w/out a mortgage	\$ 650	\$ 7,800

Estimated Energy Prices as of January 2013	
#1 Fuel oil cost (\$ / gallon)	\$ 9.30
Electricity with PCE (\$/kWh)	\$ 0.41
Electricity without PCE (\$/kWh)	\$ 0.87

Average Annual Energy Cost	
With PCE	\$9,534
Without PCE	\$12,201

Housing Stock Estimates	Number of Units
All Housing	45
All Occupied Housing	24
All Vacant housing	21
Vacant Housing for Sale/Rent	0

Avg % Median Income spent on Energy	30.5%
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Figure M7: Affordability - Housing Costs as a Percent of Income

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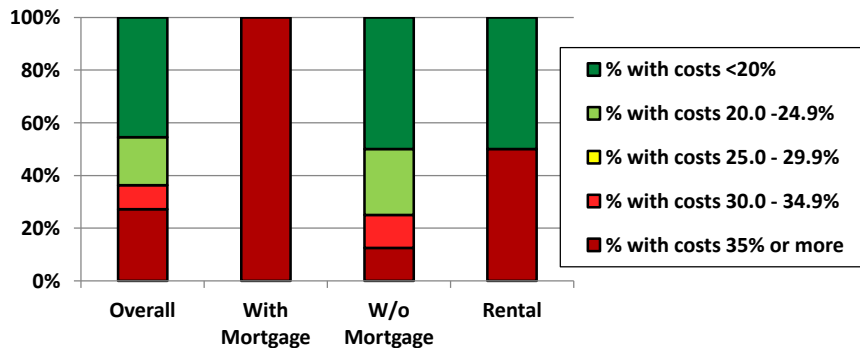
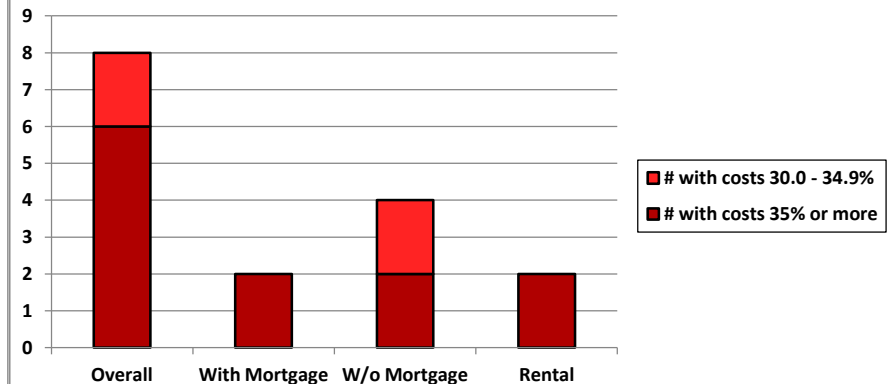


Figure M8: Number of Cost-Burdened Housing Units

ACS



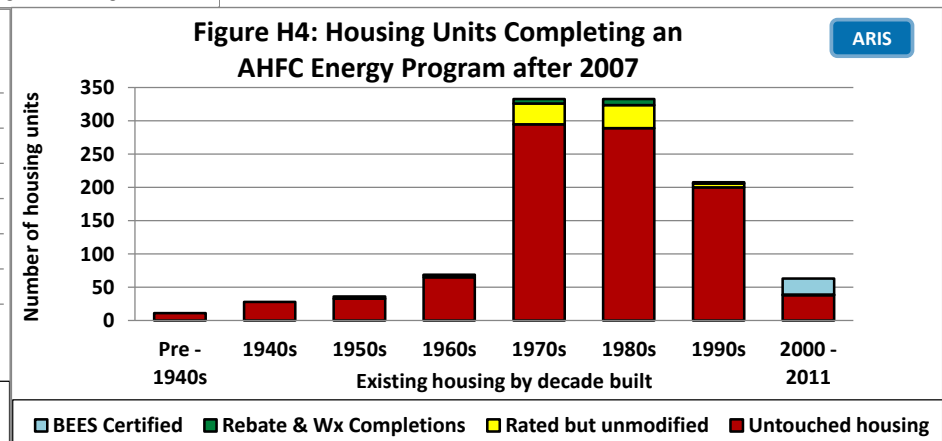
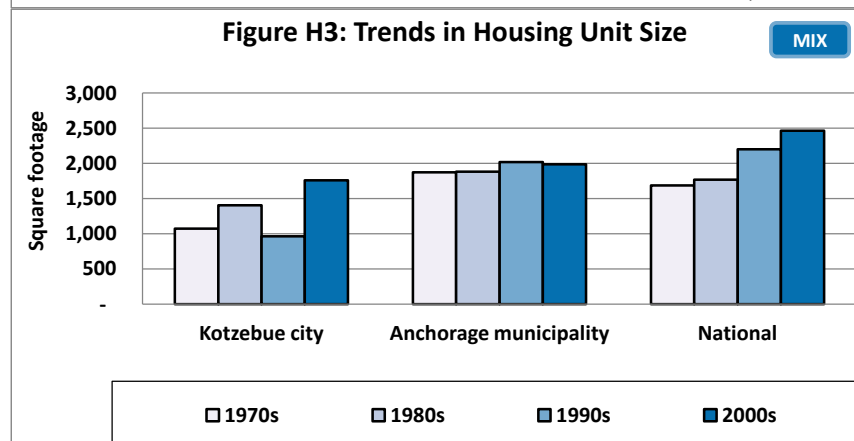
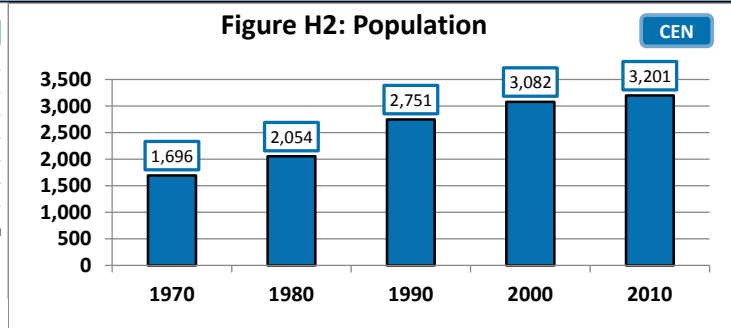
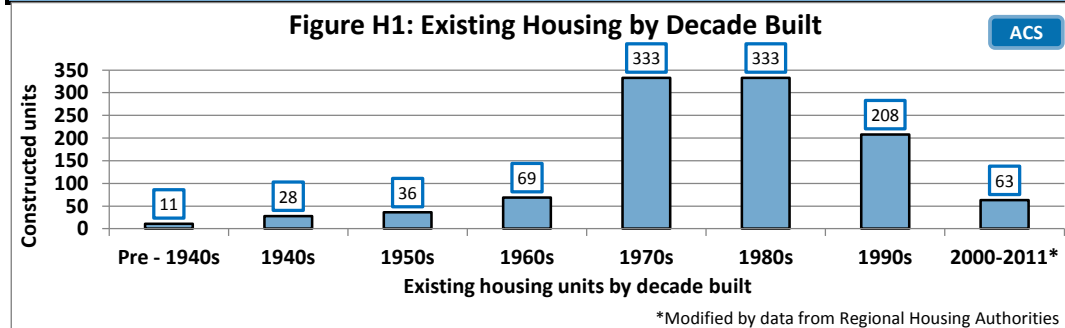
Community Profile for: Kotzebue city

ANCSA Region: Nana Regional Corporation

Regional Housing Authority: Northwest Inupiat Housing Authority

BEES Climate Zone (Heating Degree Days): Zone 8 (16,032 HDD)

COMMUNITY - Kotzebue city



Houses Lacking Complete Plumbing or Kitchen Facilities	Households	
	Number	Percent
Lack complete plumbing	55	6%
Lack complete kitchen	41	5%

Avg Annual Energy Cost with PCE	\$8,821
Avg Annual Energy Cost without PCE	\$10,409

Weatherization Program Retrofits (funding increased in 2008)	
Date Range	Units
2008-2011	0
2003-2007	-
1990-2002	22

Estimated Total Annual Community Space Heating Fuel Use		
Fuel Oil	746,926	(gallons)
Nat Gas	-	(ccf)
Electricity	439,080	(kWh)
Wood	266	(cords)
Propane	-	(gallons)
Coal	-	(tons)

Estimated Energy Prices as of January 2013	
#1 Fuel oil cost (\$ / gallon)	\$6.28
Electricity with PCE (\$/kWh)	\$0.32
Electricity cost without PCE (\$/kWh)	\$0.58

Housing Stock Estimates	Number of Units
All Housing	1081
All Occupied Housing	911
All Vacant housing	170
Vacant Housing for Sale or Rent	30

OVERCROWDING & VENTILATION - Kotzebue city

Figure H5: Overcrowded Units

ACS

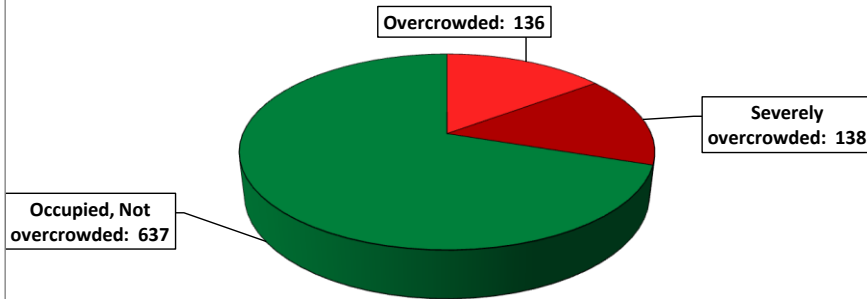


Figure H6: Housing Occupancy

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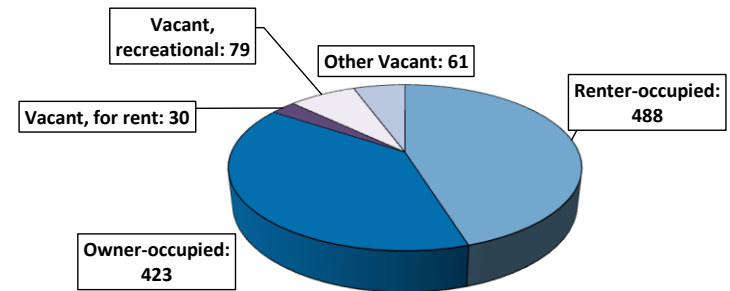


Figure H7: Average Air-Tightness of Current Homes by Decade Built

ARIS

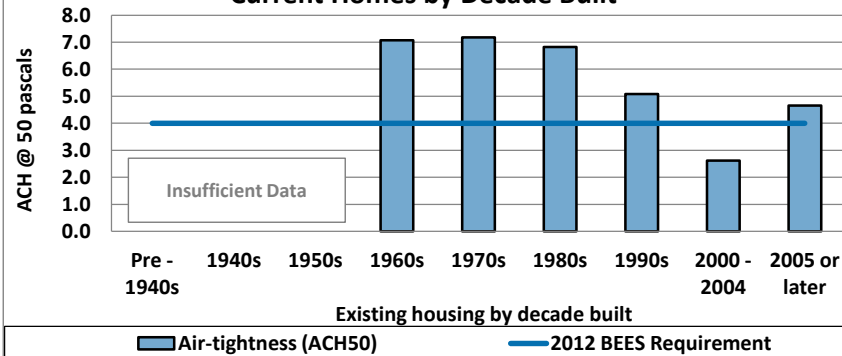


Figure H8: Existing Ventilation Type by Decade Built

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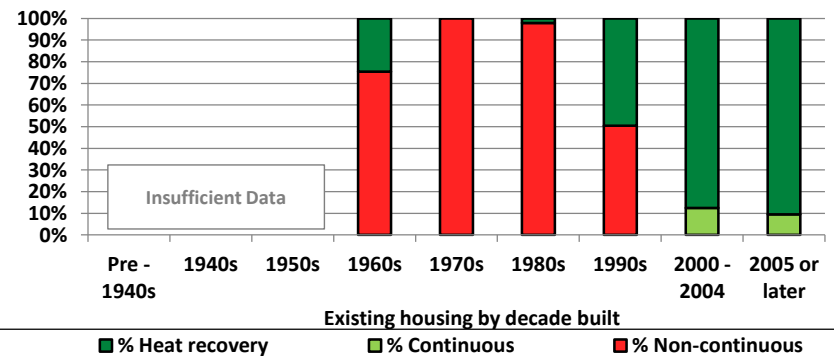


Figure H9: Percent of Housing Stock at High Risk of Moisture and Air Quality Problems

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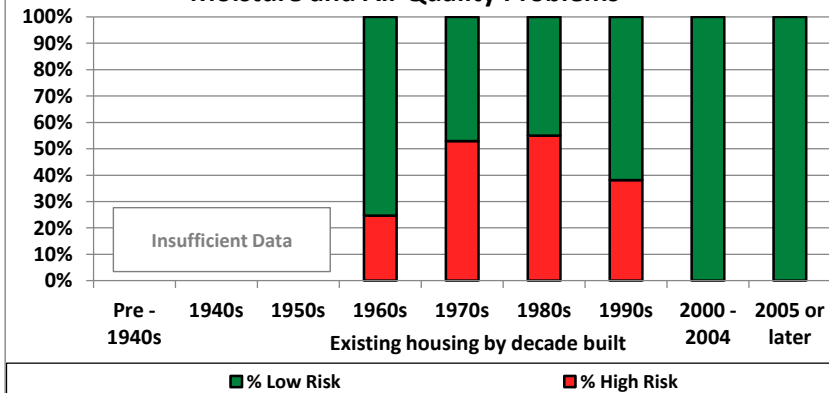
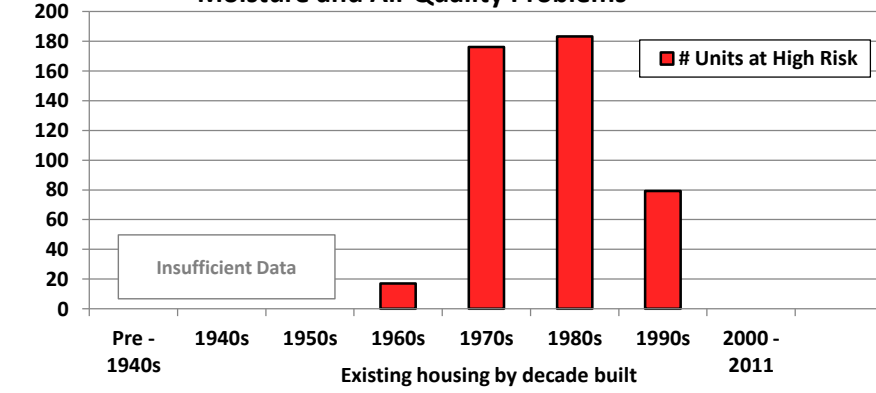


Figure H10: Quantity of Housing Stock at High Risk of Moisture and Air Quality Problems

ARIS



ENERGY - Kotzebue city												
Current Kotzebue city Housing Energy Characteristics By Decade Built												
Current Residential Units by Year Built	Number of Records	Avg Energy Rating Stars	Avg Energy Rating Points	Avg Sq. Feet	Avg. Annual Energy Cost (with PCE)	Avg. Annual Energy Use (million BTUs)	Avg Ann Energy by End Use (million Btus)			Avg. EUI (kBtus/SF)	Avg. ECI (\$ / SF)	Avg. Home Heating Index
							Space Heating	DHW	Appliances			
OVERALL	140	3-star	69.3	1,258	\$ 8,821	168	114	28	26	147	\$ 7.90	6.5
Pre- 1940	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1940- 49	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1950- 59	3	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1960- 69	5	2-star plus	64.7	2,076	\$ 11,645	212	166	20	26	140	\$ 7.66	6.9
1970- 79	45	2-star plus	64.5	1,073	\$ 9,021	169	115	29	26	164	\$ 9.04	7.0
1980- 89	53	2-star plus	67.5	1,402	\$ 10,171	193	142	26	26	142	\$ 7.53	6.6
1990- 99	8	4-star	79.0	963	\$ 5,314	109	63	23	22	114	\$ 5.56	4.2
2000- 2004	5	5-star	89.4	1,761	\$ 6,819	131	73	31	28	74	\$ 3.89	2.6
2005 or later	21	5-star	89.8	1,169	\$ 5,355	104	53	29	22	89	\$ 4.57	2.8

Figure H11: Current Average Energy Use Intensity and Average Square Footage by Decade Built

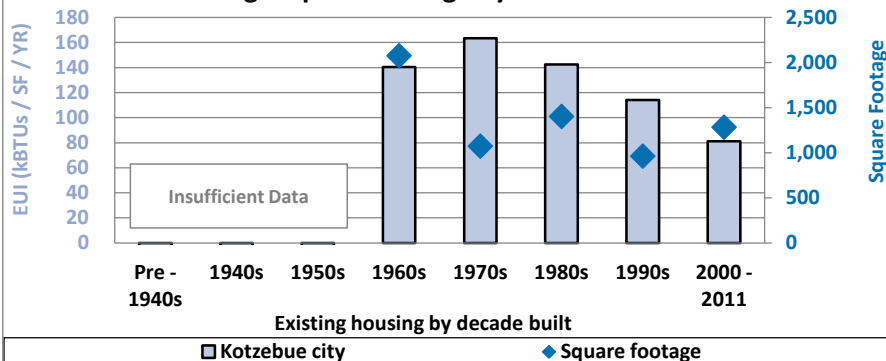
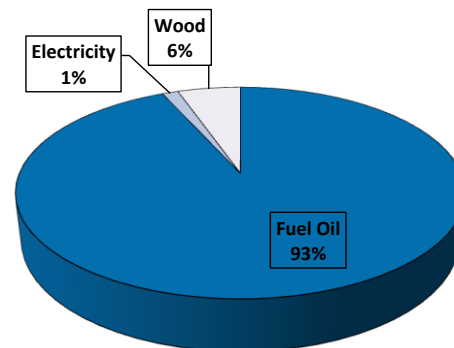


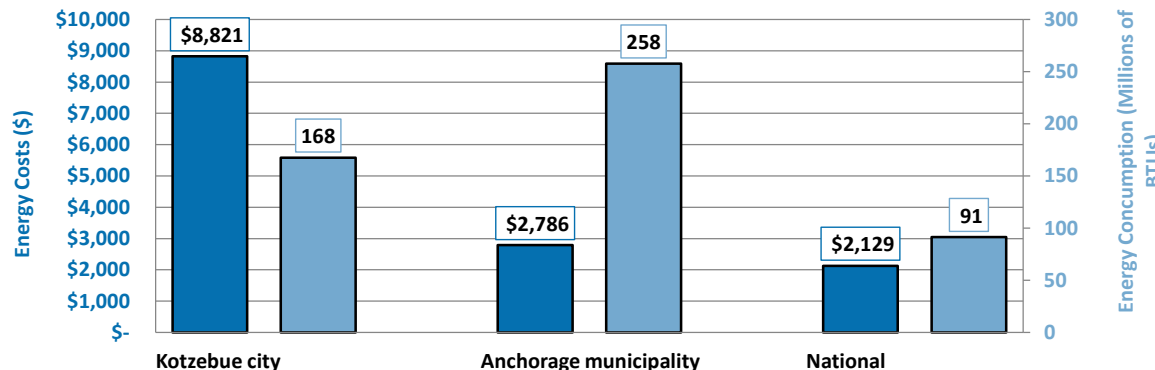
Figure H12: Percent of Total Residential Space Heating Energy by Fuel Type



Current Kotzebue city Housing Envelope Characteristics By Decade Built											
Current Residential Units by Year Built	Number of Records	ACH 50	Ceiling R	Above Grade Wall R	Below Grade Wall R	Above Grade Floor R	On Grade Floor R	Below Grade Floor R	Door U	Garage Door U	Window U
OVERALL	140	6.9	26	16	NR	28	3	NR	0.25	0.19	0.46
Pre- 1940	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1940- 49	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1950- 59	3	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1960- 69	5	7.1	27	14	NR	NR	NR	NR	0.22	NR	0.45
1970- 79	45	7.2	22	15	NR	27	NR	NR	0.26	NR	0.51
1980- 89	53	6.8	30	16	NR	30	NR	NR	0.24	NR	0.45
1990- 99	8	5.1	29	20	NR	35	NR	NR	0.27	NR	0.34
2000- 2004	5	2.6	42	30	NR	37	NR	NR	0.19	NR	0.32
2005 or later	21	4.7	76	23	NR	39	NR	NR	0.19	NR	0.31
BEES 2009 - Climate Zone 8		7.0	38	30	15	38	15	15	0.22	0.22	0.22
BEES 2012 - Climate Zone 8		4.0	48	30	15	38	15	15	0.22	0.22	0.22

AFFORDABILITY - Kotzebue city

Figure H13: Average Annual Home Energy Costs and Use



Housing Information	Avg Household Size (# of people)
All-occupied	3.4
Owner-occupied	3.9
renter-occupied	3.1

Owner-occupied House with Mortgage, Median Value
\$181,900

Owner-occupied House without a Mortgage, Median Value
\$131,600

Median Annual Household Income	
Housing Units	Household Income
All-occupied	\$ 71,761
Renter-occupied	\$ 66,607
Owner-occupied	\$ 87,639
w/ mortgage	\$ 100,000
w/o mortgage	\$ 65,347

Median Housing Costs		
	Monthly	Annual
All-occupied	\$ 1,113	\$ 13,356
Gross rent	\$ 1,173	\$ 14,076
Owner-occupied	\$ 963	\$ 11,556
Housing units w/ mortgage	\$ 1,679	\$ 20,148
Housing units w/out a mortgage	\$ 650	\$ 7,800

Avg % of Median Income Spent on Energy	12.3%
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Figure H14: Affordability - Housing Costs as a Percent of Income

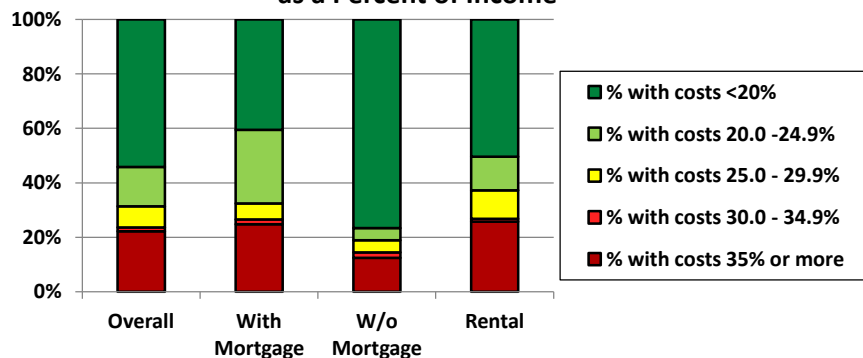
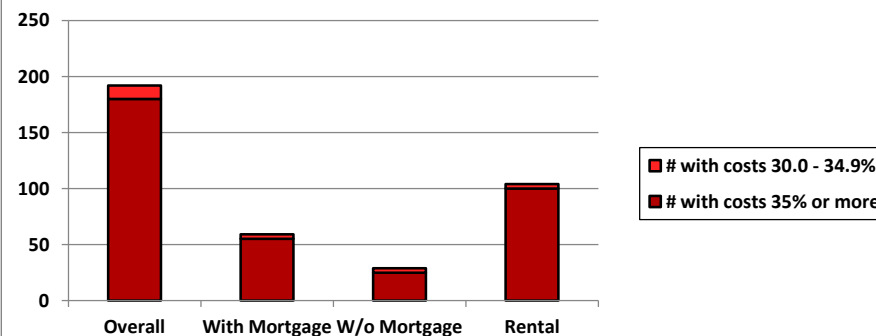


Figure H15: Number of Cost-Burdened Housing Units



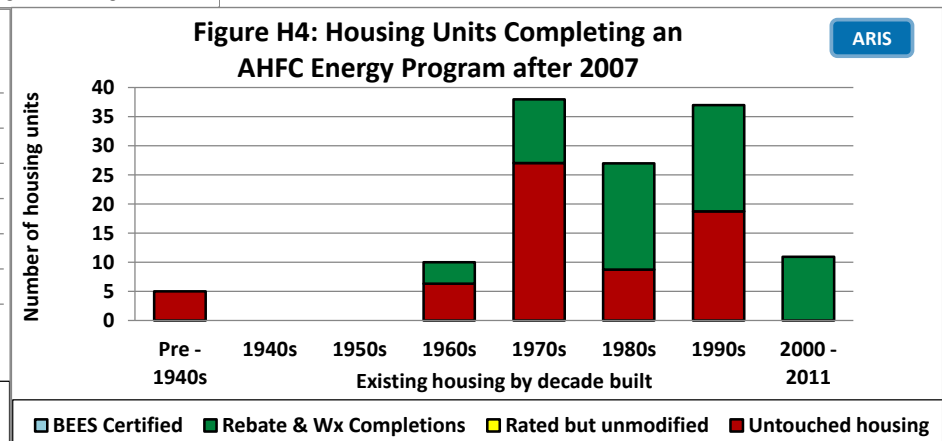
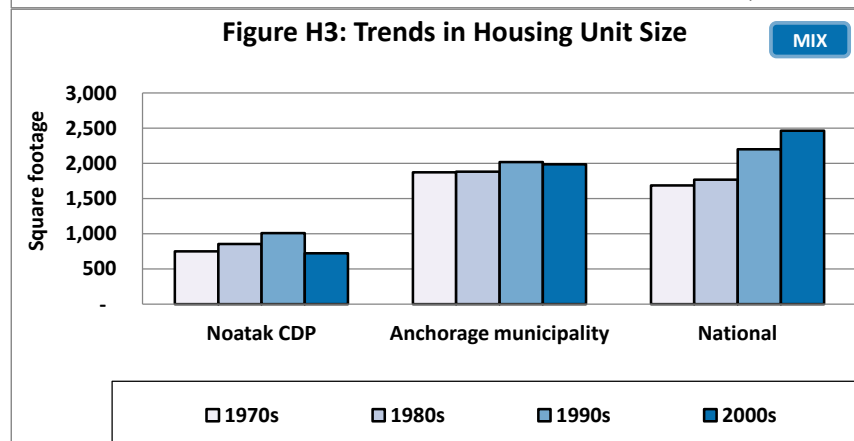
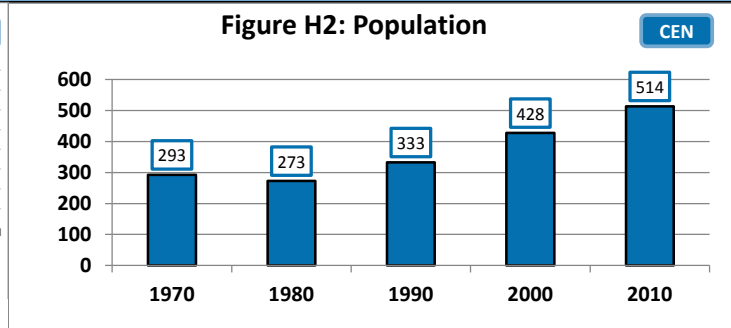
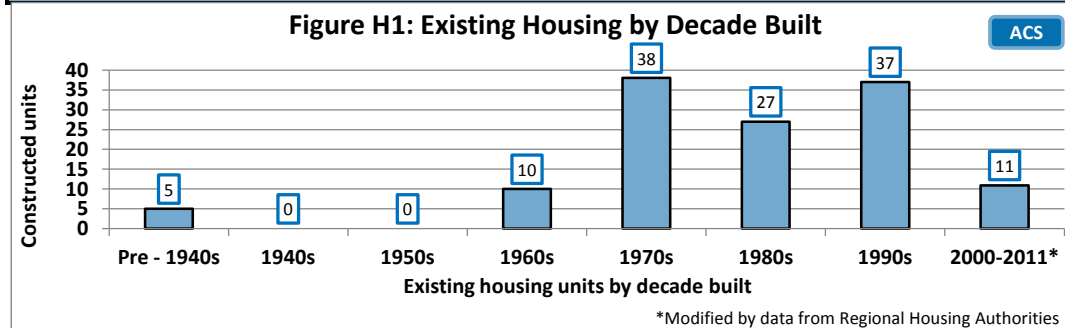
Community Profile for: Noatak CDP

ANCSA Region: Nana Regional Corporation

Regional Housing Authority: Northwest Inupiat Housing Authority

BEES Climate Zone (Heating Degree Days): Zone 8 (16,758 HDD)

COMMUNITY - Noatak CDP



Houses Lacking Complete Plumbing or Kitchen Facilities	Households	
	Number	Percent
Lack complete plumbing	6	6%
Lack complete kitchen	6	6%

Avg Annual Energy Cost with PCE	\$5,373
Avg Annual Energy Cost without PCE	\$8,366

Weatherization Program Retrofits (funding increased in 2008)	
Date Range	Units
2008-2011	62
2003-2007	NR
1990-2002	NR

Estimated Total Annual Community Space Heating Fuel Use		
Fuel Oil	48,656	(gallons)
Nat Gas	-	(ccf)
Electricity	33,791	(kWh)
Wood	102	(cords)
Propane	-	(gallons)
Coal	-	(tons)

Estimated Energy Prices as of January 2013	
#1 Fuel oil cost (\$ / gallon)	\$6.28
Electricity with PCE (\$/kWh)	\$0.22
Electricity cost without PCE (\$/kWh)	\$0.73

Housing Stock Estimates	Number of Units
All Housing	122
All Occupied Housing	106
All Vacant housing	16

OVERCROWDING & VENTILATION - Noatak CDP

Figure H5: Overcrowded Units

ACS

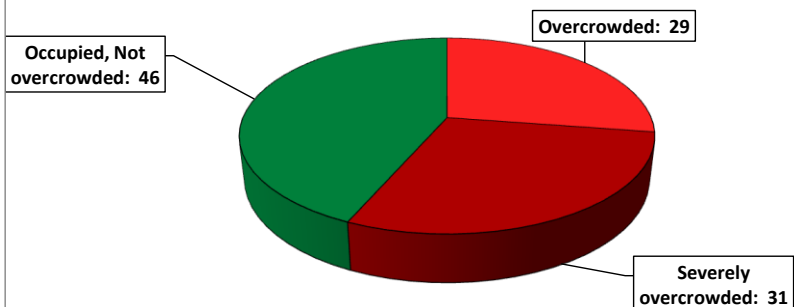


Figure H6: Housing Occupancy

MIX

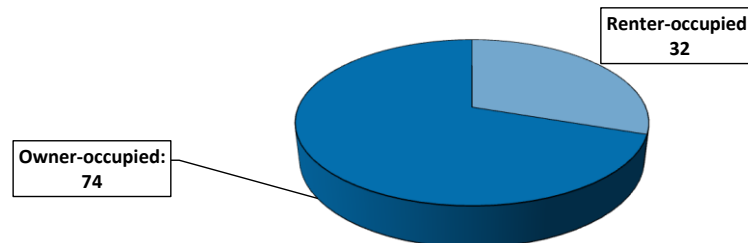


Figure H7: Average Air-Tightness of Current Homes by Decade Built

ARIS

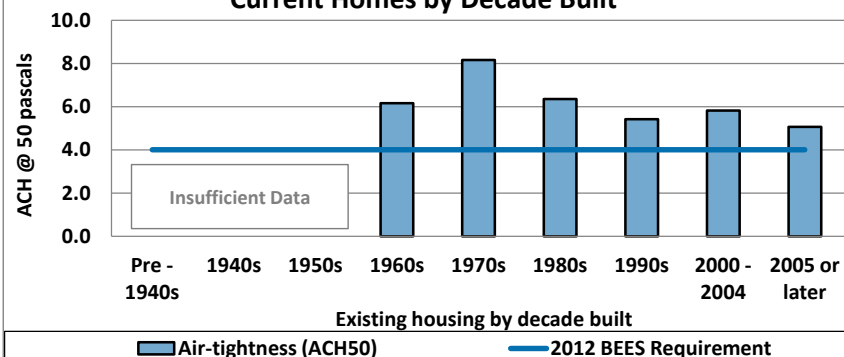


Figure H8: Existing Ventilation Type by Decade Built

ARIS

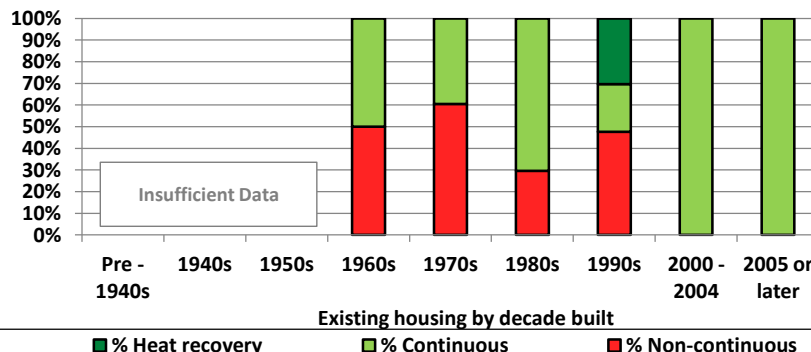


Figure H9: Percent of Housing Stock at High Risk of Moisture and Air Quality Problems

ARIS

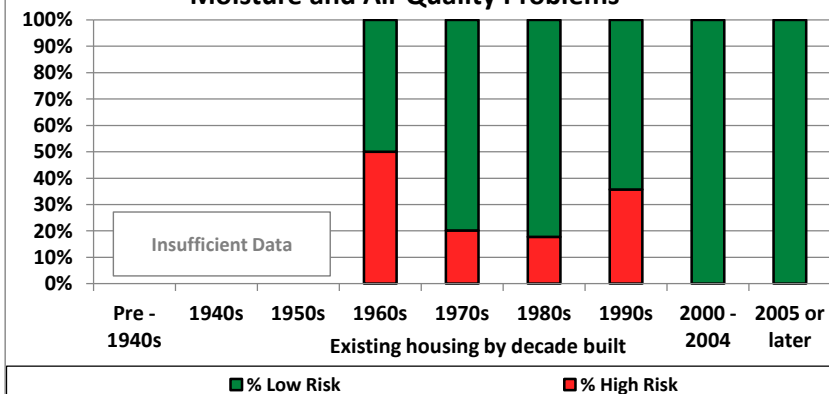
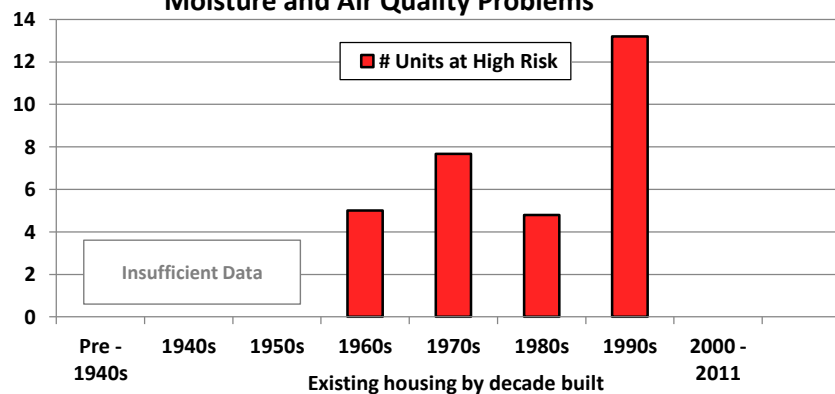


Figure H10: Quantity of Housing Stock at High Risk of Moisture and Air Quality Problems

ARIS



ENERGY - Noatak CDP												
Current Noatak CDP Housing Energy Characteristics By Decade Built												
Current Residential Units by Year Built	Number of Records	Avg Energy Rating Stars	Avg Energy Rating Points	Avg Sq. Feet	Avg. Annual Energy Cost (with PCE)	Avg. Annual Energy Use (million BTUs)	Avg Ann Energy by End Use (million Btus)			Avg. EUI (kBtus/SF)	Avg. ECI (\$ / SF)	Avg. Home Heating Index
							Space Heating	DHW	Appliances			
OVERALL	62	3-star plus	73.4	875	\$ 5,373	111	79	8	24	125	\$ 6.58	5.3
Pre- 1940	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1940- 49	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1950- 59	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1960- 69	8	3-star	72.1	832	\$ 5,272	97	75	0	22	117	\$ 6.34	5.5
1970- 79	26	2-star plus	60.2	751	\$ 5,150	145	123	0	22	191	\$ 6.80	10.0
1980- 89	37	4-star	78.2	854	\$ 5,214	104	65	15	25	125	\$ 6.28	4.7
1990- 99	33	4-star	82.3	1,010	\$ 5,123	90	60	8	23	92	\$ 5.33	3.5
2000- 2004	8	3-star plus	73.4	720	\$ 9,002	91	42	29	20	127	\$ 12.50	3.5
2005 or later	14	4-star	81.0	1,052	\$ 6,597	97	64	9	23	91	\$ 6.10	3.6

Figure H11: Current Average Energy Use Intensity and Average Square Footage by Decade Built

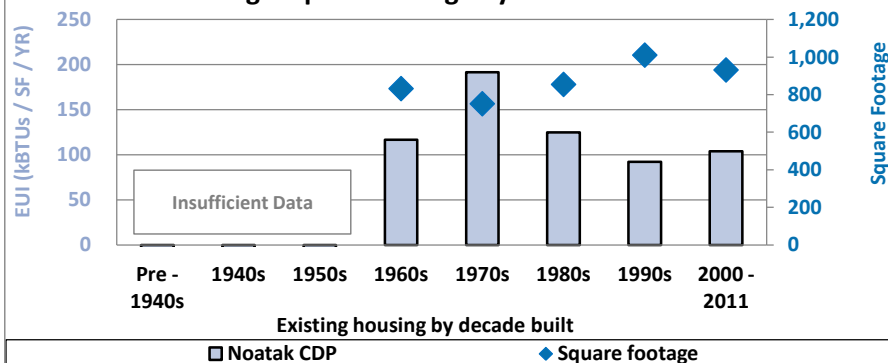
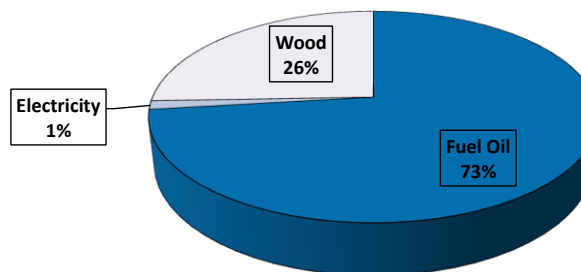


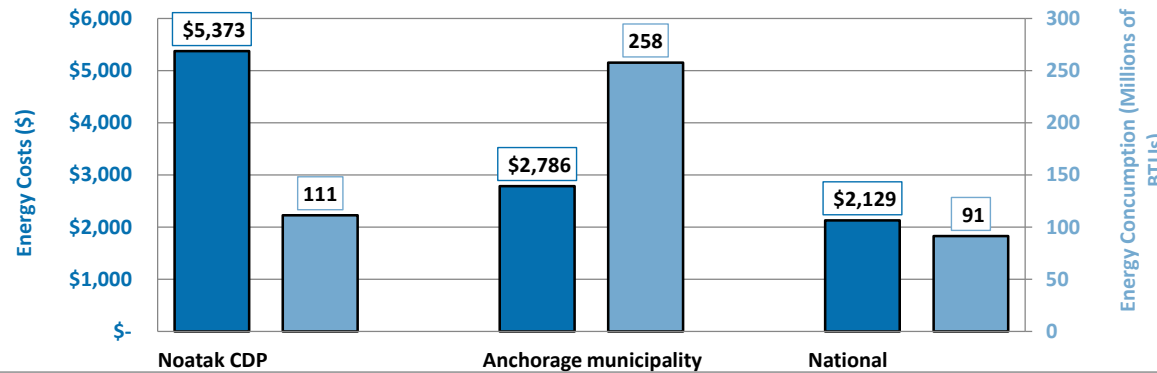
Figure H12: Percent of Total Residential Space Heating Energy by Fuel Type



Current Noatak CDP Housing Envelope Characteristics By Decade Built											
Current Residential Units by Year Built	Number of Records	ACH 50	Ceiling R	Above Grade Wall R	Below Grade Wall R	Above Grade Floor R	On Grade Floor R	Below Grade Floor R	Door U	Garage Door U	Window U
OVERALL	62	6.5	30	20	NR	33	NR	NR	0.40	NR	0.46
Pre- 1940	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1940- 49	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1950- 59	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1960- 69	8	6.2	NR	NR	NR	NR	NR	NR	NR	NR	NR
1970- 79	26	8.2	17	18	NR	26	NR	NR	0.52	NR	0.61
1980- 89	37	6.3	33	20	NR	34	NR	NR	0.37	NR	0.44
1990- 99	33	5.4	46	31	NR	38	NR	NR	0.39	NR	0.35
2000- 2004	8	5.8	NR	NR	NR	NR	NR	NR	NR	NR	NR
2005 or later	14	5.1	NR	NR	NR	NR	NR	NR	NR	NR	NR
BEES 2009 - Climate Zone 8		7.0	38	30	15	38	15	15	0.22	0.22	0.22
BEES 2012 - Climate Zone 8		4.0	48	30	15	38	15	15	0.22	0.22	0.22

AFFORDABILITY - Noatak CDP

Figure H13: Average Annual Home Energy Costs and Use



Housing Information	Avg Household Size (# of people)
All-occupied	5.0
Owner-occupied	5.2
renter-occupied	4.3

Owner-occupied House with Mortgage, Median Value	\$111,300
Owner-occupied House without a Mortgage, Median Value	\$101,300

Median Annual Household Income	
Housing Units	Household Income
All-occupied	\$ 61,875
Renter-occupied	\$ 48,750
Owner-occupied	\$ 66,250
w/ mortgage	\$ 65,938
w/o mortgage	\$ 70,250

	Median Housing Costs	
	Monthly	Annual
All-occupied	\$ 943	\$ 11,316
Gross rent	\$ 779	\$ 9,348
Owner-occupied	\$ 960	\$ 11,520
Housing units w/ mortgage	\$ 950	\$ 11,400
Housing units w/out a mortgage	\$ 969	\$ 11,628

Avg % of Median Income Spent on Energy	8.7%
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Figure H14: Affordability - Housing Costs as a Percent of Income

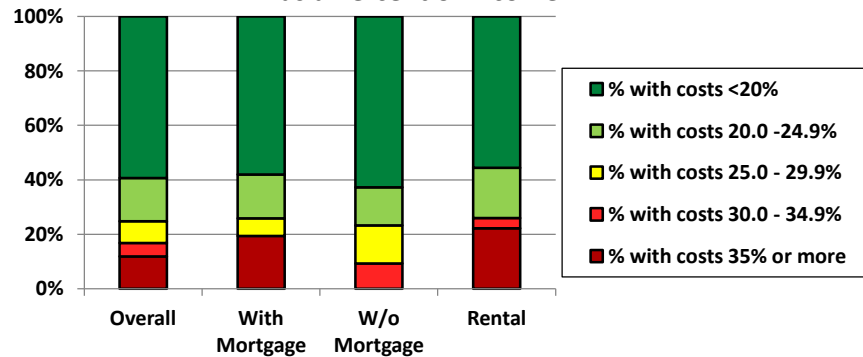
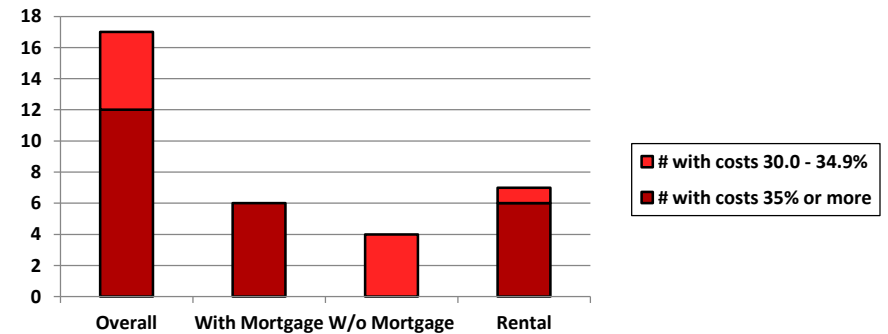


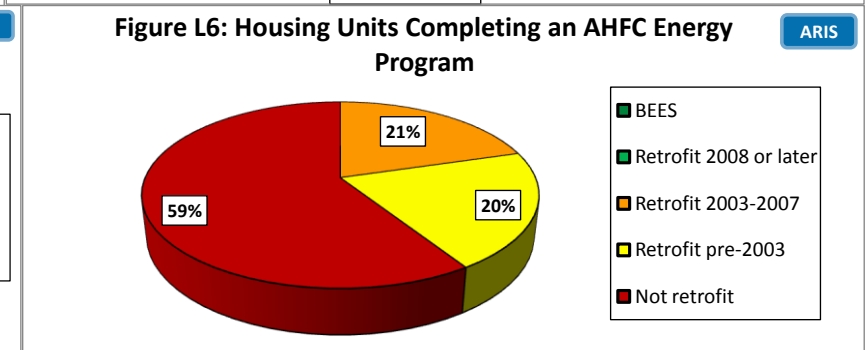
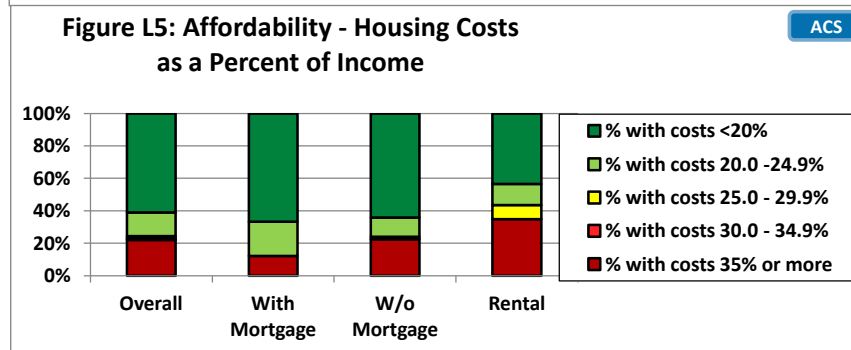
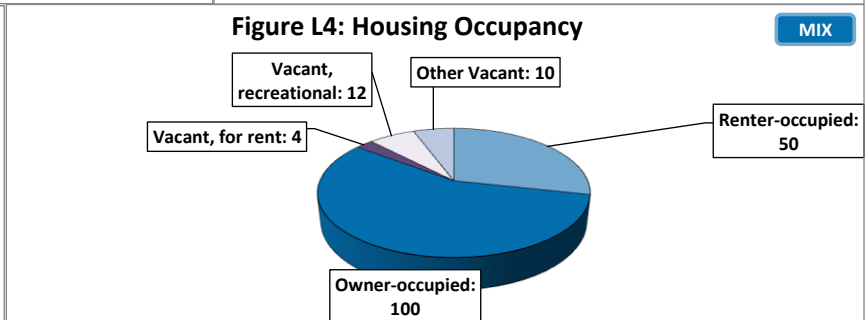
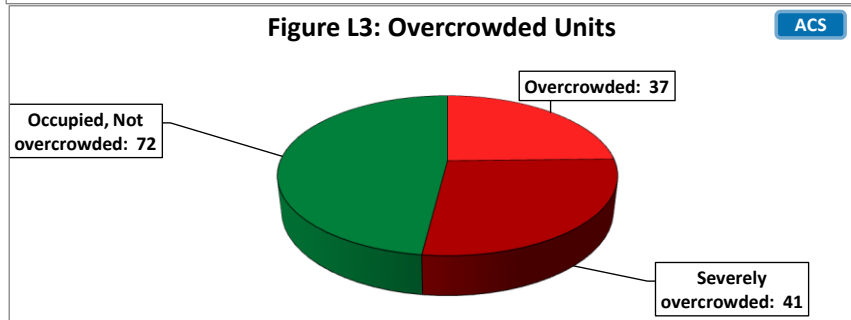
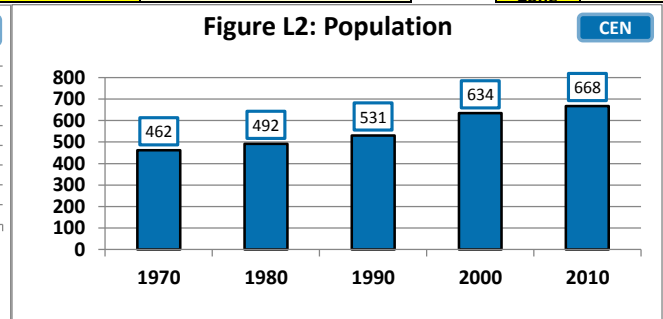
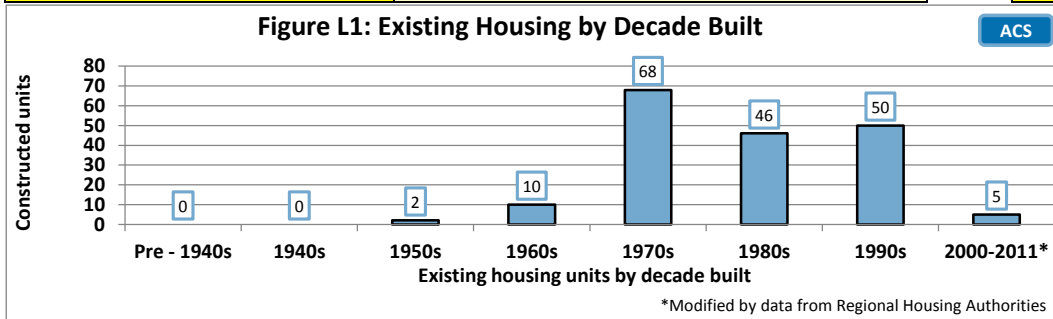
Figure H15: Number of Cost-Burdened Housing Units



Community Profile for: Noorvik city

ANCSA Region: Nana Regional Corporation

Climate Zone: 8



Owner-occupied House with Mortgage, Median Value
\$176,300

Owner-occupied House without a Mortgage, Median Value
\$78,300

Median Annual Household Income	
Housing Units	Household Income
All-occupied	\$ 53,889
Renter-occupied	\$ 51,667
Owner-occupied w/ mortgage	\$ 66,563
Owner-occupied w/o mortgage	\$ 53,194

Median Housing Costs		
	Monthly	Annual
All-occupied	\$ 675	\$ 8,100
Gross rent	\$ 863	\$ 10,356
Owner-occupied	\$ 635	\$ 7,620
Housing units w/ mortgage	\$ 830	\$ 9,960
Housing units w/out a mortgage	\$ 555	\$ 6,660

Estimated Energy Prices as of January 2013	
#1 Fuel oil cost (\$ / gallon)	\$ 6.00
Electricity with PCE (\$/kWh)	\$ 0.21
Electricity without PCE (\$/kWh)	\$ 0.61

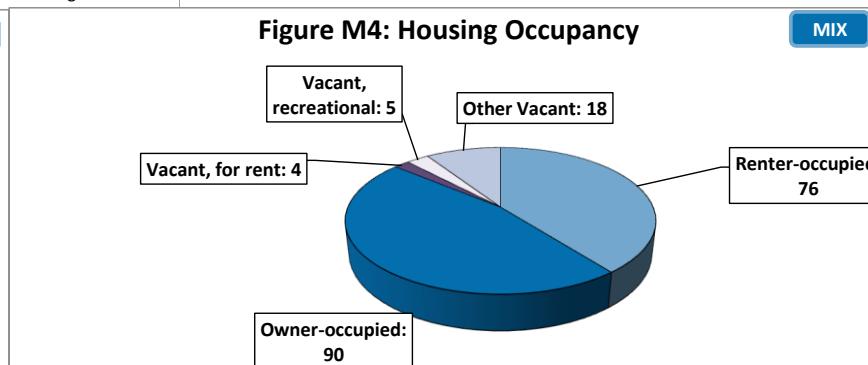
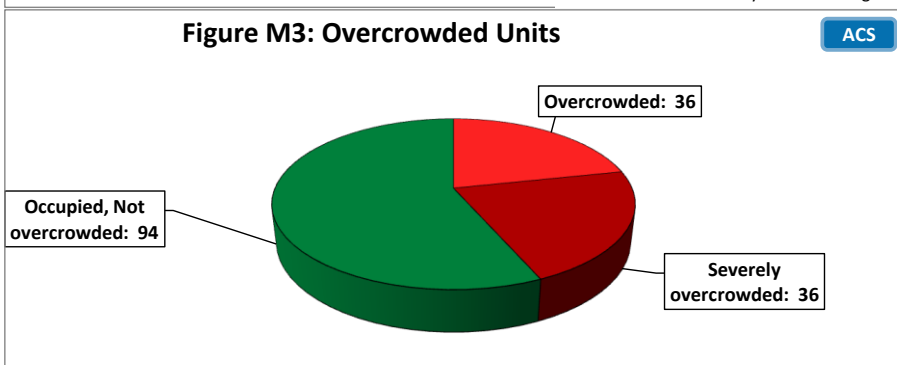
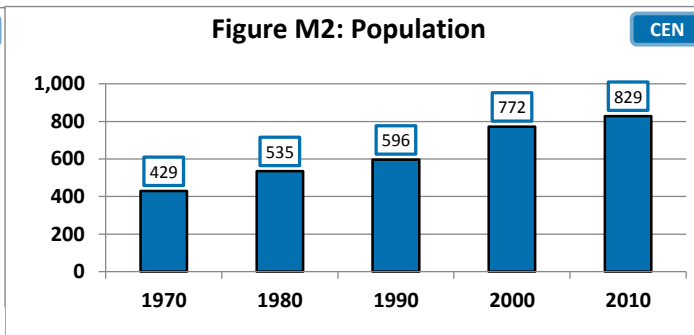
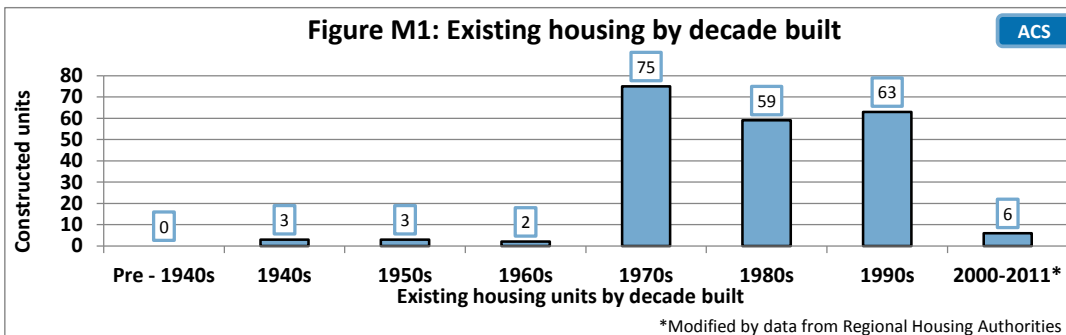
Housing Stock Estimates	Number of Units
All Housing	176
All Occupied Housing	150
All Vacant housing	26

Community Profile for: Selawik city

ANCSA Region: Nana Regional Corporation

Regional Housing Authority: Northwest Inupiat Housing Authority

BEES Climate Zone (Heating Degree Days): Zone 8 (16,827 HDD)



Selawik city Housing Energy Characteristics

Residential Unit Categories	Number of records	Avg Energy Rating Stars	Avg Energy Rating Points	Avg Sq. Feet	Avg. Ann Energy Cost	Avg. Ann Energy Use (million BTUs)	Avg. EUI (kBtus/SF)	Avg. ECI	Avg. Home Heating Index	% Tight Homes, No Ventilation
Pre-retrofit units	85	2-star	54.3	560	\$ 7,323	126	224	\$13.08	11.3	0%
Retrofit units	85	4-star	80.9	560	\$ 3,934	67	120	\$7.03	5.1	0%
New construction	0	NR	NR	NR	NR	NR	NR	NR	NR	NR

Selawik city Housing Envelope Characteristics

Residential Unit Categories	Number of Records	ACH 50	Ceiling R	Above Grade Wall R	Below Grade Wall R	Above Grade Floor R	On Grade Floor R	Below Grade Floor R	Door U	Garage Door U	Window U
Pre-retrofit units	85	11.6	NR	NR	NR	NR	NR	NR	NR	NR	NR
Retrofit units	85	5.5	NR	NR	NR	NR	NR	NR	NR	NR	NR
New construction	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

BEES 2009	7.0	38	30	15	38	15	15	0.22	0.22	0.22
BEES 2012	4.0	48	30	15	38	15	15	0.22	0.22	0.22

Figure M5: Average Annual Home Energy Costs and Use

MIX

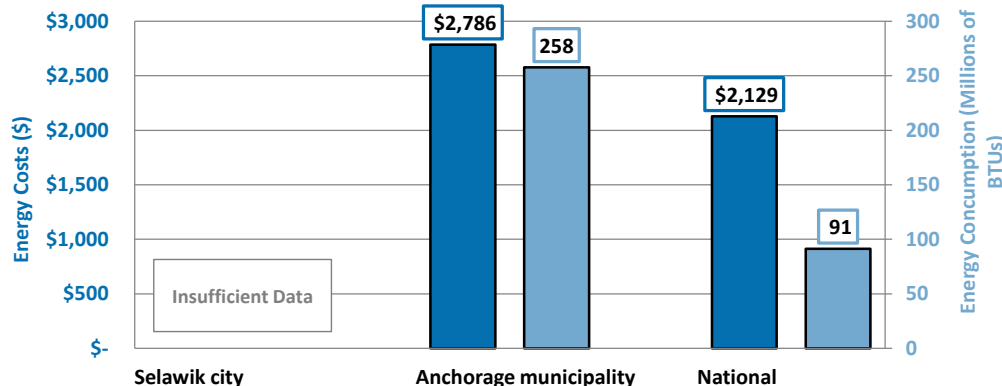
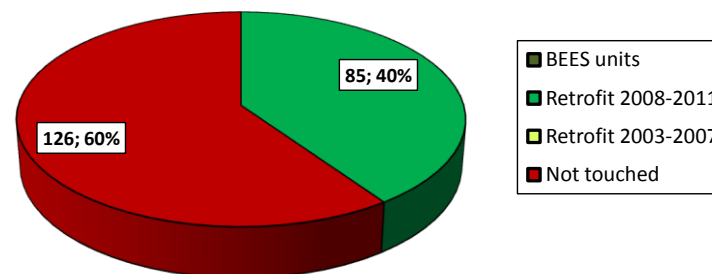


Figure M6: Housing Units Completing an AHFC Energy Program

ARIS



AFFORDABILITY - Selawik city

Owner occupied House with Mortgage, Median Value
\$112,500

Owner-occupied House without a Mortgage, Median Value
\$96,700

Estimated Energy Prices as of January 2013	
#1 Fuel oil cost (\$ / gallon)	\$ 7.42
Electricity with PCE (\$/kWh)	\$ 0.21
Electricity without PCE (\$/kWh)	\$ 0.56

Median Annual Household Income	
Housing Units	Household Income
All-occupied	\$ 36,875
Renter-occupied	\$ 37,000
Owner-occupied	\$ 36,667
w/ mortgage	\$ 64,000
w/o mortgage	\$ 30,625

Average Annual Energy Cost	
With PCE	NO PCE
Without PCE	\$7,926

Avg % Median Income spent on Energy	21.5%
-------------------------------------	-------

Median Housing Costs		
	Monthly	Annual
All-occupied	\$ 734	\$ 8,808
Gross rent	\$ 716	\$ 8,592
Owner-occupied	\$ 783	\$ 9,396
Housing units w/ mortgage	\$ 1,021	\$ 12,252
Housing units w/out a mortgage	\$ 693	\$ 8,316

Housing Stock Estimates	Number of Units
All Housing	193
All Occupied Housing	166
All Vacant housing	27
Vacant Housing for Sale/Rent	4

Figure M7: Affordability - Housing Costs as a Percent of Income

ACS

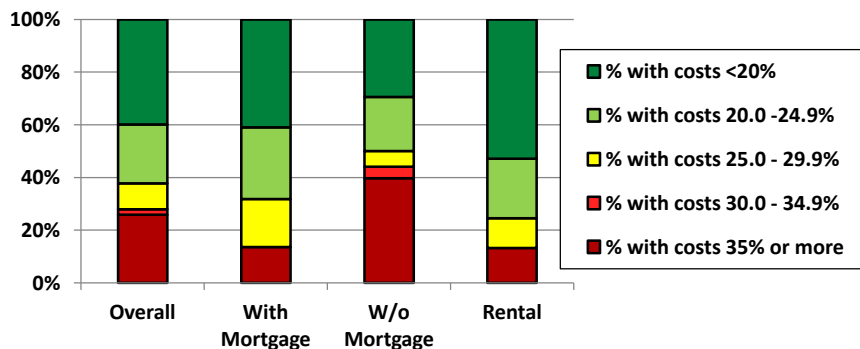
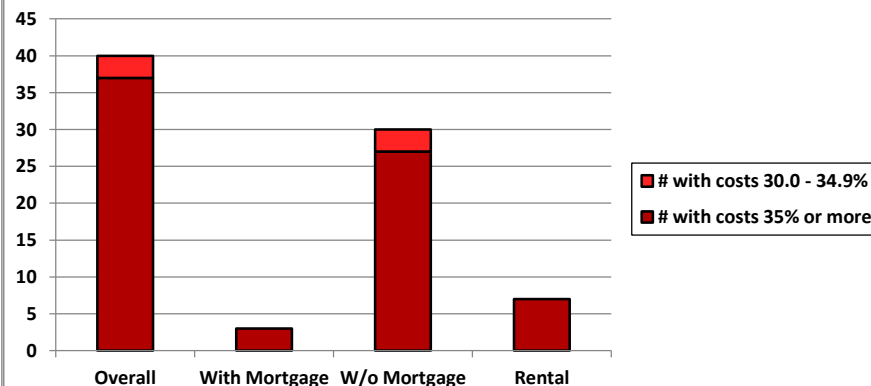


Figure M8: Number of Cost-Burdened Housing Units

ACS

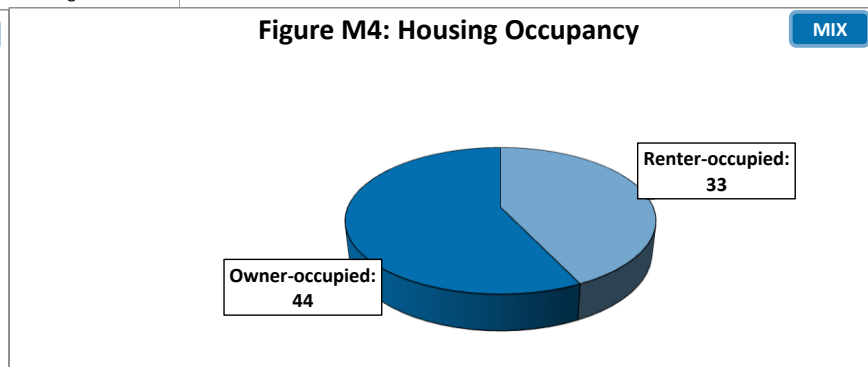
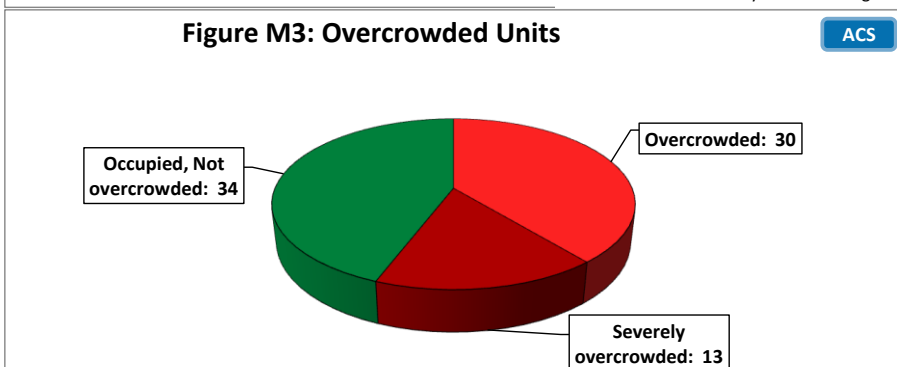
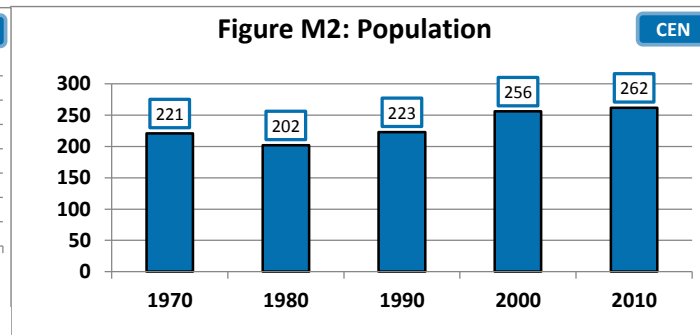
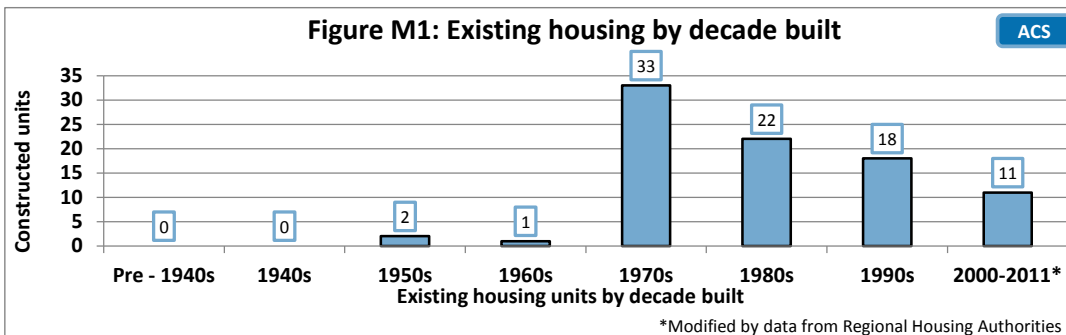


Community Profile for: Shungnak city

ANCSA Region: Nana Regional Corporation

Regional Housing Authority: Northwest Inupiat Housing Authority

BEES Climate Zone (Heating Degree Days): Zone 8 (15,586 HDD)



Shungnak city Housing Energy Characteristics

Residential Unit Categories	Number of records	Avg Energy Rating Stars	Avg Energy Rating Points	Avg Sq. Feet	Avg. Ann Energy Cost	Avg. Ann Energy Use (million BTUs)	Avg. EUI (kBtus/SF)	Avg. ECI	Avg. Home Heating Index	% Tight Homes, No Ventilation
Pre-retrofit units	14	2-star plus	64.6	827	\$ 7,023	127	180	\$7.96	8.9	50%
Retrofit units	0	NR	NR	NR	NR	NR	NR	NR	NR	NR
New construction	0	NR	NR	NR	NR	NR	NR	NR	NR	NR
Overall	14	2-star plus	64.6	827	\$ 7,023	127	180	\$7.96	8.9	50%

Shungnak city Housing Envelope Characteristics

Residential Unit Categories	Number of Records	ACH 50	Ceiling R	Above Grade Wall R	Below Grade Wall R	Above Grade Floor R	On Grade Floor R	Below Grade Floor R	Door U	Garage Door U	Window U
Pre-retrofit units	14	8.9	28	18	NR	26	NR	NR	0.39	NR	0.55
Retrofit units	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
New construction	0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Overall	14	8.9	28	18	NR	26	NR	NR	0.39	NR	0.55

BEES 2009	7.0	38	30	15	38	15	15	0.22	0.22	0.22
BEES 2012	4.0	48	30	15	38	15	15	0.22	0.22	0.22

Figure M5: Average Annual Home Energy Costs and Use

MIX

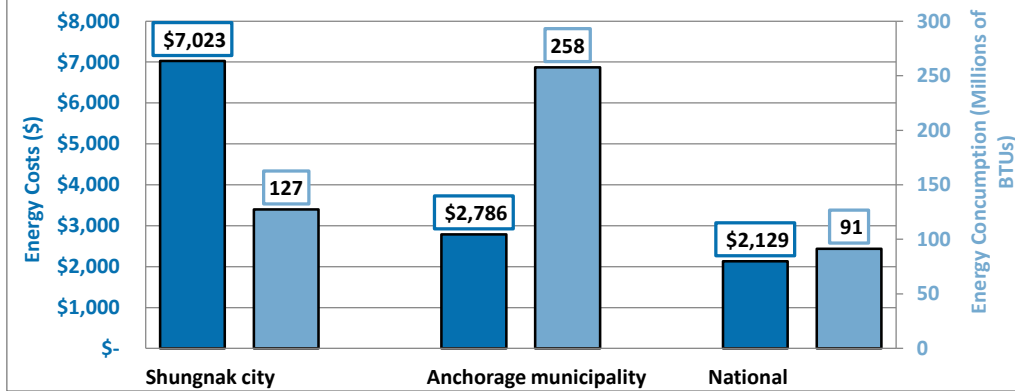
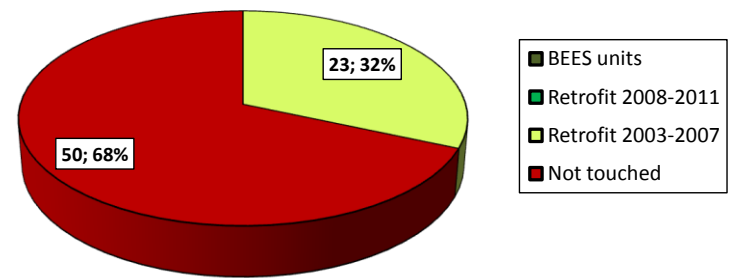


Figure M6: Housing Units Completing an AHFC Energy Program

ARIS



AFFORDABILITY - Shungnak city

Owner occupied House with Mortgage, Median Value
\$208,300

Owner-occupied House without a Mortgage, Median Value
\$129,500

Estimated Energy Prices as of January 2013	
#1 Fuel oil cost (\$ / gallon)	\$ 9.78
Electricity with PCE (\$/kWh)	\$ 0.21
Electricity without PCE (\$/kWh)	\$ 0.68

Median Annual Household Income	
Housing Units	Household Income
All-occupied	\$ 47,656
Renter-occupied	\$ 39,250
Owner-occupied	\$ 51,250
w/ mortgage	\$ 40,625
w/o mortgage	\$ 58,125

Average Annual Energy Cost	
With PCE	NO PCE
Without PCE	\$8,954

Avg % Median Income spent on Energy	18.8%
-------------------------------------	-------

Median Housing Costs		
	Monthly	Annual
All-occupied	\$ 856	\$ 10,272
Gross rent	\$ 1,225	\$ 14,700
Owner-occupied	\$ 800	\$ 9,600
Housing units w/ mortgage	\$ 825	\$ 9,900
Housing units w/out a mortgage	\$ 775	\$ 9,300

Housing Stock Estimates	Number of Units
All Housing	77
All Occupied Housing	77
All Vacant housing	0
Vacant Housing for Sale/Rent	0

Figure M7: Affordability - Housing Costs as a Percent of Income

ACS

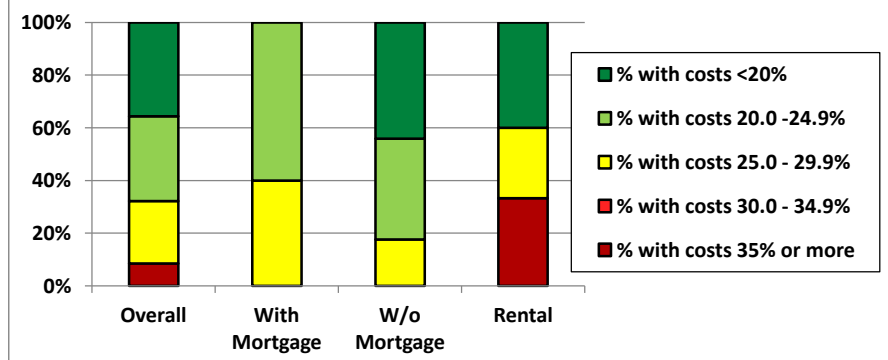


Figure M8: Number of Cost-Burdened Housing Units

ACS

