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GUAM HOUSING STUDY AND NEEDS ASSESSMENT

RFP#-GHURA-5-6-2019-CPD – January, 2020

Prepared for:

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January 16, 2020

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Subject: Guam Housing Study and Needs Assessment, 2019

Hafa Adai Mr. Topasna,

SMS Research & Marketing Services, Inc. and PCR Environmental, Inc. are pleased to present the Guam Housing Study and Needs Assessment, 2019. We believe the study has fulfilled the objectives GHURA set forth at its inception. It includes the description of Guam's current housing conditions, the prospects for growth in Guam's housing stock through 2040, and an exposition of the expected impact of a proposed military buildup on Guam between 2024 and 2026.

It has been a pleasure to work with you and your staff, the staff of several other Government of Guam agencies, and the many members of Guam's housing industry who have contributed selflessly to the project. We look forward to working with all of you in the process of introducing the study to the people of Guam.

Sincerely,

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PART I. INTRODUCTION

In May of 2019 the Guam Housing and Urban Renewal Authority (GHURA) released RFP#-GHURA-5-6-2019-CPD requesting proposals from qualified consultants to design and conduct a Housing Study and Needs Assessment for Guam. In a formal bidding process, GHURA selected SMS Research & Marketing Services, Inc. and PCR Environmental, Inc. to conduct the project. The study's purpose was to (1) identify Guam's present and future housing stock and to (2) identify strategies to produce housing stock affordable to all family income levels.

A. PURPOSE AND NEED

The fundamental purpose of the program was developed from GHURA's description of the project:

"To make good policy choices the island needs to better understand the local housing market."¹

The RFP described the general parameters of the project and listed several topics that were to be covered including existing housing conditions, present and future demographic and market trends, and identification of housing gaps and issues.

Guam has recently experienced growth in public and private, residential and other buildings and the infrastructure to support them. Well-known issues such as the proposed military build-up, a construction labor shortage, the exacerbating H-2B labor importing problems have combined to produce a construction slow-down that many believe has decreased the supply of affordable housing units. The supply issue had resulted in unmet demand and the consequent increase in housing prices. There is concern that the supply issue disproportionately affects the rental housing stock, causing significant increases in rents. Lower rental unit supply also disadvantages GHURA's most effective weapon against high rents, the Section 8 Voucher program. A shortage of Section-8-qualified units means voucher funds are less effective.

What is needed is to identify these and other issues in affordable housing on Guam, arrive at a broad understanding of how those issues affect housing problems on Guam, and to use the information to develop objectives, strategies, and action plans. We must develop "a reasonable prediction of future housing requirements (that) will support policy development to mitigate the impacts of a military buildup."²

The RFP required that the research include the study of the housing stock present and future, existing housing conditions, future housing conditions, existing market trends, future market trends, housing gaps, strategies to produce housing stock for all family income levels, and other policy-relevant housing issues.

¹ This is the underlying goal of the 2009 study: "Understanding Guam's current housing situation and developing a reasonable prediction of future housing requirements will support policy development to mitigate the impacts of a military buildup."

² Op.cit.

B. METHODS

Our methods were drawn from the RFP with an attempt to replicate part of the previous Comprehensive Housing Study conducted in 2009. The Guam Housing Study and Needs Assessment required a substantial effort to locate, assemble, and analyze large amounts of information on Guam's housing conditions. The study design made use of data from seven broadly defined collection efforts to develop four work products.

Data collection included three projects to gather secondary housing data: assembling existing housing data, reviewing policy papers, plans, and reports; and a literature search to provide information from published sources. Primary data collection efforts included a housing demand survey conducted among a sample of 360 Guam households, meetings to gather data from community members, a set of key informant interviews, a housing condition survey, and a housing inventory study to support efforts to estimate housing stock size and characteristics.

Information from these sources was analyzed in several phases to produce a description of current housing conditions in Guam (population, economic, housing policy, permitting procedures, and housing issues including homelessness, housing for the elderly, housing for disabled persons, and housing production; a housing demand analysis, and a comprehensive review of issues facing housing advocates and developers in 2019. A more detailed description of data collection and analysis methods has been prepared in the appendix, entitled "Guam Comprehensive Housing Study, 2009 - Technical Report".

Individual analysis plans were applied to the survey data collection plans mentioned above. Three other more complex analyses were performed. The first was a set of issues analyses on nine topics related to housing development (See 2.1). The second was a policy review analysis that considered laws, rules, and regulation and policies governing housing production on Guam. And the third was a funding analysis that looked at existing, future, and possible funding sources for developing affordable housing units.

C. STRUCTURE OF THIS REPORT

Part II presents the results of our investigation of Guam's present and future housing stock and its relationship to economic and demographic conditions in the Territory. It covers current economic conditions, population dynamics, current housing stock and housing production, and current housing demand for ownership and rentals housing units. It presents 20-year projections for housing demand, supply, and units needed to provide affordable housing for the major income groups defined by the United States Department of Housing and Urban Development (HUD).

Part III discusses a set of issues (2.1) that affect housing production and presents the result of our analysis of policies (2.2) and funding (2.3) that enable affordable housing production. Section 2.4 then presents the planning issues, objectives, strategies, and action plans for improving affordable housing production on Guam. The report finishes with an appendix to include methods, glossary, bibliography and data tables useful in understand the findings of this report.

PART II: GUAM'S PRESENT AND FUTURE HOUSING STOCK

The report begins with this section on the current and future conditions that make up the economic and demographic environment in which Guam's quest for more affordable housing begins. Existing conditions are treated first, followed by projected conditions over the next 20 years.

A. EXISTING CONDITIONS

Existing conditions covered here include an economic profile of Guam in the last ten years followed by a look at socio-demographic trends that comprise the reality in which the search for affordable housing will be carried out. The section covers population, housing stock, housing sales prices and rents, and the current state of demand for housing of different types on Guam.

1. Economic Profile

Guam's economy is driven primarily by two industries, military expenditures and tourism. Construction, which includes both public sector building, as well as business and residential building has had a major influence on the economy. This section will investigate Guam's Gross Domestic Product (GDP), income, jobs and employment, inflation and portents for the future of Guam's economy.

a. Gross Domestic Product

According to the Guam 2019 Comprehensive Economic Development Strategy (CEDS) prepared by the Guam Economic Development Authority, Guam's Gross National Product will see a continuation of moderate growth which has occurred every year since 2006. The CEDS refers to the Bureau of Economic Analysis (BEA) prepared current-dollar Gross Domestic Product (GDP) figures produced in 2017. More recent data from BEA³ suggest we should take a less optimistic view of the economy.

The Guam economic output declined a bit in 2018. More important, REAL GDP, which adjusts economic output for inflation, shows that output has been declining since 2015. In 2018, Real GDP fell to \$ 5.208 billion, resulting in the first negative growth figure since 2006 {Table 1}. Guam's economy, it would appear, has slipped from a slow growth profile to a slightly declining trend over the last four years.

³ Bureau of Economic Analysis 2019. Guam posts a negative GDP in 2018, US Department of Commerce, Bureau of Economic Analysis, November 9, 2018

Table 1: Guam's Gross Domestic Product, 2002-2017

	Nominal GDP		Real GDP		Construction Contrib.	
	Billions of U.S. dollars	% change	Billions of 2009 U.S. dollars	% change	Billions of 2009 U.S. dollars	% Change
2002	3.385		4.345			
2003	3.560	5.2%	4.385	0.9%		
2004	3.857	8.3%	4.667	6.4%		
2005	4.197	8.8%	4.832	3.5%		
2006	4.213	0.4%	4.647	-3.8%		
2007	4.375	3.8%	4.685	0.8%	0.304	
2008	4.621	5.6%	4.766	1.7%	0.360	18.4%
2009	4.781	3.5%	4.781	0.3%	0.360	0.0%
2010	4.895	2.4%	4.881	2.1%	0.402	11.7%
2011	4.928	0.7%	4.887	0.1%	0.396	-1.5%
2012	5.199	5.5%	4.986	2.0%	0.391	-1.3%
2013	5.336	2.6%	5.007	0.4%	0.431	10.2%
2014	5.538	3.8%	5.165	3.2%	0.440	2.1%
2015	5.710	3.1%	5.189	0.5%	0.414	-5.9%
2016	5.795	1.5%	5.204	0.3%	0.381	-8.0%
2017	5.851	1.0%	5.217	0.2%	0.369	-3.1%
2018	5.920	1.2%	5.203	-0.3%		
Average annual growth rates						
2002-2010	1.510	4.8%	0.536	1.5%	0.402	10.0%
2010-2014	0.643	3.1%	0.284	1.4%	0.038	2.4%
2015-2018	0.382	1.7%	0.038	0.2%	-0.071	-5.7%

Source: U.S. Department of Commerce, Bureau of Economic Analysis. October 2019

The construction industry's declining contribution to total economic output has led the way toward the recent economic slide. BEA's estimates of construction's part of GDP fluctuate a bit but show a general increase up through 2014. Thereafter, construction output declines every year through 2017. The construction industry on Guam includes elements for public sector, including military projects, and private sector, which includes business and residential construction. The 2018 BEA report indicates that the major decline in construction has been in the public sector; especially due to delays in the military and military-related projects. There have also been other public sector project delays, including the Guam Waterworks Authority (GWA) projects.

Our stakeholder interviews repeatedly mention that construction activity has been slower due to delays in the military build-up schedule and labor shortages. Many of those same informants suggest that delays in residential construction have been common in the last three or four years. GHURA has noted that affordable housing construction has been delayed for the same reasons, and HUD personnel have recognized that pressures on the construction industry work against affordable housing production on Guam.⁴ Hence, the declining economy and especially the decline in output of the construction industry is a factor in shortages of affordable housing on Guam.

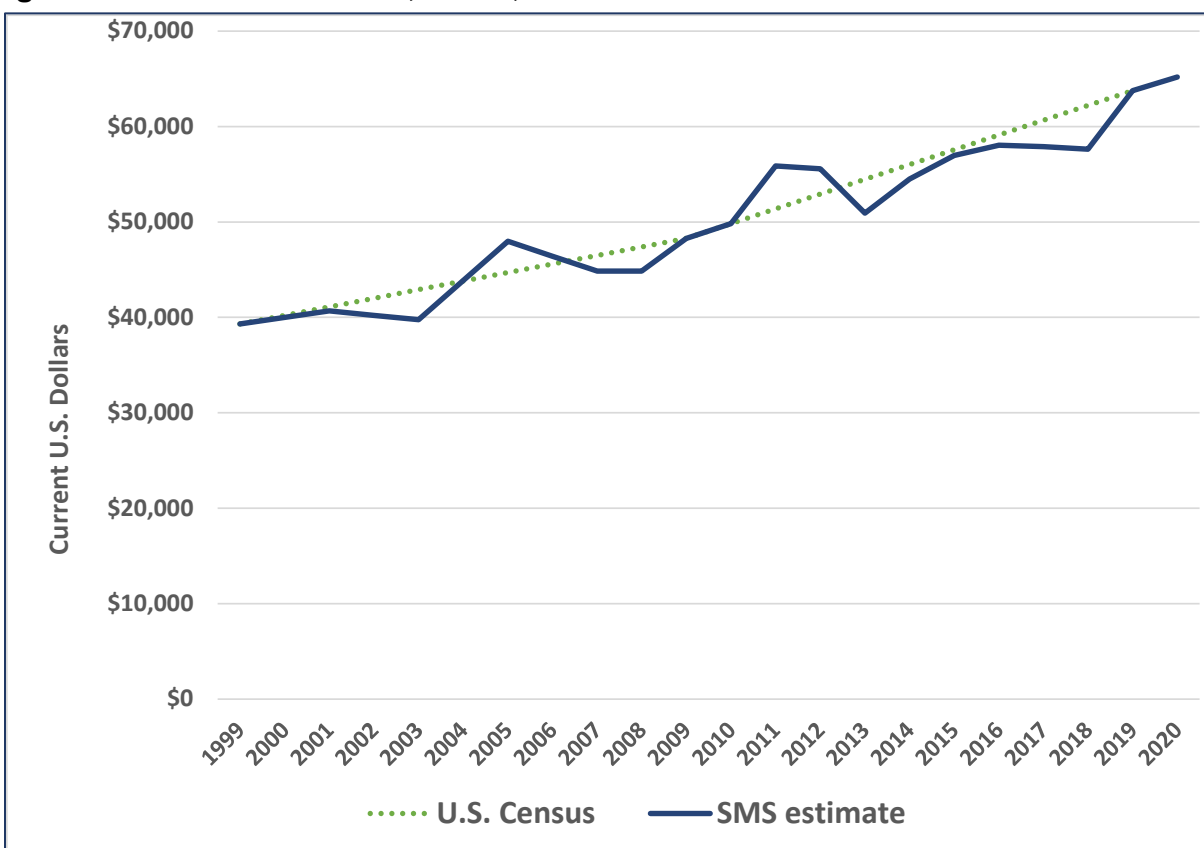
⁴ Guam Housing and Urban Renewal Authority. 2018, Annual Action Plan, June 30, 2018.

The main driver of Guam's economy is US national defense spending, followed closely by tourism and other services. Total federal spending amounted to \$1.988 billion in 2016, or 34.2 percent of Guam's GDP. Of that total, federal grants and cover-over payments amounted to \$3.4 billion, or 35.8 percent of Guam's total revenues for the fiscal year. Despite slow growth, Guam's economy has been stable over the last decade. National defense spending moderates the island's economy against fluctuations in tourism. Service exports, primarily spending by foreign tourists in Guam, amounted to over \$1 billion for the first time in 2016 and accounted for 17.8% of the GDP.

b. Household Income

The median household income on Guam was about \$63,000 in late 2019. That was up from about \$50,000 in 2010 and \$39,000 in 2000. Those figures are anchored in U.S. Census data. In intercensal years it is more difficult to estimate household income because the series available do not match Census data. Figure 1 presents SMS/PCR estimates for the years between 1999 and 2020.

Figure 1. Household Income, Guam, 1999-2020



The household income estimates were derived by analyzing data from the U.S. Census, the CDC Behavioral Risk Factors Surveillance Survey (BRFSS), the Guam Yearbook, Housing Demand Surveys for 2009 and 2019, and the GWA's Water Resources Master Plan Update 2018 to develop a data series that has the pattern of intercensal household income series and passes through the two decennial U.S. Census estimates and the most recent Housing Demand Survey.

The result shows a growth rate of approximately 2.5 percent per year between 2000 and 2010, increasing to about 3.0 percent per year between 2010 and 2019. The 2019 average household income of \$63,348 in 2019 is associated with a HUD's reported median income of \$62,600 for the same year.

In 2000, about 26 percent of Guam households had incomes below the poverty guideline. That number decreased to 19 percent in 2010. There is not enough data to estimate what poverty rates may be for 2019, but if household income figures continue to climb at rates above inflation, perhaps the poverty rate will be lower than 19 percent at the next census. Other indicators of income distribution also suggest that Guam may have less to worry about than other places in the U.S. We located Gini Scores for Guam in 2000 (.42) and 2005 (.36).⁵ Those were lower than the national average (.46 and .47 respectively) and suggest that Guam's income inequality is better than the national average and may be dropping.

In 2010, the average household income on Guam was \$54,499 for homeowners and \$29,026 for renters. That means that the average household owner income is 1.9 times greater than the average renter income. While that may seem high (or unfair), the average U.S. homeowner income is 2.1 times higher than the average renter household. Compare that with \$72,844 for homeowners and \$49,059 for renters in our 2019 demand survey, for a ratio of 1.5. That is notably more equitable than Guam's ratio in 2010. Overall, while Guam's household income is relatively low compared to the rest of the nation, Guam's income distribution is more equitable. There is a smaller gap between higher and lower income households than we find elsewhere in the U.S.

c. Employment

Civilian employment on Guam in 2018 was 65,110. Employment has been hovering between 61,200 and 65,500 since 2012. Three-quarters of the jobs (74 to 77%) are in the private sector. Roughly two-tenths of them (17 to 20%) are GovGuam jobs and the remainder (6 to 7%) are federal. Private sector employment slowly but steadily increased between 2012 and 2017 and then fell to zero in 2018.⁶

On the other hand, the unemployment rate has improved over the last seven years of available data. The recovery began after 2010, and unemployment dropped every year until 2018.⁷ The gain may not be statistically significant, but with other economic indicators slowing down, it could be a cause for concern.

Table 2: Unemployment Rate, Guam, 2010-2018

Year	Unemployment Rate
2010	8.2
2011	13.3
2012	12.2
2013	11.5
2014	7.6
2015	6.9
2016	5.4
2017	5.2
2018	5.6

⁵ Gini scores are a measure of income inequality by comparing the median household income for the highest and lowest quintiles of the income distribution. Gini is like a golf score – the lower the better.

⁶ Tables 16-05 and 16-06, Employees by Industry Based on Payrolls, Guam 2012 to 2018, Bureau of Labor Statistics, Guam Department of Labor, Government of Guam, 2018 and 2017 Guam Statistical Yearbook.

⁷ Guam Department of Labor 2019.

Local interpretation of the data suggests that unemployment will remain relatively low, with the major employment growth occurring in the private sector (2018 Guam Economic Report, p.8.). Many of the new jobs will be in the retail trade and service industries.

Between 2012 and 2018 employment in the construction industry has fluctuated between a high in 2013 of 7,120 and a low in 2014 of 6,070 paid employees (December of each year). In 2018 construction employment was at 6,500.

The average hourly earnings for non-salary private sector workers was \$12.37 in 2010 and grew to \$14.08 in 2018, an increase of 14 percent. For construction workers the increase has been more significant, earning \$14.18 an hour on average in 2010 increasing 19 percent to \$16.80 in 2018.⁸ This is likely an indicator of a tight labor market for construction due to the H2B Visa restrictions. Also, government funded construction projects are increasing, and they are required to pay Davis-Bacon level wages which are higher than local prevailing wages were in construction. This is also a factor contributing to the rising cost of construction overall.

The 2018 US Bureau of Labor statistics reported the average hourly earnings for non-salary private sector employees overall at \$23.09, 64 percent higher than the same rate in Guam. For construction workers the US rate was \$28.20, 68 percent higher than in Guam.⁹ Therefore while overall and construction hourly earnings have increased, they are still significantly lower than comparable earnings in the U.S.

d. Consumer Price Index

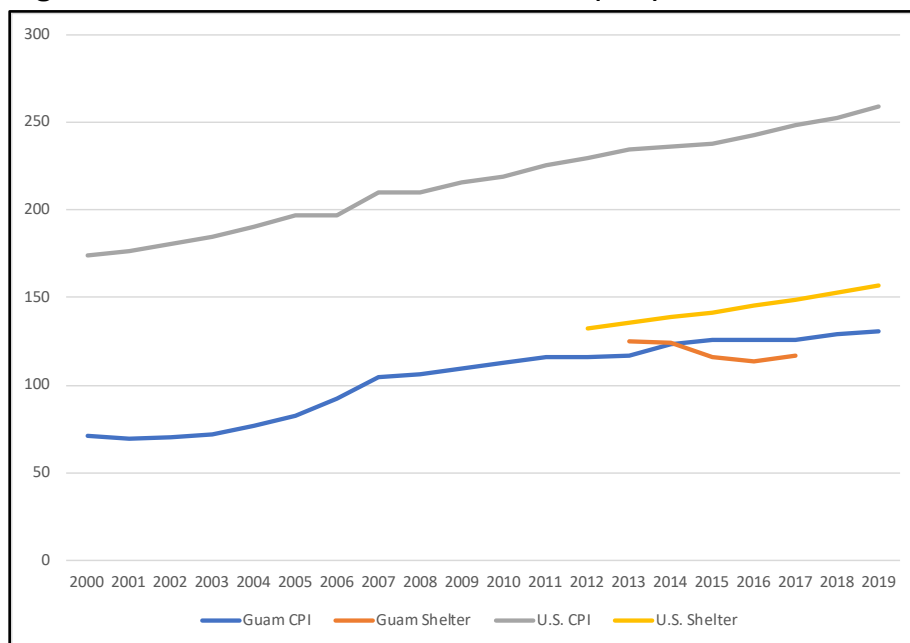
The consumer price index (CPI) for Guam has been rising at a steady rate since 2007 at a rate slower than for the national average. The rate of increase overall was about 2.0 percent per year. The BLS index year is 2006 and an index number of 100 means that prices have gone up by 100 percent (doubled) since that date.

Data for the shelter component the index covers housing costs but not fuels and energy consumption or household appliances or furnishings. It represents the payments for mortgage or rent. Data for the nation is shown after 2011 when there was a structural change in reporting housing data at BLS. In general, household expenditures for shelter were much lower than total expenditures and the rate of increase was very similar to all expenditures. On Guam the cost of living grew at a slightly slower pace between 2012 and 2019. Based on data from the Guam Databook, shelter costs decreased after 2012, and rose again after 2016.

⁸ Table 16-08 and 16-09 Average Hourly Earnings of Non-Supervisory Private Sector Workers, Guam: 2009 to 2018, Bureau of Labor Statistics, Guam Department of Labor, Government of Guam, 2018 & 2017 Guam Statistical Yearbook.

⁹ Table B-8 Average hourly & weekly earnings of production and non-supervisory employees or private non-farm payrolls by Industry, U.S. Bureau of Labor Statistics,

Figure 2. Guam Consumer Price Index (CPI) Guam, 2000-2017



Source: Table 5.03, Cost of Living Section, Business and Economic Statistics Program, Bureau of Statistics and Plans, Government of Guam. P. 63. U.S. and Guam 2018-19 from U.S. BLS, Databases, Tables & Calculators by Subject, Series CUSR00005SA0.

Guam's economy is therefore not troubled any more than other parts of the country and the shelter component of the cost of living is increasing somewhat slower on Guam.

e. Economic Forecast

According to the Guam 2019 Comprehensive Economic Development Strategy prepared by the Guam Economic Development Authority, Guam's Gross National Product will see a continuation of moderate growth which has occurred every year since 2006.

The economy's expansion is expected to be driven by expanding tourism arrivals and the related increase in visitor expenditures and its rebound in construction. The positive construction outlook is supported by the increased high value of building permits and the Department of Defense planned construction to support the troops and their dependents who will relocate from Okinawa to Guam.

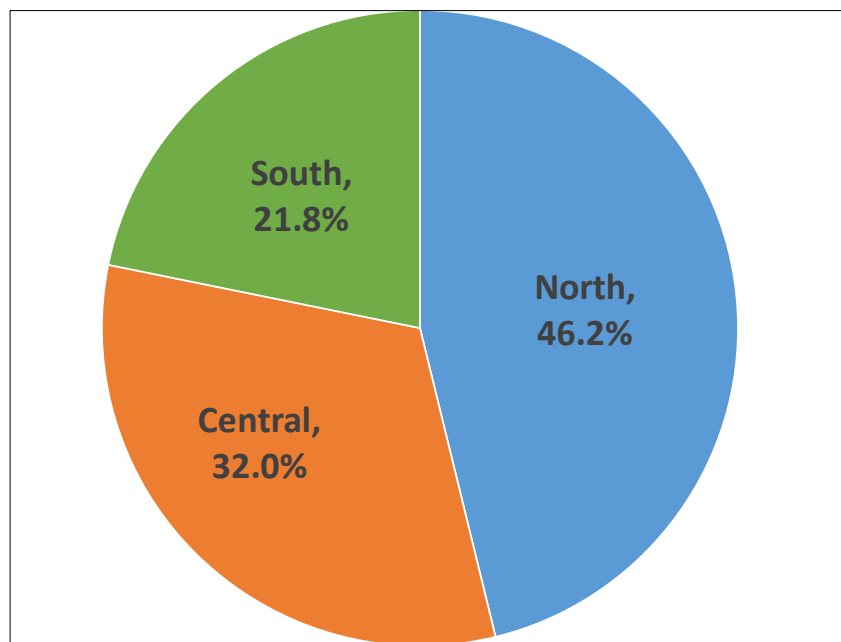
On May 16, 2019 the Activity Guam spokesman 1st Lt. Brett Lazaroff announced that the Marine Corps' Asia-Pacific realignment calls for 4,100 Okinawa-based Marines to be relocated to Guam, along with 900 others from elsewhere around the globe for a total of 5,000 Marines. Approximately 2,400 dependents will be accompanying the 5,000 Marines. The transfer of the III Marine Expeditionary Force is expected to begin during the first half of the fiscal year that begins in October 2024.

In December 2019, Guam's Department of Labor Chief Economist Gary Hiles was quoted as saying that the island's economy is slowly expanding and is becoming increasingly diverse, with little seasonal variation¹⁰.

2. Socio-Demographic Profile

The socio-demographic factors related to housing production are covered here. They include population and households, housing stock, housing production, housing prices, and current demand for new units.

Figure 3: Population Distribution, Regions of Guam, 2019



Source. Guam Housing Demand Survey, 2019.

a. Population and Households

Population is an important component in housing studies because population growth leads to the formation of new households¹¹. As new households are formed, additional housing units are needed to accommodate them. A comprehensive understanding of the population profile and its historical growth pattern is necessary to predict future population growth and the associated housing need.

¹⁰ Pacific Daily News. *Chamber forum: Economy growing, increasingly stable and diverse*. December 7, 2019.

¹¹ Household formation is a function of two factors: (1) natural increase (births minus deaths), and (2) net in-migration.

It is convenient to consider the population of Guam as being comprised of (1) the civilian population¹², (2) a group quarters population¹³, and (3) the military population. Adding the visitor component to these three population segments creates the *de facto*¹⁴ population. Unlike other places in the U.S., the military population has been an especially important component in Guam's population due to a substantial U.S. military presence since World War II. Recently the military components of Guam's population have been particularly important because of the pending rapid increase in military personnel and dependents resulting from the proposed relocation of U.S. Forces from Okinawa.

The most reliable data source on Guam's population is the United States Decennial Census. However, Census data are least effective in the ninth year of the decade. We therefore adopted other reliable sources that provide yearly population estimates. One of the sources is the Annual Guam Statistical Yearbook published by the Bureau of Statistics and Plans Office since 2004.¹⁵ Another source is the United Nations Population Division (UNPD)¹⁶, which also provides historical population series that runs from 1950 to 2019 and a long-range population projection up to 2100. These three sources together form the basis of historical population and population projections.

It should be noted that the Guam Waterworks Authority had also published a Water Resources Master Plan Update that provides a lot of historical population, military data, and their associated projections in 2018. While this report did not adopt their projections due to having a different objective, we took their projections into consideration while developing our estimates.

The historical population estimates presented in the above sources do not differ significantly. We adopted the Guam Statistical Yearbook (2000-2017) supplemented with the United Nations for historical data (1950-1999) primarily because the Guam Statistical Yearbook provides population estimates at the municipality level. It also maintains consistencies with other important demographic variables such as age, number of persons in household, number of households, and number of military personnel, etc. For the population projections, we adopted the projections from the Guam Statistical Yearbook for 2018 to 2020 and the projections from the United Nations for 2021 to 2040.

¹² That portion of the resident population that is not a member of the U.S. armed forces.

¹³ Persons residing in institutionalized or other non-household housing units.

¹⁴ The resident population plus persons who are temporarily residing in the Territory, minus residents who are temporarily absent from the Territory.

¹⁵ Guam Yearbook, 2017, see also the brochure the "Social and Economic Indicators" published by Guam's Bureau of Statistics and Plans.

¹⁶ United Nations Department of Economic and Social Affairs, Population Division, *World Population Prospects 2019, Online Edition*.

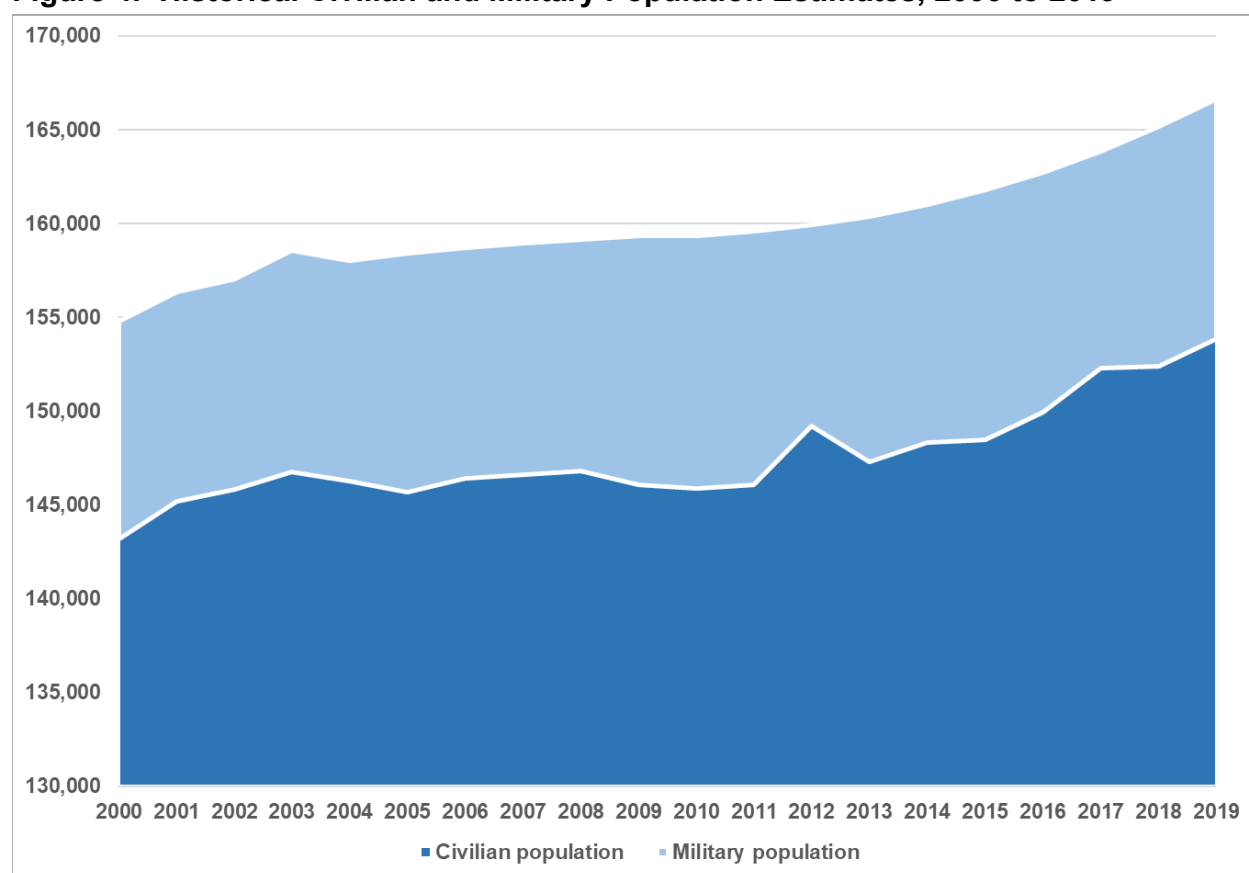
Table 3: Guam Historical Population and Households 2000 to 2019

	Population						Households	
	Historical pop.	Pct. Chg.	Civilian pop.	Pct. Chg.	Military pop.	Pct. Chg.	Number of households	Pct. Chg.
2000	154,805	N/A	143,181	N/A	11,624	N/A	38,769	N/A
2001	156,336	1.0%	145,183	1.4%	11,153	-4.1%	39,095	0.8%
2002	157,061	0.5%	145,814	0.4%	11,247	0.8%	39,420	0.8%
2003	158,577	1.0%	146,745	0.6%	11,832	5.2%	39,746	0.8%
2004	158,025	-0.3%	146,266	-0.3%	11,759	-0.6%	40,072	0.8%
2005	158,397	0.2%	145,696	-0.4%	12,701	8.0%	40,398	0.8%
2006	158,711	0.2%	146,400	0.5%	12,311	-3.1%	40,723	0.8%
2007	158,966	0.2%	146,630	0.2%	12,336	0.2%	41,049	0.8%
2008	159,170	0.1%	146,806	0.1%	12,364	0.2%	41,375	0.8%
2009	159,323	0.1%	146,070	-0.5%	13,253	7.2%	41,700	0.8%
2010	159,358	0.0%	145,899	-0.1%	13,459	1.6%	42,026	0.8%
2011	159,598	0.2%	146,076	0.1%	13,522	0.5%	42,366	0.8%
2012	159,915	0.2%	149,211	2.1%	10,704	-20.8%	42,710	0.8%
2013	160,379	0.3%	147,308	-1.3%	13,071	22.1%	43,055	0.8%
2014	161,001	0.4%	148,347	0.7%	12,654	-3.2%	43,404	0.8%
2015	161,785	0.5%	148,459	0.1%	13,326	5.3%	43,756	0.8%
2016	162,741	0.6%	149,934	1.0%	12,807	-3.9%	44,410	1.5%
2017	163,873	0.7%	152,314	1.6%	11,559	-9.7%	44,467	0.1%
2018	165,178	0.8%	152,388	0.0%	12,790	10.6%	45,213	1.7%
2019	166,661	0.9%	153,842	1.0%	12,819	0.2%	45,645	1.0%
Change 2010-2019		4.6%		5.4%		-4.8%		8.6%

Source: Guam Statistical Yearbook 2008 to 2017, "Social and Economic Indicators" Summary Brochure 2008 to 2017, SMS Estimates.

According to the Guam Statistical Yearbook and the U.S. Census, residential population was 159,358 on Guam in 2010. The resident population defined here includes civilian population, group quarters population, and military population. In 2019, the resident population was estimated at 166,661, an increase of approximately 4.6 percent since 2010. Of the 166,661 people, 153,842 were civilian and the rest of 12,819 people were military personnel and their dependents. Compared to 2010, the civilian population had increased by 5.4 percent in 2019. The military population, however, has been fluctuating over the past 9 years and declined by 4.8 percent since 2010. Given an increased population on Guam, it follows naturally that more new households were formed with military and civilian increasing at different rates of growth.

Figure 4: Historical Civilian and Military Population Estimates, 2000 to 2019



Source: Guam Statistical Yearbook 2008 to 2017, U.S. Census 2000 and 2010, "Social and Economic Indicator" Summary Brochure, SMS Estimates.

According to the U.S. Census, a household includes all person who occupy a housing unit as their usual place of residence. The number of households can be obtained by dividing the persons in household¹⁷ on Guam by the average household size.¹⁸ The "Social and Economic Indicators" summary indicates there were 44,467 total households on Guam in 2017 in Table 4. Compared to 44,410 total households in 2016, the net increase was only 57 households (0.13%). In 2019, the number of total households was estimated at 45,645 without military buildup. That was an estimated increase of 2.6 percent since 2017. Of the 45,645 households in 2019, 39,740 households (87.1%) were classified as civilian households and the remaining 5,905 households (13.7%) were classified as military households. Persons who lived in institutionalized, non-institutionalized, and/or military quarters were not included as part of persons in households. In 2019, it was estimated that 160,136 persons (96.1%) lived in households and the remaining 6,525 persons (3.9%) lived in group quarters. Of those 6,525 persons, approximately 1,298 persons (19.9%) lived in military quarters and 5,227 civilian persons (80.1%) lived in either institutionalized and/or non-institutionalized group quarters.

¹⁷ Persons in households is the total population in occupied housing units.

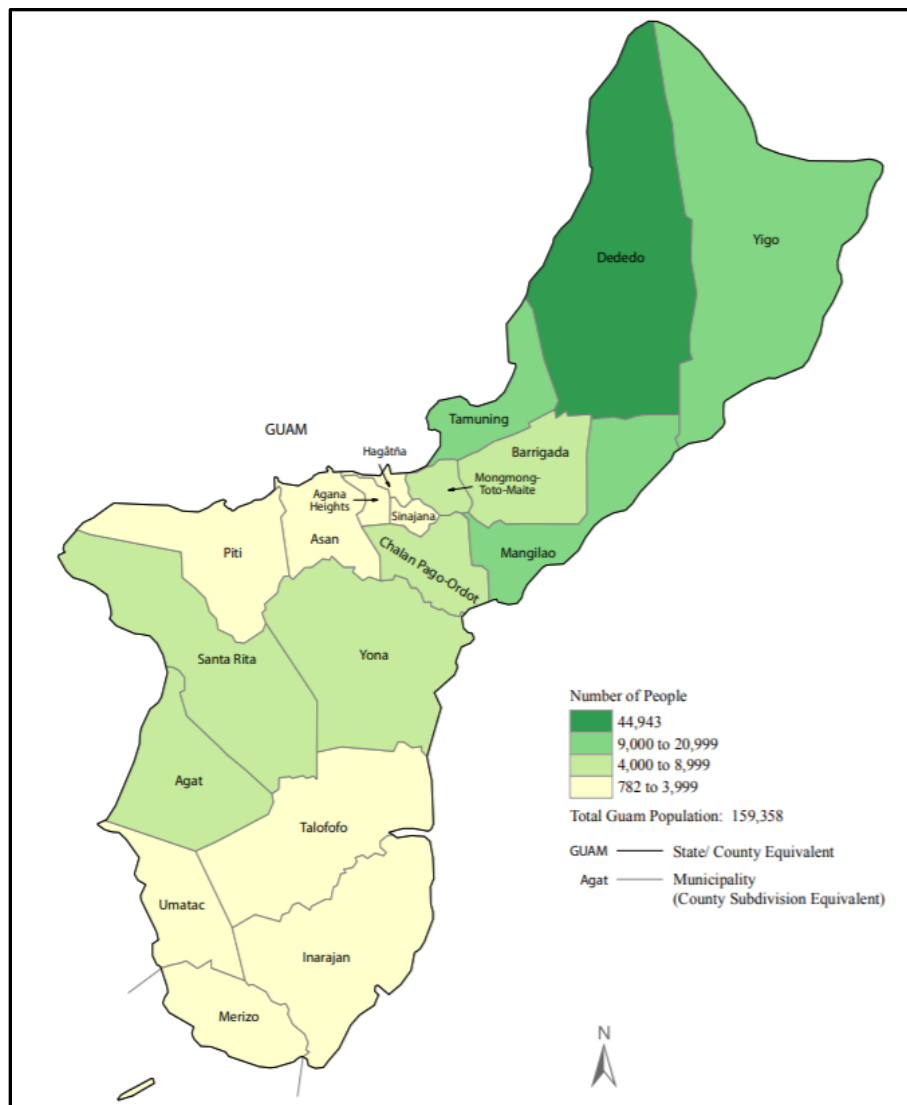
¹⁸ Persons per household, or average household size, is obtained by dividing the number of persons in households by the number of households:

b. Population Distribution

It is useful to consider Guam as being divided into three regions, a North region, Central region, and South region. These regions consist of the municipalities listed below.

Regions	Municipalities
North region	Dededo, Yigo, Tamuning
Central region	Barrigada, Mongmong-Toto-Maite, Chalan Pago-Ordot, Mangilao, Piti, Hagåtña (formerly Agana), Agana Heights, Asan-Maina, Sinajana
South region	Agat, Santa Rita, Yona, Merizo, Umatac, Inarajan, Talofofo

Figure 5: Municipalities by Region, Guam, 2010



Source: Decennial Census, 2010.

Based on the Guam Statistical Yearbook, the North region had slightly more than half of Guam's population (53.4%) in 2019. That was equivalent to 89,069 persons. The Central region had about 30.6 percent (50,990 persons), and the South region had 16 percent (26,602 persons) of Guam's population.

Within the North region, Dededo municipality had more than double the population (47,002, 53%) than that of Yigo (21,480, 24.1%) and Tamuning (20,587, 23.1%) in 2019. It was also the most populous municipality among all 19 municipalities on Guam. The Naval Communications and Telecommunications (NCTS) Finegayan, part of Navy Base Guam and Andersen Air Force Base are both located in the North region.

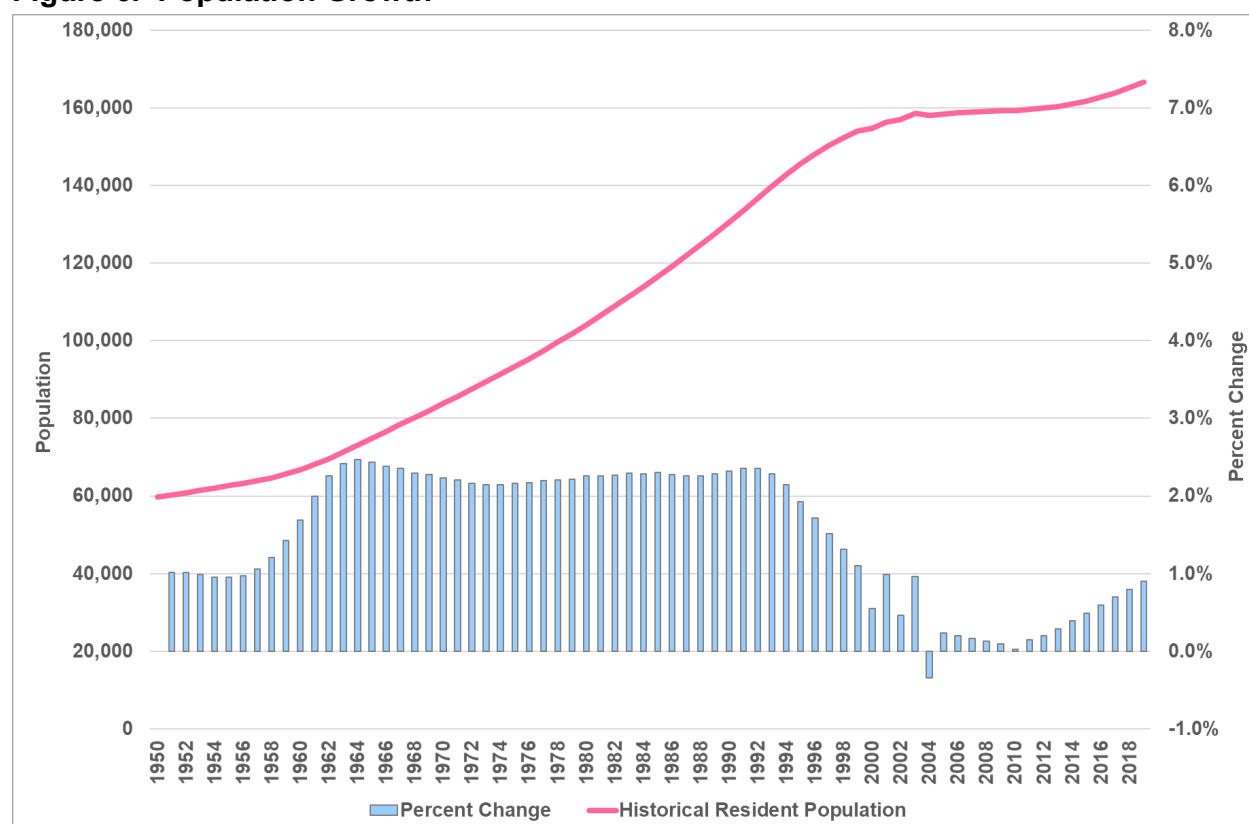
Mangilao municipality had the most population followed by Barrigada municipality within the Central region. In 2019, about 15,887 people (31.2%) and 9,282 people (18.2%) resided in Mangilao and Barrigada municipality, respectively. Mongmong-Toto-Maite (7,138, 14%) and Chalan Pago-Ordot (7,135, 14%) municipality, on the other hand, had about similar population sizes.

The South region is the most rural and suburban area on Guam. It had the lowest population density among all three regions. In 2019, the most populous municipalities in the South region were Yona (6,777, 25.5%) and Santa Rita (6363, 23.9%) municipality. The least populous municipality was Umatac, it was home to about 818 people (3.1%) in 2019.

c. Population Growth

Figure 5 shows the historical population from 1950 to 2019. Between 1950 to 1960, Guam's population increased steadily from 59,653 to 66,733 persons, with an average annual growth rate at 1.1 percent. In the following 40 years from 1960 to 2000, Guam's population doubled. It rose substantially from 66,733 to 154,805 - an average annual growth rate at 2.1 percent. Between 2000 to 2010, however, there was a significant slowdown and population only increased from 154,805 to 159,358 persons, a net gain of 4,553 persons in 10 years. The average annual growth rate in that decade was estimated at 0.3 percent and remained stable at 0.4 percent during the time period of 2010 to 2017.

Figure 6. Population Growth



Source: Guam Statistical Yearbook 2008 to 2017, U.S. Census 2000 and 2010, "Social and Economic Indicator" Summary Brochure, SMS Estimates.

d. Migration

The 2013 Migration Profile for Guam produced by the United Nations, indicates that both a reduction in the annual rate of natural increase and a negative net migration rate led to Guam's declining population rate of growth from 1995 – 2020 as shown in Table 5.

Table 4: Rate of Population Change by Component, Guam, 1995-2020

	1995 – 2000	2005-2010	2010 -2015	2015-2020
Annual rate of natural increase*	18.45	13.61	12.69	11.94
Crude net migration rate*	-5.47	-12.30	00	00

* Per 1,000 Population

Source. Guam Migration Profiles, United Nations, Department of Economic and Social Affairs, Population Division (2013).

The top countries of migrant origin are the Philippines, the United States and the Federated States of Micronesia. The top countries of migrant destination are the Philippines, the Northern Mariana Islands and the Federated States of Micronesia.

In this report the projected crude net migration rate through 2050 was zero, expecting in-migration to equal outmigration. The annual rate of natural increase was expected to continue declining to 4.67 per 1,000 population between 2045 and 2050.

3. Housing Stock

In this section, we review the number of housing units, housing stock, occupied housing units, vacant housing units, and their characteristics. We also review the rate of growth in Guam's resident housing stock.

There were 55,562 housing units on Guam in 2019.¹⁹ Compared to the Census 2010, total housing units increased by 9.9 percent over the past nine years. By the Census definition, total housing units include all units that are either available for occupancy as owned units or long-term rental accommodations. It excludes dormitories, bunkhouses, military barracks, general hospitals, military installations, and all types of short-term rentals such as transient hotels, motels, and timeshare units.

The total housing units include occupied housing units and vacant housing units. Occupied housing units are units that are either owner- or renter-occupied by a single individual, or group of related or unrelated people. By Census convention, the number of occupied housing units is always equivalent to the number of households. The vacant housing units include some units that are available for use in Guam's housing market and those that are not available, a subject we will return to shortly.

Housing stock is the number of housing units that are available for use by Guam's resident population, units that are part of the Guam housing market. The size of total housing stock is always less than the total housing units because it excludes units that are classified by the Census as vacant and unavailable to the housing market. Unavailable units include vacant and unavailable for use by migrant works, held for seasonal or occasional use, and "other vacant" units.

The formal definition of housing stock is the sum of occupied housing units plus vacant and available units²⁰. As seen in Table 6, among the 55,562 total housing units in 2019, 50,402 units (90.7%) were available to the Guam's housing market. Of the 50,402 units, approximately 45,645 housing units (90.1%) were occupied housing units and 4,757 housing units (8.6%) were vacant and available. The remaining 5,161 units (9.3%) were vacant but unavailable to the housing market, which were not part of the housing stock.

Within the occupied housing units, it is estimated that the ratio of owner-occupied and renter-occupied was about fifty-fifty in 2019. According to the Behavioral and Risk Factor Surveillance System Guam Survey (BRFSS), the ratio of owner-occupied to renter-occupied housing units has been relatively stable within the margin of 49.4 percent to 50.1 percent over the past eight years on Guam. In the absence of the scheduled military buildup and an abrupt increase in net-migration, it is expected that the ratio will continue to exhibit a similar pattern.

¹⁹ SMS estimate.

²⁰ Vacant for sale, vacant for rent, and sold or rented units not yet occupied.

Table 5: Housing Units Types and Housing Stock by Year, Guam, 2010 – 2019

Housing Unit Types	2010	Percent	2019	Percent	Percent Change
Total Housing Units	50,567	100.0%	55,562	100.0%	9.9%
Occupied Housing Units	42,026	83.1%	45,645	82.2%	8.6%
Owner-occupied	21,139	41.8%	22,823	41.1%	8.0%
Renter-occupied	20,887	41.3%	22,822	41.1%	9.3%
Vacant Housing Units	8,541	16.9%	9,918	17.8%	16.1%
Vacant and Available	4,464	8.8%	4,757	8.6%	6.6%
For sale only	349	0.7%	399	0.7%	14.2%
For rent	3,781	7.5%	4,033	7.3%	6.7%
Sold, rented, not occupied	334	0.7%	325	0.6%	-2.8%
Vacant and Unavailable	4,077	8.1%	5,161	9.3%	26.6%
Vacant for agricultural use	11	0.0%	13	0.0%	19.2%
Vacant for seasonal use	411	0.8%	557	1.0%	35.5%
Other Vacant	3,655	7.2%	4,591	8.3%	25.6%
Housing Stock	46,490	91.9%	50,402	90.7%	8.4%

Source: U.S. Census 2010, Guam Statistical Yearbook 2008 – 2017, “Social and Economic Indicator” Summary Brochure, BRFSS 2011-2018, SMS estimates. Figures for 2019 were estimated.

Of the 9,918 total vacant housing units, 4,757 units (48%) were estimated to be vacant and available. These include units that were either for sale, for rent, or already rented or sold but not yet occupied. In 2010, vacant and available units accounted for 52.3 percent of all the vacant housing units on Guam. In 2019, this has declined somewhat to 48 percent of all vacant units. Vacant and available units, along with occupied housing units, make up Guam’s housing stock.

The rest of the vacant housing units (5,161 units) were considered vacant and unavailable. These units were not available to Guam residents and were not considered part of the housing stock. Vacant and unavailable units can be categorized as (1) vacant for agricultural use, (2) vacant for seasonal use, and (3) other vacant. “Seasonal” units are typically vacation rentals or units kept off the market for weekend or occasional use throughout the year.

Units classified as “other vacant” were the most significant component within Guam’s vacant and unavailable category (89%). These vacant units are usually held for various reasons such as estate settlement, foreclosure, personal reasons, legal proceedings, or renovation. The percentage of vacant units that were unavailable for residential use increased from 47.7 percent in 2010 to 52 percent in 2019. While the total number of housing units increased by 9.9 percent between 2010 and 2019, the percentage of housing units available for use by Guam’s residents decreased to 8.4 percent.

Identifying whether the current Guam's housing market is under or over supplying housing units and whether future housing units will continue to support the growing population is a central objective of this study. Table 6 shows that the rate of growth between 2010 and 2019 was 8.4 percent for households. The fact that households grew faster than population suggests that household size must have decreased between 2010 and 2019. We also see that, while total housing units grew by 9.9 percent, the number of occupied units grew by 8.6 percent and vacant units grew by 16.1 percent. A substantial amount of housing production during the most recent decade went to vacant units. Vacant and available units grew by 6.6 percent, less than the rate for occupied units. That suggests that vacancy rates within the housing market were lower in 2019 than they were in 2010. On the other hand, growth among vacant and unavailable units grew by 26.6 percent during the last decade. The largest growth rate was for seasonal units, which might be a result of more units going from the resident housing market to visitor accommodations. The number of those units was about 557 in 2019, only about one percent of total units. The larger problem would be the 25.6 percent growth rate for "other vacant" units. That classification accounted for 8.3 percent of total housing units.

Even though housing stock increased by 8.4 percent (Table 6), the share of vacant and available units decreased (8.8% in 2010 and 8.6% in 2019) and vacant and unavailable units increased by almost 27 percent. The different growth rates between households and housing stock suggest that Guam will likely have a housing problem to support its growing population in the long run.

a. Housing Characteristics by Tenure

There were 50,567 housing units on Guam in 2010. By 2019, this had increased by nearly 5,000 units to 55,562 housing units. The percentage of single-family versus multi-family units remained essentially unchanged (68.3% vs. 67.6%), but the proportion of ownership units increased from 46.4 percent to 51.4 percent during this period.

Table 6: Housing Unit Type and Tenure, Guam, 2009 and 2019

	2010		2019		Pct. Chg.
	Count	Pct.	Count	Pct.	
Total Housing Units	50,567	100.0%	55,562	100.0%	9.9%
Units in Structure					
Single-Family	34,562	68.3%	37,549	67.6%	8.6%
Multi-family	16,005	31.7%	18,013	32.4%	12.5%
Total Housing Stock	46,490	100.0%	50,402	100.0%	8.4%
Tenure					
Ownership Units	21,553	46.4%	25,920	51.4%	20.3%
Rental Units	24,937	53.6%	24,482	48.6%	-1.8%

Source. Decennial Census, 2010; SMS estimates

i. Owned Units

Within Guam's current housing stock there are 25,290 ownership units. Ninety percent of these ownership units are occupied (22,823), while the remaining units are vacant for sale or sold but not yet occupied units.

Table 7: Tenure by Region, 2009 and 2019

	Guam Regions							
	North		Central		South		Total	
	2009	2019	2009	2019	2009	2019	2009	2019
Total Households (Occupied units)	23,772	21,078	13,287	14,611	7,491	9,956	44,551	45,645
Own	47%	42%	55%	52%	60%	64%	51%	50%
Rent	45%	46%	40%	41%	27%	26%	41%	40%
Occupy without payment or Unknown	8%	12%	5%	8%	13%	10%	8%	10%

Source: Guam Housing Demand Survey, 2019.

Homeowners on Guam have typically been in their current unit for many years, with almost three-quarters (74%) having lived in their units for more than 10 years. Homeowner households typically include three or four persons (average 3.4 person). One in four homeowner households included multiple families living in the same household (26%).²¹

Two-thirds of all owned units are three- or four-bedroom residences (66%). More than half of these units include two bathrooms (53%).

More than 93 percent of homeowners describe their current residence as spacious enough to accommodate the members of their household. Interestingly, however, 25 percent of homeowners indicate that one or more members of their household are likely to establish their own household in a separate unit within the next three years. While this may be due, in part, to teenage children aging to independence, it does suggest that some portion of these multiple-family households would prefer to reside in separate homes.

At present, Guam homeowners have a median mortgage payment of \$1,294 per month (Table 9). Mortgage payment amounts vary slightly throughout the island, with the South showing the highest rate at \$1,389 per month.

²¹ It is not clear whether the nature of the household drives the housing unit choice (i.e., households with multiple families need larger units and can pool resources in order to purchase a suitable unit), or if the size of the available housing units allows for the inclusion of additional household members.

ii. **Rented Units**

In 2019, Guam's housing stock included 20,207 rental housing units. Of these, 18,129 were occupied and the remainder were vacant for sale or sold but not yet occupied units.

Renter households in Guam tend to include household members under age 18 (53%). Forty-five percent of renter households include multiple families, while only 16 percent are single individuals. On average, there are 3.4 persons in each of these rental units.

Rental units tend to be somewhat smaller than owned units, with most having two (39%) or three bedrooms (35%) and a single bathroom (48%). Despite the smaller size, however, 83 percent of renters feel their home is large enough to accommodate their household members. The finding that only 22 percent of households currently living in a rental unit anticipate a member of their household moving out within the next three years may support renters' view that their unit is roomy enough for everyone. Conversely, it may simply be an indication that the limited financial resources of these households prevent the members from moving into a unit of their own.

The median annual household income for renters on Guam is approximately \$52,000, almost \$17,000 less than the median income for homeowners (\$69,238). Two-thirds of renter households earn less than the Area Median Income (AMI) per year. Nearly three out of every ten renter households reported an annual household income of less than 30 percent AMI in 2019. Renters also tend to have higher shelter-to-income ratios than homeowners. Forty-three percent of renters devote more than 40 percent of their monthly household income to rent, compared to just 14 percent of homeowners.

Table 8: Monthly Housing Costs, 2019

	Region						Guam Total	
	North		Central		South			
	Count	Monthly Housing Cost	Count	Monthly Housing Cost	Count	Monthly Housing Cost	Count	Monthly Housing Cost
All owned units	8,913	\$1,230	7,567	\$1,304	6,342	\$1,389	22,823	\$1,294
All Rented Units	9,604	\$1,237	5,923	\$1,310	2,601	\$1,506	18,129	\$1,293

Owned Base: Respondents who own current unit/reported monthly mortgage.

Rented Base: Respondents who rent current unit/reported monthly rent. Occupied without payment units not included. Note: Counts may not sum to total units due to weighting. Percentages may not sum to 100% due to rounding.

Source: Guam Housing Demand Survey, 2019

b. Affordable Housing

Having one housing unit per household and enough vacant units to ensure a reasonable vacancy rate does not ensure that all households will be adequately housed. There must be a mix of unit types and sizes in the right locations. A functioning housing market needs luxury, high-priced units for those who desire and can afford them. It also needs a bulk of adequate and comfortable units for the middle-market and enough safe and affordable housing units to accommodate low-income households.

i. Low-Income Housing Tax Credits

Low-Income Housing Tax Credits (LIHTC) have been a central tool used for building affordable housing in Guam. LIHTC has been used to build 13 facilities containing over 1,100 units. These facilities are mainly located in the North, with some in Central Guam.

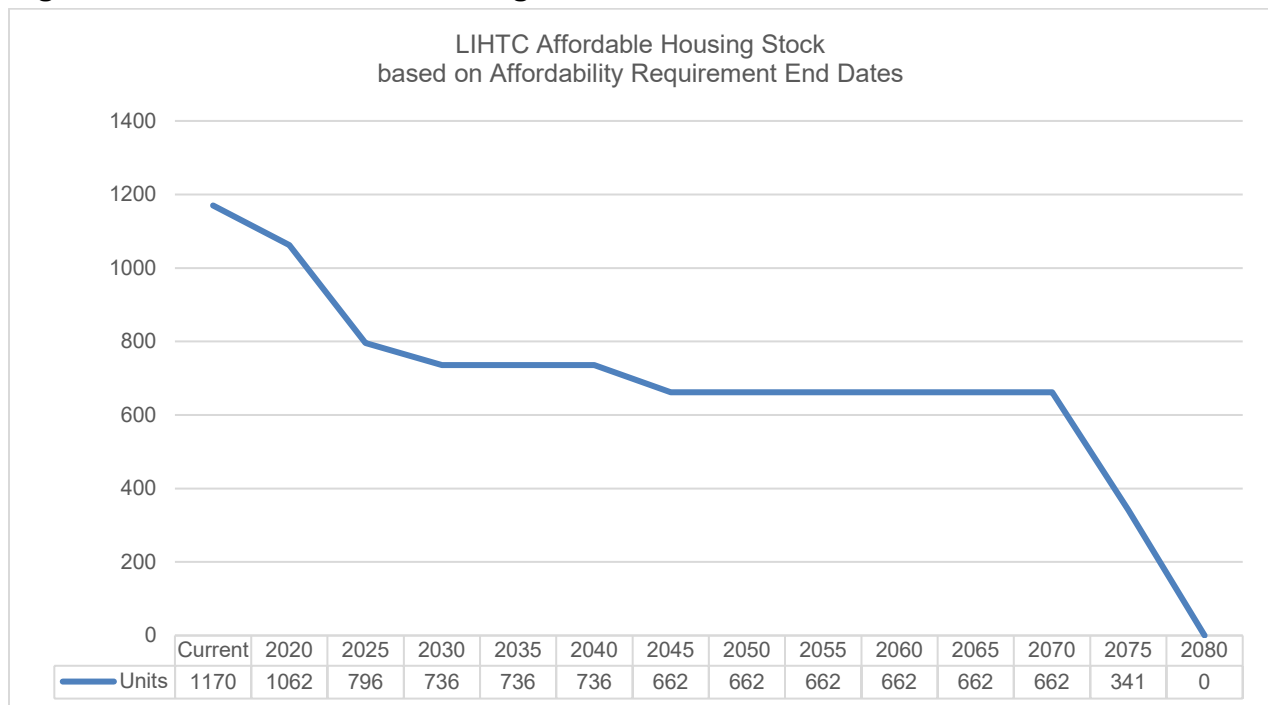
Table 9: Low-Income Housing Tax Credits, Number of Units

Region	Number of Units	Average Length of Time Affordable	Average Year Built
North	1,052	38 years	2011
Central	118	61 years	2018
South	0	n/a	n/a
Total	1,170	41 years	2012

Source: Guam Housing and Urban Renewal Authority.

Affordability requirements on these properties range anywhere from 15 years up to 61 years with the average length of affordability being 41 years. The first three projects elected a 15-year affordability requirement, but most of the later programs maxed out the affordability option. These early properties may revert to market rates within the next ten years. The first of these units will be released to the residential market in 2022. Overall, five developments containing more than 400 housing units will revert by 2030. That will account for almost 40 percent of the LIHTC-developed affordable housing stock. Although the rising cost of construction will reduce the number of units produced, LIHTC projects are being awarded every two years which will continue to make new units available.

Figure 7. LIHTC Affordable Housing Stock Overtime



Source: Guam Housing and Urban Renewal Authority

ii. Public Housing

GHURA operates 17 public housing facilities on Guam. In total, there are 750 units of varying sizes available containing 2,157 bedrooms. The median year built is 1982 and there have been no new public housing developments constructed since 1991. The latest HUD *Public Housing Assessment System (PHAS) Score Report for Interim Rule* dated February 3, 2020 for GHURA public housing was 80 out of 100, a Standard Performer designation status.

Table 10: Public Housing Facilities, Guam, 2019

Region	Number of Developments	Number of Units	Number of Bedrooms	Average Bedrooms per Unit	Average Year of Construction
NORTH	3	116	288	2	1987
CENTRAL	5	276	826	3	1974
SOUTH	9	358	1,043	3	1985
TOTAL	17	750	2,157	3	1982

Source: Guam Housing and Urban Renewal Authority.

c. Military Housing

Guam's housing market and its economy are influenced by the significant military presence on the island. Military personnel and their dependents continue to make up approximately 13 percent of households in Guam.

Table 11: Military Households, Guam, 2009 and 2019

		Regions on Guam						Total	
		North		Central		South			
		2009	2019	2009	2019	2009	2019	2009	2019
Military Household		3,121	3,043	1,368	1,171	1,361	1,552	5,850	5,766
Tenure	Own	30%	26%	50%	23%	42%	21%	37%	24%
	Rent	51%	59%	50%	68%	24%	56%	44%	60%
	Occupy w/o Payment / Other	20%	14%	0%	9%	33%	23%	18%	16%

Source: Guam Housing Demand Survey, 2019

Median monthly rents for military families living off base are much higher than rents by non-military households (Table 13). This can be attributed to several factors. Military households are more likely than non-military to be in larger, four- or more bedroom units (67% vs. 23%), even though average household size is roughly the same. Another factor is that military households have more money allocated for housing. The Overseas Housing Allowance (OHA), a monthly stipend provided to military servicemen stationed in Guam, is high enough to support military housing choices in the upper end of the rental market, and therefore to influence rental prices island wide

Table 12: Median Monthly Housing Costs by Military Status, Guam, 2019

Military Status	Mortgage		Rent	
	Count	Monthly Housing Costs	Count	Monthly Housing Costs
Military	1,391	\$1,770	3,471	\$1,916
Non-Military	21,164	\$1,269	14,406	\$1,069

Note. Does not include cases in which the unit is occupied without payment or no mortgages

Note: Counts may not sum to total units due to weighting. Percentages may not sum to 100% due to rounding.

Source: Guam Housing Demand Survey, 2019

In 2017, the U.S. Navy issued a report on *Housing Requirements and Market Analysis* for Guam²². As shown in the following table, about 53 percent of the housing required will be for unaccompanied personnel and the remainder for families in 2017. The total number of units

²² Table ES-1, Joint Base Marianas Total Military Family Housing Requirement by Installation, Housing Requirements and Market Analysis, Joint Region Marianas, 2017-2024, Final Report, United States Navy, September 11, 2017.

required increases by about 42 percent in 2022,²³ however the percent of unaccompanied personnel stays about the same at 54 percent.

Table 13: Joint Base Marianas Total Military Housing Requirement, 2017 and 2022

Type of Housing Required – Joint Region	Housing Requirement		Estimated On-Base Capacity	
	2017	2022	2017	2022
Military Families	2,518	3,541	2,298	2,040
Unaccompanied Personnel	2,861	4,105	2,187	1,934
Total	5,379	7,646	4,485	3,974

Source: Joint Base Marianas Total Military Family Housing Requirement

The report also indicates the on-base capacity level for military families and unaccompanied personnel. Based on stakeholder input, unaccompanied personnel are more likely to prefer rental units off-base, while families often prefer on-base housing. However, based on the data in Table 14, it is likely that both unaccompanied personnel and families will look for housing in the community outside the bases. The growth in the military population will have an impact on the local housing market, particularly rentals, both in the demand for housing units and the price to rent a unit.

d. Housing Condition

It has been suggested that Guam may have many housing units that are either unusable or seriously in need of refurbishing before they can be counted among usable housing alternatives. This section looks at the condition of housing units.

A reliable measure of the condition of housing units is a useful component of any comprehensive housing study because it provides an estimate of the need for renovation. It can also be used to estimate changes in the causes for and the rate at which units will fall into the “other vacant” classification. The most recent reliable data on unit condition was the now-outdated 2010 Census. In December 2019, PCR Environmental conducted a Housing Observation Survey based on a probability sample of Guam census blocks to record housing unit condition.

A stratified sample of 20 blocks across six zones was selected with stratification by zone, random within strata. A team of two observers was assigned to each zone for observation. A total of 1,477 units were observed during this process. Units included both single-family structures and multi-family structures. For multifamily structures the condition was determined according to the characteristics of the whole building rather than individual units.

Observers were selected and trained to travel through a Census block or set of blocks, observing each housing unit and recording its location, building and unit type, and its condition as measured on a set of descriptors provided to them. They also took pictures of the units so that they could be later reviewed by analytical staff. The resulting data are analyzed to provide insight and context for housing units in the community. Results are shown in the table below.

²³ The Marine housing requirement of 1,922 is scheduled to take place in 2024.

Table 14: Housing Unit Observations, Guam, 2019

	Unusable	Structural Damage	Superficial Damage	Needs Upkeep	Good	Total Observations
Guam	1%	3%	5%	5%	86%	1,477

Source. Guam Housing Condition Survey, 2019

The team found that 86 percent of housing units on Guam were in good condition. A “Good Condition” classification indicated that the unit had not been abandoned, had no visible superficial damage, had no serious structural damage like holes in roofs or walls, was well kept, and looked safe to approach. It appeared to be a decent, safe, and comfortable place to live.

Five percent of the units observed were found to need upkeep. The units were structurally sound and damage-free, but the property needed significant upkeep such as paint, minor repairs, landscaping, and cleaning.

Other units were observed to have some type of damage. Five percent were observed to have superficial damage, meaning the damage that was noticed could be easily fixed. Superficial damage includes broken windows or doors, stairs or walkways that were broken or sagging, and/or missing roof tiles or shingles. Another three percent of the units were found to have structural damage. Significant structural damage was indicated by obvious sagging or broken roofs, missing exterior walls, walls with holes, foundation damage or evidence that the home was falling off the foundation. Finally, about one percent of the units observed in Guam were found to be unusable. These houses were boarded up, abandoned, or had very serious structural damage.

The amount of non-sampling error (mostly issues with inter-coder reliability) in an observation survey may be relatively high. We notice, for example, that the methods produced estimates of “good” units that were off by more than 20 points between 2010 and 2017. The measure of unusable units, however, was about the same.

If one percent of total housing units are unusable, the number of unusable units is estimated to be 700 in 2010 and 780 in 2019. If the survey estimates of unusable units and those with serious structural damage is used, the total would be about 2,300 units in 2010 and 2,500 in 2019. That is our estimate of the number of units that may be a part of the “other vacant” census category because they are not be habitable. The 2010 census identified 3,655 “other vacant” housing units on Guam and our estimate for 2019 is 4,591 (Table 6).

Another indicator of housing condition, for comparison purposes, is the Census counts for complete kitchen facilities. Data from the 2010 U.S. Census indicates 9.7 percent of units on Guam do not have kitchen facilities, compared to 2.4 percent in Hawaii, and 2.7 percent across the country. However, the Guam numbers are much better than other U.S. territory islands in the Pacific, such as CNMI and American Samoa which both have near 25 percent.

Table 15: Comparison of Housing Units without Complete Kitchen Facilities, 2010

	Guam	Hawaii	Saipan	Samoa	United States
Units without complete kitchen facilities	9.7%	2.4%	26.2%	24.1%	2.7%

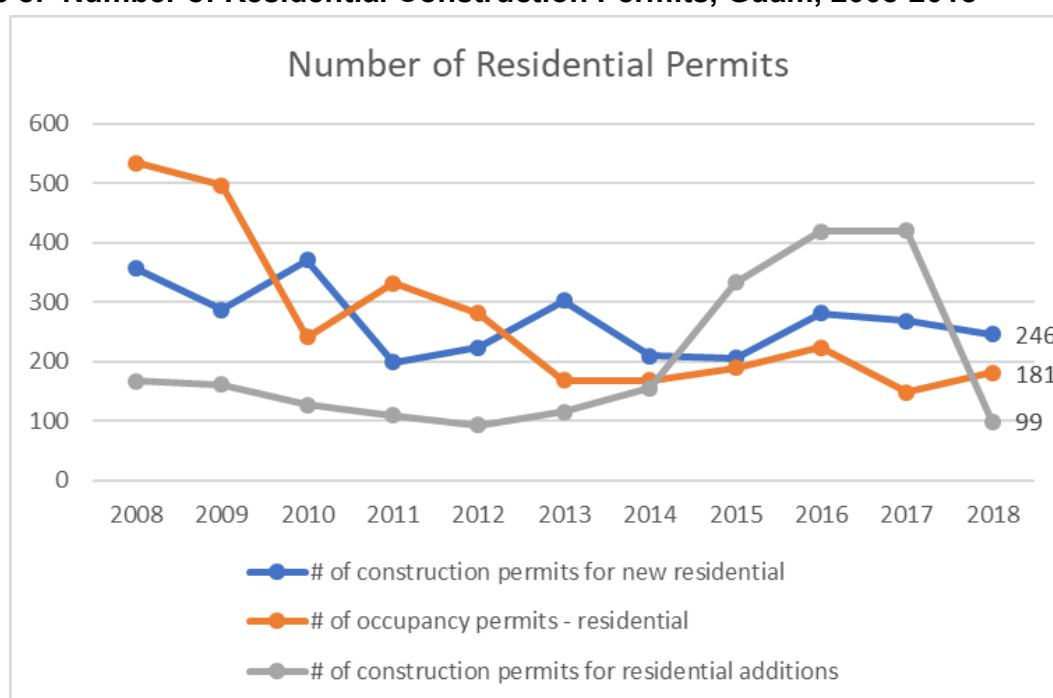
Source. Guam Housing Demand Survey 2019; ACS, Table B25051, 5-year estimates for Hawai'i, Saipan, Samoa, and the United States.

Regarding the condition of Guam's housing units, Guam housing stakeholders consistently report that severe storms cause some absentee owners to abandon units and others to delay making repairs to weather-damaged properties. Some larger owners, especially owners of multi-family units, hold their units off the market because they need refurbishing. Still other owners stated that they are waiting for the military build-up to begin so they can offer their units for higher rental prices, thereby covering the cost of needed repairs and upgrades. Based on these findings, Guam housing strategists might consider options the encourage restoration of existing vacant stock as soon as possible.

4. Housing Production

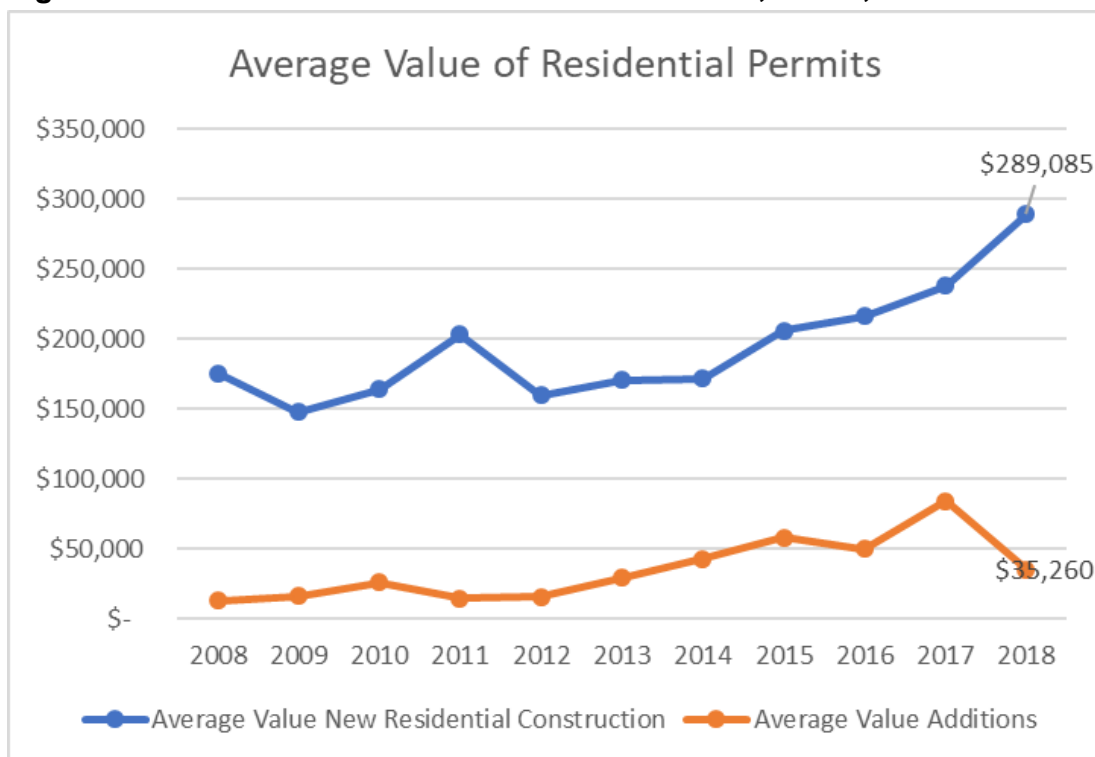
Between 2000 and 2010, Guam added 2,890 new housing units. This represents an average growth rate of 0.6 percent per year. Between 2010 and 2019, an additional 4,995 housing units have been constructed on the island. The average annual growth rate for the more recent period was slightly higher at 1.0 percent.

a. Growth in Housing Stock

Figure 8: Number of Residential Construction Permits, Guam, 2008-2018

Source: Building Permits and Inspection Section, Department of Public Works, 2018 and 2013 Statistical Yearbook, Government of Guam.

Figure 9: Value of Residential Construction Permits, Guam, 2008-2018



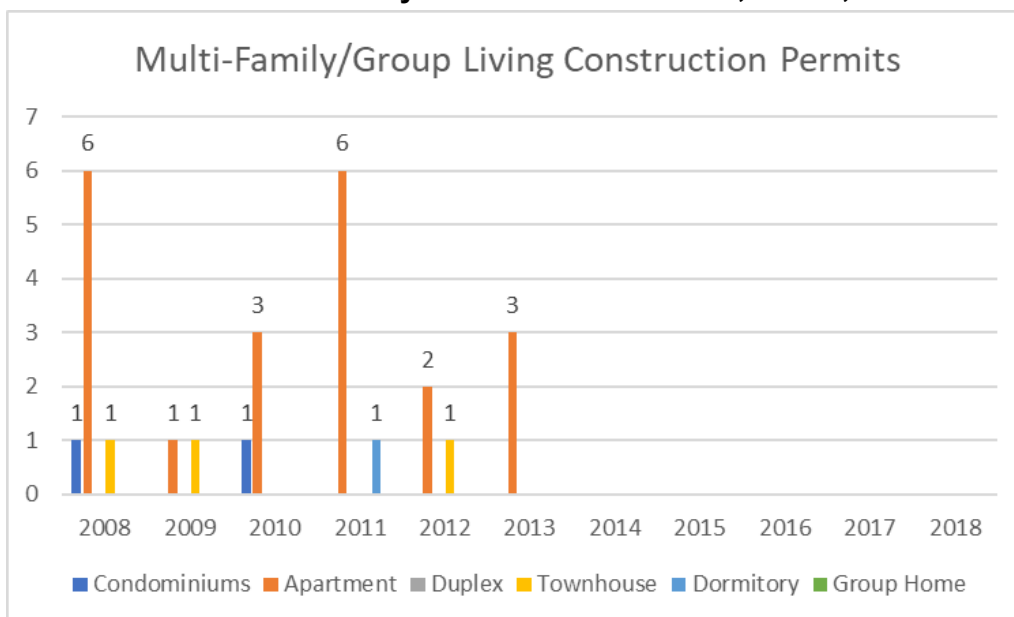
Source: Building Permits and Inspection Section, Department of Public Works, 2018 and 2013 Statistical Yearbook, Government of Guam.

Between 2008 and 2018 the number of new residential construction permits issued has been fluctuating and trending slightly downward. One reason these permits may be down is the rising average value of the cost of construction as shown in the value of permits issued reaching a new high of \$289,085 in 2018.

The number of new construction permits for residential additions has, since 2000, had more pronounced fluctuations. There were peaks in 2011 and the most recent peak in 2017. The value of these permits has been steadily increasing through 2017. Stakeholders have suggested that young families unable to find a home they can afford are living with their families, making housing additions necessary.

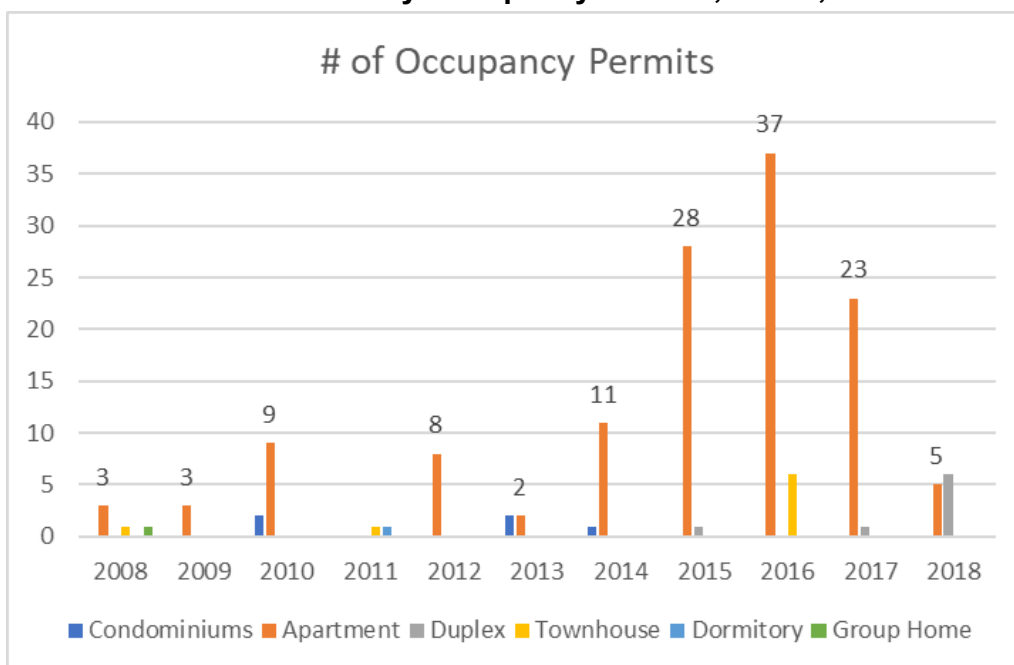
Occupancy permits for residential units have been declining since 2018, possibly due to delays in construction caused by an insufficient number of construction workers.

Figure 10a: Number of Multi-Family Construction Permits, Guam, 2008-2018



Source: Building Permits and Inspection Section, Department of Public Works, 2018 and 2013 Statistical Yearbook, Government of Guam.

Figure 10b: Number of Multi-Family Occupancy Permits, Guam, 2008-2018



Source: Building Permits and Inspection Section, Department of Public Works, 2018 and 2013 Statistical Yearbook, Government of Guam.

Construction permits for multi-family buildings indicated that 27 permits were issued between 2008 and 2018, all of them prior to 2014. Seventy-eight percent of the permits were for apartment buildings. During that same time period 147 occupancy permits were issued for multi-family buildings. This suggests that most of the recently occupied buildings were permitted before 2008 and that the time to complete development has been over ten years, at least for 120 of the

projects. A concern for the future will be the lack of a pipeline for multi-family units if in fact no construction permits have been issued since 2013.

b. Housing Units Growth, Guam, 2000 – 2019

While construction permits are a useful indicator of housing unit growth, the two measures do not exactly align. While 246 construction permits were issued in 2018 for new residential housing units, the table below shows that 555 housing units were added during that year.

Table 16: Housing Units, Households, and Housing Stock, Guam, 2000-2019

	Total Housing Units	Occupied Housing Units (Households)	Housing Stock
2000	47,677	38,769	38,769
2001	47,966	39,095	39,541
2002	48,255	39,420	40,313
2003	48,544	39,746	41,085
2004	48,833	40,072	41,857
2005	49,122	40,398	42,630
2006	49,411	40,723	43,402
2007	49,700	41,049	44,174
2008	49,989	41,375	44,946
2009	50,278	41,700	45,718
2010	50,567	42,026	46,490
2011	51,122	42,428	46,925
2012	51,677	42,830	47,359
2013	52,232	43,232	47,794
2014	52,787	43,634	48,229
2015	53,342	44,037	48,663
2016	53,897	44,439	49,098
2017	54,452	44,841	49,533
2018	55,007	45,243	49,967
2019	55,562	45,645	50,402

Source. Decennial Census 2000 and 2010; SMS estimates.

The difference between the number of permits issued and the number of housing units constructed is the result of several factors. Often there is a lag in production due to scheduling units that get built the following year or even several years later. For a variety of reasons, some housing units that are permitted never get built. The discrepancy between the number of permits issued and the number of housing units constructed is also an artifact of the data itself. Later in this report we describe options to improve the accuracy of housing counts.

5. Housing Prices

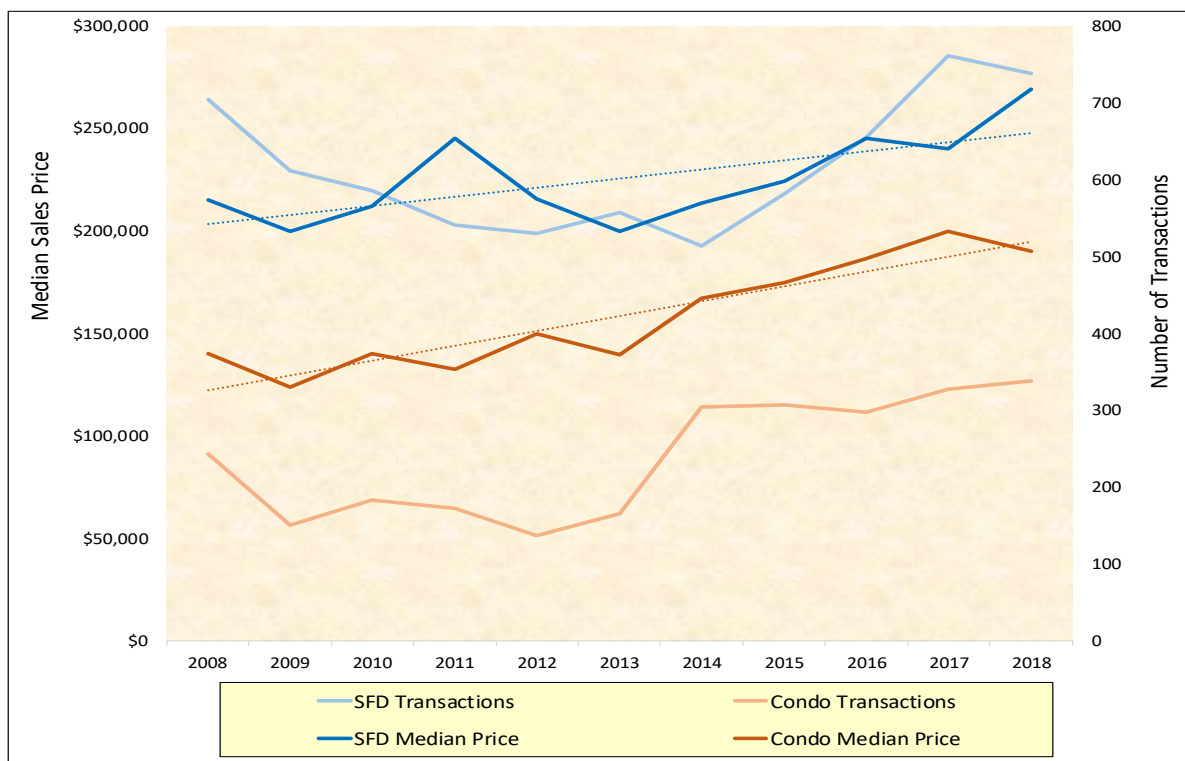
a. Owned Housing Sales and Prices

Between 2008 and 2018, the total value of residential real estate sales on Guam increased 43.6 percent, nearly reaching the \$300 million mark in 2018. The value of sales for single-family dwellings was up 35 percent to \$220.1 million and the value of condominium sales had increased by 72 percent to \$78 million.

The number of residential real estate transactions increased by 13 percent during the same ten-year period. In 2018, there were 1,077 residential real estate transactions closed. Of these, 68 percent involved single-family units (738 transactions) and the remainder were condominium units (339 transactions).

As shown in the figure below, the median sales price of residential units on Guam has fluctuated during the past ten years. Single-family homes sold for 25 percent more in 2018 than in 2008, and the median sales price for condominiums was up 35 percent during the same period. In 2018, single-family units sold for a median price of \$269,450 and condominium units had a median sales price of \$190,000. Trends are shown in Figure 10. Data summaries are in Appendix 3.4.

Figure 11. Sales & Median Prices, Single-Family & Condominium, Guam, 2008-2018



Source. Guam Statistical Yearbook, 2008-2018.

Table 18 summarizes the average monthly housing cost for owned and rented housing units on Guam in 2009 and 2019. Housing costs for renters is monthly rent and mortgage payments for owned units.²⁴ The Housing Demand Survey results tell us that monthly housing costs rose by about 9.1 percent in the last ten years, while monthly housing costs for renters increased by almost 30 percent over the decade.

Table 17: Tenure and Average Monthly Housing Cost, 2009 and 2019

	Guam Regions							
	North		Central		South		Total	
	2009	2019	2009	2019	2009	2019	2009	2019
All Owned Units	\$1,179	\$1,230	\$1,193	\$1,304	\$1,190	\$1,389	\$1,186	\$1,294
All Rented Units	\$987	\$1,237	\$995	\$1,310	\$1,048	\$1,506	\$996	\$1,293

Owned Base: Respondents who own their current unit and reported a monthly mortgage amount.

Rented Base: Respondents who rent their current units and reported a monthly rent amount.

Note: Counts may not sum to total units due to weighting. Percentages may not sum to 100% due to rounding.

Source: Guam Housing Demand Survey, 2009 & 2019.

In 2019, Average monthly housing costs do not differ by large amounts across the three geographic regions in Guam. Cost have been lowest in the North, slightly higher in the Central region, and highest in the South.

Stakeholders suggested that residents prefer to buy a home and live in it for a long time, renovating and adding space as needed rather than moving to a new home. This explains the relatively small increases in monthly costs with homes being owned for a longer period. New purchases would have a higher monthly cost.

Stakeholders also believe that new home prices are driven up by foreign buyers and investors and that young families have been unable to afford to buy or rent in Guam's recent market. Instead they have been staying with their families. Hard data are not available to support this contention, but this kind of interference with household formation is a common reaction to high housing prices. Other data presented in this report corroborate high and increasing pent-up demand that forces households to double-up. (Table 35).

b. Rents

In 2019, the average rent paid by Guam households for a two-bedroom, single-family home was \$1,831. This represents a 47.6 percent increase over the average rent of \$1,240 in 2010 (Table 19). The rent paid in 2019 for a two-bedroom multi-family unit was \$1,333. While the jump in price for two-bedroom multi-family rentals between 2010 and 2019 was not as significant as for single-family homes, it did increase by over 30 percent during that period (30.2%). Interestingly, it was the single-bedroom multi-family units that saw the largest increase in rent, climbing 45.7 percent between 2010 and 2019.

²⁴ Mortgage payments include households with mortgage payments.

Not only did the 2019 rental rates vary between single-family and multi-family housing units, rents also differed for the regions of Guam (Appendix Tables 4-5). Households renting a single-family unit in the South region paid the most (\$2,310), while households renting in Central (\$1,948) or North Guam (\$1,771) paid notably less.

Similarly, renter households in multi-family units in South Guam paid the most for housing, an average of \$1,823 per month. Rents were slightly cheaper in North (\$1,718) and Central Guam (\$1,677). Stakeholders have suggested that the higher rental rates in the South may be due to more units in the South being used for visitor rentals, such as Airbnb, or for military.

Table 18: Average Rent by Unit Type and Size, Guam, 2010-2019

Single-Family	# of Bedrooms	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	1	\$1,489	\$1,414	\$1,263	\$1,144	\$983	\$1,114	\$1,132	\$1,987	\$1,402	\$1,348
	2	\$1,240	\$1,361	\$1,263	\$1,039	\$1,289	\$1,317	\$1,277	\$1,408	\$1,335	\$1,831
	3	\$1,963	\$2,065	\$2,034	\$2,067	\$1,979	\$2,122	\$2,263	\$2,276	\$2,318	\$2,335
	4	\$2,311	\$2,614	\$2,343	\$2,506	\$2,426	\$2,501	\$2,511	\$2,574	\$2,604	\$2,524
Multi-Family	# of Bedrooms	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	1	\$934	\$1,215	\$1,311	\$1,181	\$1,093	\$1,117	\$1,153	\$1,167	\$982	\$1,361
	2	\$1,024	\$1,076	\$1,006	\$1,063	\$1,066	\$1,099	\$1,248	\$1,102	\$1,144	\$1,333
	3	\$1,743	\$1,637	\$1,538	\$1,615	\$1,962	\$1,647	\$2,053	\$2,087	\$2,111	\$2,098
	4	\$2,074	\$1,742	\$1,530	\$1,670	\$1,907	\$1,383	\$2,107	\$1,714	\$2,252	\$2,165

Source. Multiple Listing Service (MLS) Guam, 2010-2019.

6. Housing Preferences

The Demand Survey measured the consumer preferences of Guam's potential movers over the next few years. The intent was to provide housing developers and planners with information to support a broad range of housing initiatives and to gather data for the housing model.

The survey responses revealed that roughly 43 percent of Guam residents would be interested in moving within the next ten years. Among all Guam households that want to move, 53 percent plan to own their next unit and 34 percent expect to rent their next home. The preference for ownership is not always translated into reality in the marketplace. When those who intend to purchase a home were asked if they were certain to buy or might rent instead, approximately 32 percent acknowledged that they may have to rent or that they weren't certain they could buy a home. That would drop the purchase incidence to about 31 percent of all potential movers, a more reliable estimate of the actual buyer rate in the market.

Table 19: Future Housing Preference by Region of Current Residence, 2009 and 2019

		Guam Regions							
		North		Central		South		Total	
		2009	2019	2009	2019	2009	2019	2009	2019
Planned Tenure	Buying	45%	43%	46%	66%	45%	49%	45%	53%
	Rent	32%	41%	34%	25%	36%	31%	34%	34%
	Move in with relatives, friends	2%	2%	2%	5%	1%	0%	2%	3%
	Other/Don't Know	20%	14%	17%	3%	17%	20%	20%	10%

Source: Guam Housing Demand Survey, 2009 and 2019

a. Buyer Preferences

In 2019, most potential buyers (83%) preferred single-family detached homes with another 10 percent desiring a townhouse and only seven percent looking for a condo (Table 20). When asked if they would accept a multi-family dwelling if they could not find a single-family home in their price range, 7-in-10 said they would consider it.

Buyers are looking for homes with three (42%) bedrooms and two (82%) bathrooms. In Guam's current slow-growth economy with its high cost of housing, prospective buyers recognize that they may have to settle for less than their ideal home. Asked about the minimum number of bedrooms required in their next home, 4-out-of 10 buyers indicated they could make do with two bedrooms (45%). Similarly, they would accept a unit with one (30%), one and one-half (24%), or two bathrooms (40%). Potential buyers said their first choice was to live in Tamuning (19%) but some also preferred Dededo (15%) or Mangilao (14%).

b. Renter Preferences

In 2019, half of future renters preferred a single-family dwelling unit (51%); while a similar number were seeking a multi-family unit such as apartments (25%), condos (11%) or townhouses (3%; Table 21). As expected, Guam renters were interested in slightly smaller units than the buyers. Renters' first choices were for two (46%) or three (27%) bedrooms. 56 percent of them opted for two bathrooms. When we asked renters what they really needed, two-bedroom units continued to dominate (52%) but 66 percent were willing to live in less than two bathrooms. Slightly different than potential buyers, an equal number of Guam's future renters want to live in Dededo (25%) or Tamuning (25%) with much smaller numbers opting for other population centers such as Yigo, Hagatna, and Mangilao.

Table 20: Planned Tenure by Unit Preferences, 2009 and 2019

		Buy		Rent	
		2009	2019	2009	2019
Dwelling Type	Single Family Home	86%	83%	64%	51%
Desired Bedrooms	Two-bedroom		20%		46%
	Three-bedroom	43%	42%	50%	27%
	Four-bedroom	32%	27%	26%	14%
Desired Baths	One-bath		2%		44%
	Two-bath	65%	82%	70%	56%
Desired Location		Dededo, Tamuning	Tamuning	Dededo, Tamuning	Dededo, Tamuning

Source: Guam Housing Demand Survey, 2009, 2019

It appears that the preference of the buyers and renters in 2019 has shifted to acceptance of smaller dwellings when compared to their desires in 2009. Future renters are also more interested in multi-family dwellings than they had been in the past.

7. Current Housing Demand

At any given time, some of Guam households are in the market for a new unit – rented or purchased. The number of units “in the market” is of interest as one of the primary objectives of the Demand Survey is to estimate demand for housing. The study used a step-down method of inquiry that starts by measuring interest in acquiring a new unit, adds a time dimension, investigating unit choices that might be made, and finally qualifies demand according to housing affordability indicated by the household financial situation, resources and limitations.

Almost half (45%) of all Guam households were interested in moving to a new unit in the future. A similar number of households (46%) stated that they were unlikely to ever move from their current unit. Among those households who were not planning to move, the majority were homeowners (70%).

Table 21: Interest in Moving to a New Home by Region, Guam, 2019

		Guam Regions							
		North		Central		South		Total	
		Count	Col %	Count	Col %	Count	Col %	Count	Col %
Soonest will move to another home	Less than 6 months	1,823	8.6%	1,263	8.6%	611	6.1%	3,697	8.1%
	6 months to a year	1,121	5.3%	839	5.7%	515	5.2%	2,475	5.4%
	1 to 2 years	3,337	15.8%	2,378	16.3%	1,360	13.7%	7,075	15.5%
	3 years	1,053	5.0%	407	2.8%	326	3.3%	1,785	3.9%
	4 to 5 years	1,568	7.4%	1,339	9.2%	429	4.3%	3,336	7.3%
	6 to 10 years	869	4.1%	0	0.0%	242	2.4%	1,111	2.4%
	Over 10 years	298	1.4%	379	2.6%	242	2.4%	919	2.0%
	Probably never	8,946	42.4%	6,594	45.1%	5,367	53.9%	20,907	45.8%
	Not Sure	2,064	9.8%	1,413	9.7%	863	8.7%	4,340	9.5%
	Total	21,078	100.0%	14,611	100.0%	9,956	100.0%	45,645	100.0%
Where Moving To	Stay on Guam	5,380	44.3%	5,014	62.5%	866	18.9%	11,260	45.5%
	Move away from Guam	5,039	41.5%	2,814	35.1%	3,157	68.8%	11,010	44.5%
	Not Sure	1,714	14.1%	189	2.4%	565	12.3%	2,469	10.0%
	Total	12,133	100.0%	8,017	100.0%	4,588	100.0%	24,738	100.0%

Source: Guam Housing Demand Survey, 2019

Not everyone who will be moving plans to remain on Guam. Almost half of those who might move (45%) reported that they are likely to move away from Guam. This reflects the net-outmigration pattern that Guam has been experiencing.

There were an estimated 45,645 occupied housing units on Guam in 2019. Based on the Guam Housing Demand Survey, about 24,738 of these households (54%) would move from the current housing unit to another at some time in the future. Table 22 also shows that 19,479 households would move within ten years or less. About 46 percent of Guam households feel they have found the place where they want to live and will not move from it. That produced an estimate of Effective Demand of 9,658 households.

Because housing planning can be done most effectively for roughly the coming five years, the five-year Effective Demand estimate was adjusted to 9,336 households.

Qualified Demand

The major difference between housing surveys and the real estate market is that surveys do not require a respondent to be financially qualified to buy or rent. To correct for that difference, and to support our estimates of qualified demand, the Housing Demand Survey collected data on the financial situation of all participants. Four indicators of financial qualification were central to that inquiry: current monthly shelter payment, self-reported affordable monthly shelter payment, savings, and household income. We also collected information on household size for the new unit, shelter-to-income ratio, and the history of housing problems and homelessness. All of these are the types of information lenders utilize when qualifying an applicant for a mortgage loan.

Based on the financial qualifications discussed below, the initial five-year effective demand estimate of 9,336 households was reduced to 6,650 households that are not well qualified to buy or rent, between the years 2020 and 2025.

a. Current Monthly Shelter Payment

Mortgage and utilities payments for homeowners averaged \$1,294 and monthly shelter payments for renters were at \$1,293. Residents who are planning to purchase a new home reported average monthly shelter payments of \$1,500. Those who plan to rent another home reported an average monthly shelter payment of \$1,143. Overall then, Guam families planning to move are looking to decrease their monthly shelter costs by about 13 to 14 percent.

b. Perceived Affordable Payment

Those who currently own their own home and want to buy their next housing unit said they could afford a median monthly payment of \$1,382. That is \$100 higher than the current median monthly mortgage payment \$1,294, suggesting that some of the new buyers may be looking to move up in the market. The median affordable payment for renters looking to rent their next home was \$952. That's considerably lower than current rents of \$1,293, which suggests that potential renters are looking for more affordable rents than what the current rental market is providing.

c. Savings

The amount a prospective homeowner is able to make (both in its total amount and as a proportion of the loan amount) affects the monthly payments, therefore impacts what is considered "affordable." Survey respondents were asked about their available resources to put toward a down payment. Potential buyers island wide reported around \$28,778. However, current homeowners were able to make a down payment of \$40,422 but current renters could only afford \$21,213.

d. Annual Household Income among Movers

The annual household income of households planning to move is an indicator of the types of housing units Guam residents might be looking for when they move. For this study, it also served as a major indicator of the qualification of buyers and renters to acquire the unit of their choice. Prospective buyers had a median annual household income of \$72,227 and the median annual income among households likely to rent was \$45,008.

HUD guidelines are particularly useful in the qualification process because they adjust household income for household size. HUD guidelines also provide a convenient way to describe the housing units Guam's buyers and renters will be seeking. Households with very low incomes (below 30 percent of the Guam median income) are very likely to require assisted housing of some sort. Low-income households (31 to 50 percent of median) are also unlikely to qualify for standard financing to buy homes. Moderate-income households are

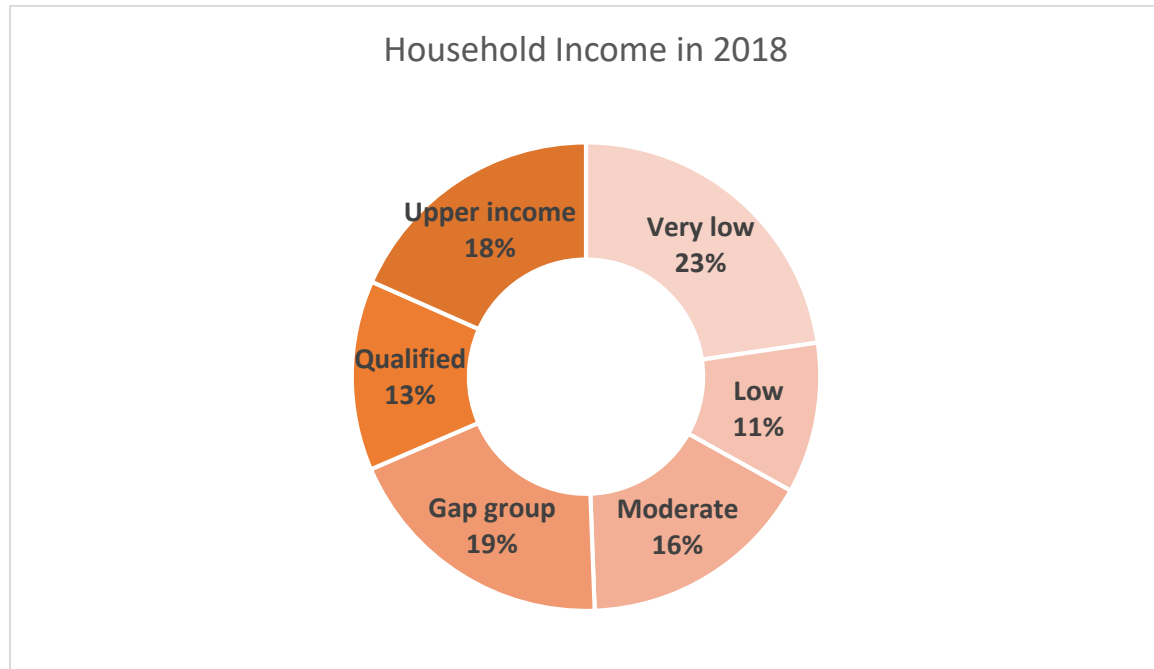
those with incomes between 51 and 80 percent of median and may have difficulty qualifying for conventional financing.

Many households in the near median income group (81 to 120 percent of median), sometimes referred to as the “gap group”, are theoretically qualified for standard financing, except in cases where housing costs are very high and supply is limited. Households with incomes between 120 and 180 percent of the Guam median are usually qualified to acquire units, assuming there are enough affordable units in the local housing market. Those above 180 percent of median are labeled “upper income” households here and are expected to be able to secure housing without difficulty.

The distribution of mover households according to the median income guidelines published by the Department of Housing and Urban Development (HUD) is shown in Figure 11. Of the effective demand movers, only 32 percent have incomes that are enough to be considered qualified with 13 percent making 120 percent to 180 percent median income and another 18 percent making over 180 percent of median income.

Of concern though, 23 percent currently earn less than 30 percent of the Area Median Income for Guam. It could be argued that households in this very low-income range will likely encounter difficulty finding a home they can afford, despite their desire to move.

Figure 12. Guam Mover Households by HUD Income Levels, 2019



Source: Guam Housing Demand Survey, 2019.

e. Shelter-to-Income Ratios

The shelter-to-income ratio affects the qualification estimation process because home loan officers use the ratio in qualifying loan applicants. In general, shelter-to-income ratios below .30 are an indication that the buyer is qualified for a standard mortgage loan. Rates up to .33 are often acceptable, depending on other applicant qualifications. All other factors held equal, shelter-to-income ratios above .40 cause a serious problem in qualifying applicants for a mortgage loan. Although the application of shelter-to-income ratios to rental agreements is less stringent, higher ratios are an indication that the prospective renter may have difficulty making the monthly payments on time.

In 2019, Guam's shelter-to-income ratios were high for some households. Specifically, one-quarter of all households in Guam were paying more than 40 percent of their monthly income for shelter. More specially, 43 percent of all renters had a high shelter-to-income ratio. That situation is consistent with the recent rise in housing prices that characterize Guam real estate sales. It also suggests, however that Guam's rental prices are higher than would be expected for a healthy housing market.

Also, in 2019, about 57 percent of those who desire to move were paying less than 30 percent of their monthly income for shelter (Table 23). About 46 percent of households that want to own a home had shelter-to-income ratios below 30 percent. Among potential renters, the situation suggests that fewer households would qualify for the unit they are seeking than was found for potential homeowners. Almost half (46%) had shelter-to-income ratios below 30 percent and would not likely encounter serious challenges in qualifying for a loan. However, four in ten potential renters (40%), have ratios in excess of 40 percent.

Table 22: Shelter-to-Income Ratios among Potential Movers, 2019

	Planned Tenure					
	Buying		Renting		All Potential Movers*	
	Count	Column N %	Count	Column N %	Count	Column N %
No shelter cost	1,504	15.3%	1,093	13.2%	4,547	18.4%
less than 30 percent	4,266	43.4%	2,667	32.3%	9,662	39.1%
30 to 39 percent	1,503	15.3%	761	9.2%	2,263	9.1%
40 to 49 percent	407	4.1%	435	5.3%	1,344	5.4%
50 percent or more	1,769	18.0%	2,859	34.7%	5,498	22.2%
Not reported	379	3.9%	435	5.3%	1,425	5.8%
Total	9,826	100.0%	8,249	100.0%	24,738	100.0%

Source: Guam Housing Study 2019.

***Excludes those who plan to live with relative/friends or other categories of housing.
But are included in the Total count.**

f. Qualified Demand Estimate

Two tables below summarize the Guam Housing Demand Survey qualification indicators discussed to this point. They demonstrate how we developed estimates of the number of households that were qualified to purchase or rent a unit at current market prices.

To qualify would be buyers of owned units we considered the median sales price of units in Guam. Using the traditional down payment of 20 percent of the sales price, from which we calculated a typical mortgage payment and the expected monthly payment for the buyer's circumstances.²⁵ Among those wanting to purchase a single-family detached dwelling only 9.3 percent qualified. Multi-family dwellings were lower priced and 37.1 percent qualified (Table 24).

Table 23: Qualified Demand for Owned Units, Guam, 2019

Qualified Demand	Preferred Unit Type		Explanation
	Single-Family Home	Multi-Family Dwelling	
Median Sales Price	\$271,000	\$169,000	Guam MLS, December 2019.
Down Payment Required	\$54,200	\$33,800	Assumes a 20 percent down payment.
Monthly Mortgage Payment	\$1,318	\$929	Based on a 30-year fixed loan with a 4% interest rate.
Total Effective Demand	4,088	727	Households that plan to move within the next 5 years and purchase an SFD unit.
Fully Qualified	9.3%	37.1%	Can afford monthly payment AND have adequate down payment.

Source: Guam Housing Study, Guam MLS, December 2019

Using a similar process, we qualified future renters. We looked at a security deposit (one month's rent) and the first month's rent, then we determined which households could still pay the monthly rent with 30 percent or less of their monthly income²⁶. With that qualifier we were able to identify 15 percent of those seeking a single-family home and 29 percent of those looking for a multi-family dwelling who would not be qualified to rent the unit they wanted given current conditions of the Guam housing market and the finances of the buyer household. .

²⁵ The demand surveys also collected data on existing home equity, other real estate, and availability of funds from friends and family.

²⁶ The demand survey also collected data including the current tenure, current monthly shelter payments, and employment data.

Table 24: Qualified Demand for Rental Units, Guam, 2019.

Qualified Demand	Preferred Unit Type		Explanation
	Single Family Home	Multi Family Dwelling	
Average Monthly Rent Amount	\$2,113	\$1,427	Guam MLS, December 2019. For all unit sizes.
Security Deposit + 1st Mo. Rent	\$4,226	\$2,854	Move in costs, in addition may require pet, power, water &/or sewer deposits.
Total Effective Demand	1,605	1,559	Households that plan to rent their next unit in Guam in the next 5 years.
Income-Based Qualification	14.6%	28.5%	Monthly rent payment less than or equal to 30% of household income

Source: Guam Housing Study, Guam MLS, December 2019

Source: Security Deposit and first month rent, "Move In Costs," Island Realty website, <https://www.guamrentals.com/renters-guide/move-in-costs>

The Guam Housing Demand Survey data were used to identify interest in obtaining a new housing unit in the next ten years, preferred characteristics of the unit, and financial qualifications for purchasing or renting that unit. That information is useful in determining the most preferred unit characteristics. Such information may be useful to housing developers. Table 26 summarizes the steps from estimating demand to qualifying households for financial soundness to finally determining needed units. We will return to that subject in the next section of this report.

Table 25: Determining Needed Units, Guam, 2020-2025

Element	Number	Comment
Total Households, 2019	45,645	Total occupied housing units/households
Will Move	24,738	Desire to move at some time in future
Final Demand (10 year)	19,479	Probably move in the next 10 years
Effective Demand (10 year)	9,658	Plan to move and stay on Guam 2020-2030
Effective Demand (5 year)	9,336	Plan to move and stay on Guam 2020-2025
Needed Units (5 year) pent up demand	6,650	Not well qualified to buy or rent, 2020-2025

Source. Guam Housing Demand Survey, 2019

The survey information allowed us to estimate the number of households that were not qualified to purchase or rent their preferred unit. Those data were useful in estimating the extent of pent-up demand on Guam – demand that would not be fulfilled because of the circumstances of the market or the individual buyer/renter.

B. ESTIMATING THE NUMBER OF HOUSING UNITS NEEDED TO MEET DEMAND

The number of new housing units needed to shelter Guam households in the next five years has three components: (a) a number of units required to house population growth; (b) a number of units that will free up at least some of the pent-up demand in Guam today; and (c) the number of new units required to bring some of Guam's homeless households back into the housing market.²⁷

1. Growth Demand

The section reviews the projections for population, number of housing units, and number of households up to 2040, with and without a military buildup. The population projections are based on historical population growth on Guam. The projected housing stock is based on our analysis of population growth, household size, and building permits.

a. Population Projection

According to the Guam Statistical Yearbook, Guam's resident population was 163,873 persons in 2017, projected to reach 166,661 in 2019.²⁸ The projected population for 2019 has increased by 4.6 percent since 2010. Table 27 shows the historical and projected population with and without military buildup in five-year intervals. In 2040, Guam's population is projected to be 189,375 persons, an increase of 13.6 percent since 2019. With the military buildup beginning in 2024, the population is projected to reach 196,334 persons in 2040, an increase of 17.8 percent over 2019.

Table 26: Guam Historical and Projected Population 2000 to 2040

	Historical and Projected Resident Population (Without Military Buildup)	Percent Change ¹	Historical and Projected Resident Population (With Military Buildup)	Percent Change ¹
2000	154,805	N/A	154,805	N/A
2005	158,397	2.3%	158,397	2.3%
2010	159,358	0.6%	159,358	0.6%
2015	161,785	1.5%	161,785	1.5%
2020	168,323	4.0%	168,323	4.0%
2025	175,329	4.2%	181,128	7.6%
2030	181,143	3.3%	188,102	3.2%
2035	185,913	2.6%	192,872	2.5%
2040	189,375	1.9%	196,334	1.8%

Source: United Nations Population Division, Decennial Census 2000, 2010, Guam Statistical Yearbook 2010 to 2017, Guam and CNMI Military Relocation (2012 Roadmap Adjustments) SEIS [D], Interagency Coordination Group of Inspectors General for Guam Realignment Plan, Japan Times News, SMS Estimates

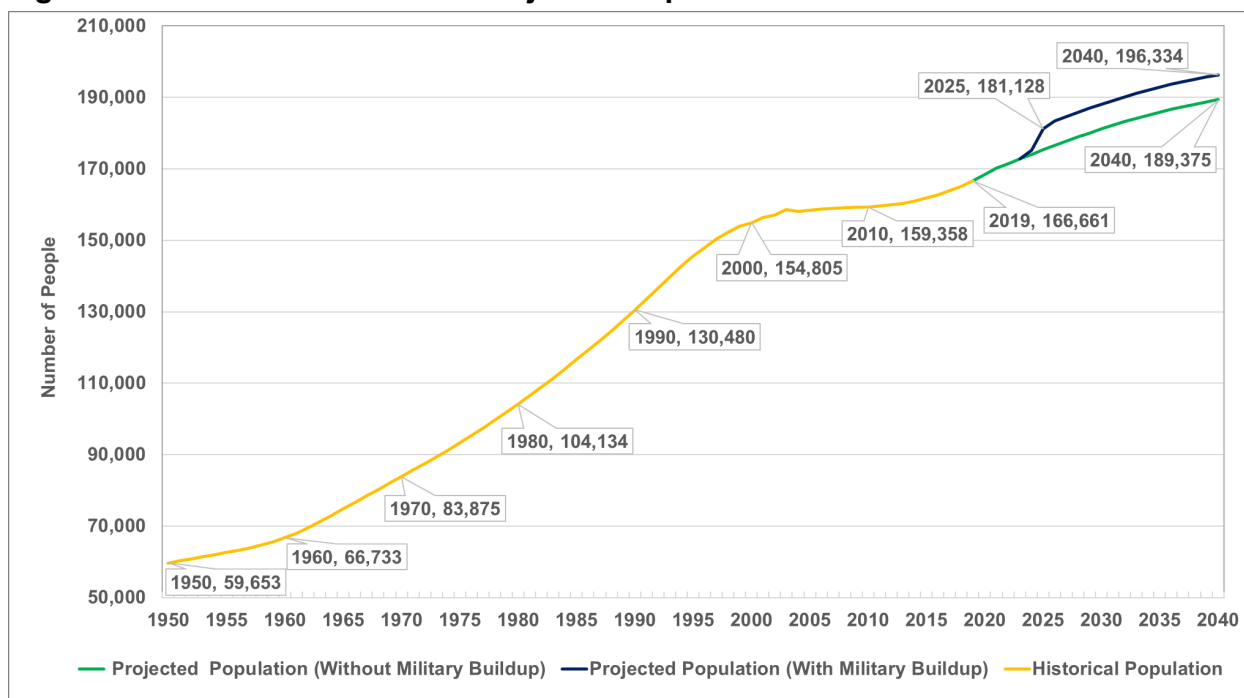
Note: The percent changes in this table were calculated based on a 5-year interval.

²⁷ There was not enough data to estimate the number of units required to deal with special needs housing at this point. Clients such as person released without home addresses from hospitals or prisons, youth who age out of the foster care system, and other special needs populations may also add to the number of new housing units required each year. To that extent, our needed units estimate will be conservative.

²⁸ Without a military build-up.

Figure 12 shows the population of Guam from 1950 through 2019 and our population projections through 2040.

Figure 13. Guam Historical and Projected Population 1950 to 2040



Source: United Nations Population Division, Decennial Census 2000, 2010, Guam Statistical Yearbook 2010 to 2017, Guam and CNMI Military Relocation (2012 Roadmap Adjustments) SEIS [D], SMS Estimates

Between 1960 and 2000 Guam's population rose at a rate of about 2.1 percent per year. The rate of growth slowed to less than one percent per year between 2000 and 2015. In the last three years the rate has been increasing, and our population projections show continued growth at a decreasing rate from 2020 through 2040.

The impact of the military build-up occurs very quickly (6,500 to 7,500 persons in 18 months) with a slightly decreased growth rate thereafter. The build-up begins in the last quarter of calendar 2040.

b. Household Projection

Projecting the number of households depends on the population projection and assumptions about average household size. We assume that average household size on Guam has not changed dramatically in the past 20 years and we do not expect it to change much over the next 20 years.

Table 28 presents historical and projected numbers of households with and without military buildup in five-year intervals. In 2019, Guam had 45,645 households projected to reach 51,277 households by 2040, an increase of 12.3 percent since 2019. With the military buildup beginning in 2024, the population is projected to reach 54,210 households in 2040, an increase of 18.8 percent over 2019.

More importantly, the build-up projection is for 51,364 households in 2026, 6.4 percent higher than the 48,260 households projected for 2026 without a military build-up. Any increase in the number of households will require a short-term increase in Guam's housing stock.

Table 27: Historical and Projected Households, Guam, 2000 to 2040

	Historical and Projected Resident Population (Without Military Buildup)	Percent Change ¹	Historical and Projected Resident Population (With Military Buildup)	Percent Change ¹
2000	38,769	N/A	38,769	N/A
2005	40,398	4.2%	40,398	4.2%
2010	42,026	4.0%	42,026	4.0%
2015	43,756	4.1%	43,756	4.1%
2020	46,108	5.4%	46,108	5.4%
2025	47,952	4.0%	50,550	9.6%
2030	49,378	3.0%	52,430	3.7%
2035	50,501	2.3%	53,492	2.0%
2040	51,277	1.5%	54,210	1.3%

Source: United Nations Population Division, Decennial Census 2000, 2010, Guam Statistical Yearbook 2010 to 2017, Guam and CNMI Military Relocation (2012 Roadmap Adjustments) SEIS [D], Interagency Coordination Group of Inspectors General for Guam Realignment Plan, Japan Times News, SMS Estimates

Note: The percent changes in this table were calculated based on a 5-year interval.

Civilian households will make up 89.1 percent at 45,702 households in 2040. Military households are projected to make up the rest of the households at 5,575 (10.9%). With military buildup, the number of military households will nearly double. The civilian households and military households are projected at 45,702 (84.3%) and 8,508 (15.7%), respectively.

According to the Interagency Coordination Group of Inspectors General for Guam Realignment Plan, the relocations of service members and realignment were initially scheduled to start in 2010 and be completed by 2028. The relatively stable population growth between 2010 to 2019, however, reflects that no significant military relocations have taken place in that time period. According to "The Japan Times News" ²⁹, the Okinawa-based U.S military may start moving to Guam as early as October 2024. This report will consider the year 2024 as the starting point for the military buildup scenario. Without any military buildup, the population on Guam is expected to grow at a steady pace with an average annual growth rate of 0.6 percent between 2018 and 2040. With military buildup, the average annual growth rate is projected at 0.7 percent between 2024 and 2040. The most significant population growth is expected to take place between 2024 to 2026. It then follows a similar growth pattern as the no buildup scenario.

The housing demand and supply projections for the period 2020 through 2040 show a growth rate that is very similar to Guam's experience in the last twenty years. In our business-as-usual projections, total housing units will grow by .06 percent per annum and reach 189,375 units by 2040. The projection for a military build-up beginning in 2024 makes a significant difference. The adjusted forecast for demand rises to 196,334 units in 2040.

²⁹ The Japan Times News, "Okinawa-based U.S. Marines may start moving to Guam in October 2024", <https://www.japantimes.co.jp/news/2019/05/14/national/okinawa-based-u-s-marines-may-start-moving-guam-october-2024/#.XiH8e8hKiHt>

c. Housing Demand Projections

Housing demand measures the number of housing units required to house the new households each year on Guam. Historically, total housing units needed is past production – the number of housing units in year x minus the number of housing units in year x + 1. The housing demand projection is the projected number of units needed to house total households in the future. As we shall see, that amounts to about 6,640 more housing units to support the population and household growth on Guam by 2040.

Table 28: Number of New Households and Housing Demand, without Military Buildup

	Year				
	2020-2024	2025-2030	2030-2035	2036-2040	Total
Number of new households	1,988	1,746	1,123	776	5,632
Total housing demand	2,386	2,057	1,297	900	6,640

Source: United Nation Population Division, Guam Statistical Yearbook 2008-2017, "Social and Economic Indicators" Summary Brochure, SMS Estimates

In the no military buildup scenario, the number of new households is projected to grow by 1,988 between 2020 and 2024 and 1,746 between 2025 to 2030. The household growth is projected to slow down as population growth continues to slow down. Total new households are projected at 5,632. The associated housing demand for 2020 to 2024 are 2,386. Between 2025 to 2030, the housing demand is projected at 2,057 units. By 2040, the total housing demand is expected to grow by 6,640 units.

d. Housing Demand Forecast with Military Buildup

The military buildup may start as early as October 2024 and last for 18 months, according to the most recent plan. The Interagency Coordination Group of Inspectors General for Guam Realignment Plan states that it is expected to bring in a total of 5,000 marines accompanied by 1,300 dependents to Guam. Our model adopted the Guam and CNMI Military Relocation SEIS report when developing the housing demand forecast primarily because it has a detailed breakdown of the military buildup by years. The report was published in 2015 but the scheduled number of military personnel and dependents are similar to later estimates. It provides not only the number of military personnel and dependents that will be relocating to Guam but also the number of direct workers that will be supporting the activity. We adjusted the start year to 2024 in our model and assumed the military buildup will be relocating to Guam proportional to the scheduled timeframe.

With the presence of military buildup, the number of households is forecast at 48,155 in 2024. That is an increase of 14.6 percent since 2010. It is expected to create an addition of 522 households when compared to the no buildup scenario in 2024. In 2040, the number of households is forecast at 54,210, approximately 2,933 households more than in the no buildup scenario.

Table 29: Number of New Households and Housing Demand, with Military Buildup

	Year				
	2020-2024	2025-2030	2030-2035	2036-2040	Total
Number of new households	2,510	4,276	1,062	718	8,565
Total housing demand	2,577	3,013	1,297	900	7,787

Source: United Nation Population Division, Guam Statistical Yearbook 2008-2017, "Social and Economic Indicators" Summary Brochure, Guam Statistical Yearbook 2008 to 2017, "Social and Economic Indicator" Summary Brochure 2008 to 2017, Guam and CNMI Military Relocation SEIS report, SMS Estimates

Table 30 shows the number of new households and total housing demand forecast with the presence of military buildup. The number of new households increases most significantly between 2025 to 2030, reflecting the military relocation to Guam during that period. It is worth noting that even though the number of new households are forecast at 4,276, the demand for housing will not be as substantial. The reason is that not all the military personnel require off-base housing as some of them may prefer to live in on-base housing units. This report also assumed that all the temporary construction workers supporting the military buildup will be living on-base and require no housing units.

According to the 2017 Joint Base Marianas Housing Requirements and Market Analysis Report, among 7,646 total permanent party personnel, 1,875 military families and 3,491 unaccompanied personnel require a housing unit. With an asset of 2,040 military family housing and 1,934 unaccompanied housing capacity, it leaves a surplus of 165 military family housing and a deficit of 1,557 unaccompanied housing capacity. This totals to 1,392 needed units (18.2%) to house the military personnel. We assumed that this ratio will remain constant over time. Applying this ratio to the military buildup will generate the number of additional units needed to house these people. The total housing demand in the military buildup scenario are 2,577 units from 2020 through 2024 and 3,013 housing units from 2025 through 2030. By 2040, the total housing demand is forecast at 7,787 units.

2. Pent-up Demand

Pent-up demand is demand for housing units that cannot be met under current market conditions. That is, the current market may not provide enough access, financing, prices, specific unit types needed by households that want to buy or rent. It is sometimes referred to as unmet demand and it is a key component of potential demand. What concerns us here is that it represents demand for housing that is in addition to demand generated by population growth.

There are several indicators of pent-up demand in every housing market. Crowding, doubling-up, multigenerational households, and hidden homeless households are frequently used indicators of unmet housing demand. All are accepted as measures of pent-up demand for housing and as a sign that household formation may be constricted. Table 31 presents Guam Housing Demand Survey data for all four issues.

Table 30: Crowded and Doubled Up, Guam, 2009 and 2019

	Crowded ^a		Doubled-Up ^b		Multi-Generational ^c		Hidden Homeless ^d	
	Households	Percent	Households	Percent	Households	Percent	Households	Percent
2009	12,037	27.1%	6,803	15.3%	6,706	15.1%	7,005	15.7%
2019	9,106	20.2%	6,965	15.3%	6,784	14.9%	9,064	19.9%

Source: Guam Housing Demand Surveys, 2009 and 2019.

^a. Based on more than 2 persons per bedroom.

^b. More than one family per housing unit (See Glossary).

^c. Three or more generations in one household.

^d. Household members related or unrelated, who wish to move out but cannot for financial reasons.

Crowding was measured as households with more than two persons per bedroom (PPB). This is the definition that is most appropriate for affordable housing planning.³⁰ Overall, crowding has decreased over the past ten years on Guam, for owners and renters. Crowding remains significantly higher for renters, by the PPB standard, at nearly 25 percent compared to owners at 16 percent. Crowding was also calculated as persons per room in order to compare Guam's situation with national crowding measures. Using that national measure, crowding on Guam is significantly higher (10.3%) than the national average (3.3%).

Doubling-up includes having more than two generations in the household, having unrelated individuals in the household, or having same-generation relatives in the household. In all cases, the Housing Demand Survey shows that doubled-up persons are in the household because they cannot afford to live elsewhere. Doubling up is not measured in the Census and was at the same level (15.3%) in 2009 and 2019.

Multi-generational households are another indicator of pent-up demand. It is defined as doubling-up with related persons only. The survey results are much like those for doubling up and hidden homelessness. The data show that about 15 percent of all households reports three or more generations in the same households in 2009 and again in 2019.

Hidden homelessness is defined as having persons in the household who would like to move to their own unit but cannot afford to do so. Clearly a measure of pent-up demand, Guam's hidden homelessness was measured as 7,005 households (15.7%) in 2009 and rose to 9,064 households (19.9%) in 2019.

How does that compare with other housing markets in the nation? We are not certain. The Guam Census does not report these data. We do note that Hawai'i's crowding rate has long been among the highest in the nation. In 2017, Hawai'i was ranked first in crowding for owner-occupied units (6.3%) and second for renter-occupied conditions (12.8%).³¹ By the Housing Demand Survey definition, crowding is significantly higher in Guam (20.2%) than in Hawaii (13.6%).

³⁰ Crowding based on persons per bedroom is consistently 4 to 8 percent higher than crowding levels based on persons per room.

³¹ ACS 2017 5-yr. est., Table B25014, tenure by occupants per room.

Pent-up demand affects somewhere between 15 and 20 percent of all households in Guam. Even if the rate of housing unit production is consistent with the rate of household formation, the housing market is not providing enough units of the appropriate type to serve all households. Pent-up demand, which is not measured in the marketplace masks the need for as many as 9,064 additional affordable units.

3. Housing Production vs. Household Formation

In many high-priced housing markets across the country, housing markets are exhibiting a lack of supply elasticity, that is, a change in demand does not lead to a change in supply in a timely or efficient manner. That leads to low production and high prices. Our conversations with household stakeholders on Guam have suggested similar impediments to the development of housing in Hawai'i, including the lack of "reasonably priced," developable land, lack of major off-site infrastructure, high development costs, government regulations; community opposition; and growing environmental requirements.

Guam does not have enough timely, accurate or continuous housing data to estimate the exact extent of demand or supply on an ongoing basis. The building permits data from DPW are perhaps the longest data series related to housing on Guam. The lack of correspondence between permit data³² and other housing units counts limits their value in this enterprise. Census data are only available every ten years, rendering them nearly useless for a five-year planning schedule such as the HUD system applied on Guam. The lack of American Community Survey (ACS) data on Guam is a major stumbling block for any type of government planning in the Territory. MLS data, while accurate and easily available, are limited to number of sales and rentals, total sales prices, and monthly rents, and the sales and value of land transactions. They will not support analysis of housing counts or values. Without those kinds of data, estimating the possibility of supply inelasticity on Guam is well outside the scope of this study.

Other data can be used to study the demand/supply issue on Guam. From classical economic theory, a housing market is said to be functioning well when demand is equal to supply. We have not spoken with observers on Guam who believe that housing demand and supply are equal. Neither have we heard that supply is in excess of demand (Guam is overbuilt or has a housing surplus). Most observers believe that supply lags demand to some extent.

In the Housing Demand Survey, we have seen evidence in 2009 and again in 2019 that there is significant pent-up demand on Guam.³³ While it may be true that, by some measures, pent-up demand is improving on Guam, between 15 and 20 percent of households are experiencing some form of pent-up demand.

³² Including permit counts, permit values, and occupancy permits.

³³ See section 1.C.2, Pent-up Demand, Table 31, p.50.

Therefore, there is evidence that demand exceeds supply in Guam and no evidence to the contrary. Housing supply is inelastic with respect to demand, which means that, no matter what the demand might be, the market does not respond by producing the appropriate number of new housing units.

4. Needed Units

This study used population and housing projections, along with survey data, to develop estimates of unmet demand for housing in Guam. They are called “needed unit estimates” and identify a set of housing units that are of interest to housing planners in Guam (Table 32).

Table 31: Determining Needed Units, Guam, 2020-2025

Element	Description	Need	Total
Pent-up Demand	Housing units needed to address pent-up demand or potential demand, 2020 through 2025.	6,650	6,650
Population Demand	Housing units needed to accommodate household growth between 2020 and 2025.	2,768	9,418
Homeless Demand	Housing units needed to accommodate homeless households re-entering the housing market, 2020-25.	490	9,908

Source. Guam Housing Demand Survey, 2019; SMS Population estimates; source on the homeless numbers.

First, unmet demand was based on the survey data discussed in previous sections, especially those on demand and supply projections, and the discussion of effective demand. A 5-year target for reducing pent-up demand caused by years of supply shortages (6,650),

Next, the unmet demand estimate was adjusted for population change. Current population models suggest that 2,768 new housing units will be required in order to accommodate anticipated population increases over the next five years. This produced a Needed Units estimate of 9,418.

Finally, an additional 490 affordable housing units are needed to accommodate homeless households entering the housing market between 2020 and 2025.³⁴ Therefore the final estimate is 9,908 housing units needed between 2020 and 2025.³⁵

a. Characteristics of Needed Units

Perhaps the major value of estimating needed units from survey data is that the estimates are available with demographic, geographic and economic information obtained from the buyer and renters who will occupy the new housing units. Table 33 presents a breakdown of the 9,908 needed housing units by HUD income levels, tenure, and unit type (single-family versus multi-family units).

³⁴ See Section II.E.1.e, Homelessness calculations.

³⁵ We do not account for units needed for special needs groups entering the housing market because the data available were not strong enough. That makes our needed units estimate a conservative one.

Table 32: Total Units Needed by HUD Income Classifications

	Total Units Needed, 2020 through 2025									
	HUD Income Classification									Total
	LT 30	30 to 50	50 to 60	60 to 80	80 to 100	100 to 120	120 to 140	140 to 180	180+	
Guam	3,401	679	935	1,027	1,359	603	223	790	891	9,908
Ownership Units	1,240	325	467	622	635	403	80	375	755	4,903
Single-Family	1,141	325	467	413	520	403	80	375	628	4,352
Multi-Family	99	0	0	209	115	0	0	0	128	551
Rental Units	2,162	354	468	405	723	200	142	415	136	5,005
Single-Family	1,072	354	160	183	0	160	142	415	0	2,486
Multi-Family	1,090	0	308	222	723	40	0	0	136	2,519

Source. Guam Housing Demand Survey, 2019.

Based on the characteristics of the households from which we gathered the survey data, units are needed across the whole scope of HUD income classifications. Almost three-fourths of the need (74.7%) is for units suited to households with incomes below the HUD Area Median Income (AMI). That is typical of unmet demand: it is largely generated out of lower income households. Here we see that 34 percent of total need was found in HUD's 'less than 30 percent of AMI' category. Nearly all the units under 50 percent of AMI is generally provided by government agencies and these data suggest that will be a big job. In recent years, it is also the case that the middle-income groups – those between 50 and 120 percent of AMI are also at least partially funded by government.

But there are also units needed in the highest income category - more than 180 percent of AMI. Traditionally, those units are produced by private sector developers and they rarely show up as high in a display like Table 33. In part this may be because high-priced housing markets can become inefficient and fail to provide units suited even to buyers and renters above HUD's highest level. In part it is also due to the rapid rise in the area median income figures developed by HUD for many jurisdictions across the nation. As the HUD median rises, the number of households falling below the median increases. In addition, stakeholders have suggested that non-Guam residents have been purchasing higher priced units that might otherwise be available to residents.

We also see that about half (49.5%) of the need is for ownership units and half (50.5%) is for rentals. That is much like the current breakdown of the housing stock and thus perhaps not unexpected.

About 67.1 percent of the need for ownership units was found at the lower end of the market and 82.1 percent of rental need was in the lower half of the market.

About 70 percent of needed units were single-family units and 31 percent multi-family. Most of the single-family need was found among higher-income groups and multi-family units are acceptable to many of the lower income groups.

Table 33 is an end-product of the research that is needed to understand Guam's housing need and for planning affordable housing across the income profile. It is not, however, intended to be used slavishly for either of those purposes. For instance, there is an estimated 1,141 households with incomes below 30 percent of AMI that expressed an interest in a single-family owned unit. While that is their expressed preference, it is doubtful that any known housing program can produce that form of housing. It is likely that planning to increase the number of affordable rentals will solve the housing problems for most of those households in the short-run.

By a similar logic, we found no interest in multi-family rentals among Guam households with incomes between 120 and 180 percent AMI. That does not mean that multi-family rentals will not serve the needs of some people nor that multi-family rentals should be excluded from the arsenal of tools available to housing planners on Guam.

The outcome is not the plan, but an estimate of the multivariate profile of housing needs on Guam in 2019 – a tool for planning.

PART III: HOUSING ISSUES

A. AVAILABILITY OF LABOR

Guam has an insufficient number of resident skilled construction workers to meet the needs of its growing economy. Part of a worldwide shortage of construction labor has roots in the last housing bubble. In the Great Recession that followed, construction workers took new jobs and left their professions. Many of those skilled workers have not returned, and young people have turned away from the trades.³⁶ In Guam, the situation is exacerbated by the difficulty in securing construction labor from outside the Territory.

To meet the shortage in labor, Guam has relied on bringing in labor under the H-2B Visa program. Prior to the 2015 the H-2B visa worker program population on Guam was about 1,500 per year, primarily for construction. In December 2015, the United States Citizenship and Immigration Service (USCIS) denied all H-2B visa petitions for Guam resulting in the H-2B population being reduced to 39 by December 2017.³⁷

In FY2018, the National Defense Authorization Act (NDAA) authorized admitting up to 4,000 H-2B workers per fiscal year to support military build-up projects.³⁸ In June 2018, new H-2B workers began to arrive, the first since the 2015 denial of petitions strictly for projects related to the military buildup. The 2019 NDAA removed the 4,000 cap on H-2B workers for military buildup projects and healthcare workers. In addition, a few Guam Contractors have filed petitions for labor for civilian projects, but to receive approval has proved challenging.³⁹

On January 19, 2019 The Department of Homeland Security (DHS) took the Philippines off the list of countries eligible to send workers to the U.S. under the H-2B Visa Program. The Philippines has been the main source for Guam's H-2B workers including cement masons, carpenters, iron workers, heavy equipment operators and electricians, because of the limited local labor pool.⁴⁰ Some military contractors have found a way around this restriction by petitioning for Filipino workers and as of April 2019, 355 worker petitions were approved.⁴¹ However this small number is insufficient and more labor is required. Therefore, military contractors must recruit even more heavily from the local construction skilled labor pool in order to complete their projects. The ban on bringing in Filipino labor expired on January 18, 2020 and has since been renewed.

Civilian developers report that their core local labor pool is being recruited away by military contractors for higher pay, resulting in residential construction projects being delayed, sometimes

³⁶ Hearn, Alicia. 2019. The impact of the labor shortage in the construction industry, Giatec Scientific, Inc., April 30, 2019, p.2.

³⁷ "Projects Delayed, zero H-2B workers for plaintiffs." Guam Pacific Daily News, December 9, 2017.

³⁸ Guam Comprehensive Economic Development Strategy 2020-2025, The Guam Economic Development Authority, Commerce & Economic Development Division, November 2018

³⁹ "H-2B applications slow to rise; nearly 1,800 foreign workers on Guam," Guam Pacific Daily News, October 7, 2018.

⁴⁰ "Guam braces for project delays, other impacts of the H-2B 'crisis,'" Guam Pacific Daily News, January 21, 2019.

⁴¹ "Hundreds of Philippine workers approved for Guam visas," AP News, April 2, 2019. <https://apnews.com>

even terminated. Even self-help housing has stalled because of the lack of skilled supervisors. Reportedly, the only projects that have been completed are higher-end residential units that can absorb the higher wage levels.

Should the number of H-2B laborers reach and exceed the 4,000 workers, there will be a need for worker housing. Some developers say they have developed dormitories for workers, but the most recent occupancy permit for a dormitory was 2011. Therefore, it is unclear where H-2B workers will be living.

To overcome this issue will require the Federal Government to approve petitions for H-2B laborers for Guam, including from the Philippines for all projects including civilian construction. Ongoing lobbying of the federal government for changes is required and Governor Leon Guerrero is continuing to do so.⁴²

In addition to changing the H-2B barriers, Guam needs to expand its training and apprenticeship programs to raise the skill level of residents. Given that construction hourly wages are higher, this would also have a positive impact for the economy.

B. RISING COST OF DEVELOPMENT

A significant barrier to producing more affordable housing is the rising cost of development. Between 2008 and 2018 the average value of a construction permit for residential housing increased 65 percent (Figure 8). The developers we interviewed attributed this increase to several factors including:

- The rising cost of labor
- The rising cost of materials
- The increasing cost of land; and
- New fees imposed by Guam Waterworks Authority.

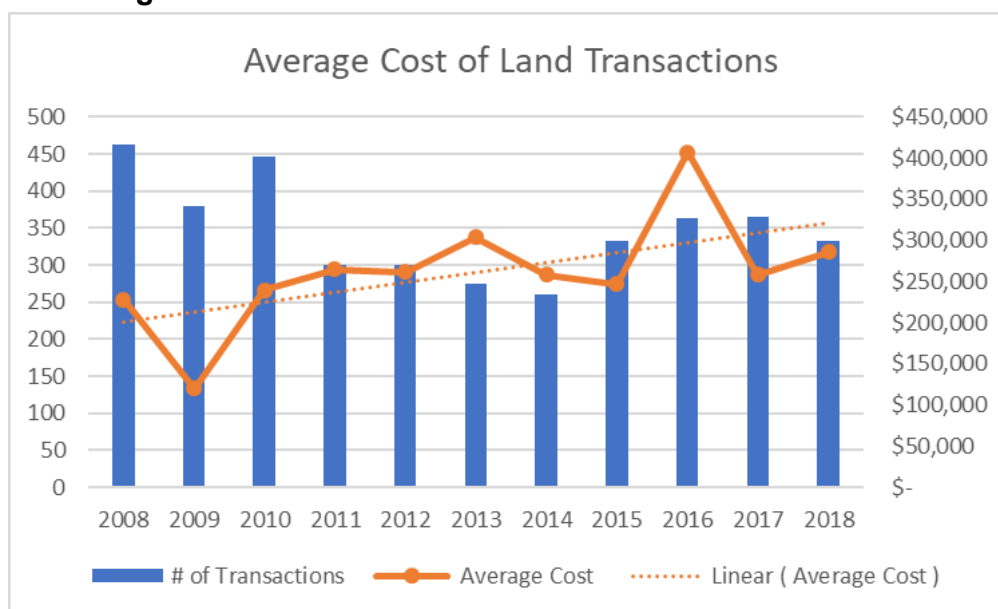
Labor costs have directly impacted the cost of construction: “in 2017, Governor Calvo said in just a one-year period, the cost of building a house on Guam has nearly doubled, or from about \$80 to \$150 per square foot because of the skilled labor shortage. Cost of labor is the major price increase driver”.⁴³ This was before the restriction on Filipino labor.

According to Developers the increasing cost of construction materials is due to the ongoing issue of the high cost of shipping due to the Jones Act that requires Asian products to go to Hawai'i then back to Guam. More recently the industry has been impacted by tariffs imposed on Chinese products, such as rebar, forcing contractors to buy higher priced US products or the Chinese product with tariffs.

⁴² “Guam braces for project delays, other impacts of H-2B ‘crisis’,” Pacific Daily News, January 21, 2019

⁴³ “Calvo: Construction costs up,” Pacific Daily News, September 22, 2017.

Figure 14: Average Cost of Land Transactions



Source: Data from Guam Statistical Yearbook 2018 and Cornerstone Valuation Guam, Inc.

The average cost of land transactions has been increasing since 2008. Stakeholders attribute this increase to foreign buyers bidding up the prices above what locals can afford, the limited availability of land, and the higher cost of infrastructure development for land further away from current capacity.

Land available for residential development is limited. The island of Guam is about 212 square miles. The federal government owns about 32 percent of the island, and it is estimated that the Government of Guam owns an additional 20 percent, leaving less than half of the land available for private development. The Chamorro Land Trust Commission's (CLTC) land inventory accounts for 33 percent of Government of Guam property throughout the island of Guam. The total acreage in CLTC inventory amounts to 11,061. The northern part of Guam accounts for 5,694 acres, 1,297 acres in the central and 4,070 acres in the south.⁴⁴

The North and Central areas have the largest concentration of military and residential development. The steep slopes and unstable soils in the South, keep most villages to be developed along the coast. The South has the largest concentration of agricultural land.⁴⁵

⁴⁴ Kumision Inangokkon Tano' Chamorro, (Chamorro Land Trust Commission). A Report to the Citizens of Guam FY2014. Opaguam.org.

⁴⁵ North & Central Guam Land Use Plan, Bureau of Statistics and Plans, Government of Guam, September 2009.

C. INFRASTRUCTURE IMPACT ON HOUSING DEVELOPMENT

Utilities and transportation are key infrastructure requirements for housing development. All affect the cost and attractiveness of housing for buyers. First, there is a trade-off when considering land for developing affordable housing. Less expensive land is likely to be further from existing power, water, sewer, and transportation. That will result in higher costs allocated to the developer to bring power lines, water and sewer lines, and roads to new housing. Second, the added fees or challenges are passed on to the homeowner or renter.

1. Guam Power Authority

The Guam Power Authority (GPA) is a public corporation responsible for generating and providing electricity to the Territory of Guam. The GPA is governed by the elected five-member Consolidated Commission on Utilities (CCU) and regulated by the Guam Public Utilities Commission (GPUC). According to the 2017 GPA Annual Report, the GPA owns a total of \$954M in assets, employs a 464-person workforce, and serves 51,000 customers in Guam, with the U.S. Navy being the largest consumer representing 16 percent of revenue. GPA is Guam's sole public power utility and has maintained an average rate of 24.9 cents per kWh through 2018⁴⁶.

Relative to coverage, GPA has been expanding the use of renewables and adding multiple power plants and battery storage systems to their portfolio in recent years. The authority hopes to transition from 25 to 50 percent renewable by 2030. Most power plants are in the north and central parts of the territory, which is consistent with population demand, but recent growth in renewables has led to some development in the South.

Costs for new construction and tie-ins can vary significantly, mainly based on location. If power needs to be brought to a property, GPA may charge up to \$5,000 per power pole based on stakeholder input, though an official cost listing from GPA was not available for this report. These types of fees are a major deterrent to developing residential projects too far from existing power lines.

According to GPA Service Rules & Regulations, Rule 3, Section A.10, building owners or tenants must provide substantiating documents proving ownership or authorization from owner with a \$25 application fee. For residential properties, a security deposit is also assessed based on size of unit, for example a one-bedroom unit without an air conditioner is required to submit a deposit of \$125 and a unit with four bedrooms and an air conditioner must submit a deposit of \$500. This type of fee increases barriers for low income renters.

2. Guam Waterworks Authority

Guam Waterworks Authority (GWA) is the public corporation tasked with managing Guam's water systems. This includes production, treatment, transmission, storage, and distribution, as well as collection, treatment and disposal of wastewater. GWA is governed by the elected five-member

⁴⁶ 2017 GPA Annual Report, http://guampowerauthority.com/gpa_authority/investors/annual_rpts/gpa_ar_2018.pdf.

Consolidated Commission on Utilities (CCU) and regulated by the Guam Environmental Protection Agency (GEPA).

The Guam Environmental Protection Agency (GEPA), established in 1973 by Public Law 11-91, monitors and regulates water quality and safe drinking water on Guam.⁴⁷ The agency is tasked with ensuring high quality of air, land and water is maintained in Guam.

Sewer systems and connections are regulated by the Guam Administrative Rules, Chapter 22. Inspections are conducted by GEPA and sewers are considered adequate, inadequate, or defective. Inadequate systems must be upgraded, though single family and duplex properties can apply for a variance which may extend up to or beyond five years in some cases. Defective facilities have no exceptions and must be upgraded immediately.

Connection to an available public sewer is required in the following situations⁴⁸:

- All new construction.
- Existing buildings which are remodeled when; an increase in sewage flow is expected or an increase in floor area by more than twenty percent (20%).
- All such buildings existing at a time a public sewer first becomes available and being served only by Type 3 (privy) facilities must be provided with such installation and connection within six (6) months after the public sewer becomes available.
- Any such building existing at the time a public sewer first becomes available and being served by Type 2 facilities (septic tank and leaching field) which are entirely adequate and without defect may continue to be served by such existing facilities for a maximum period of five (5) years.

For first time renters a deposit is required for water and if there is a sewer connection. For new construction the cost of bringing water and sewer lines to the property line as well as connecting those lines to each unit are costs incurred by the developer or builder.

Special Development Charge

In addition to the cost of connecting with the water and sewer system, in 2008 GWA filed a petition with the PUC to approve a System Development Charge (SDC) to offset the cost of new development and expanding sewer systems⁴⁹. The SDC applies to all new utility connections as well as existing connections that significantly increase service demands. Single family homes that use a ¾ meter size are assessed a \$5,600 charge on top of the hookup charges. Multi-family buildings such as apartments and condominiums can require an 8" meter size and the SDC will cost \$448,064 on top of the cost to bring sewer and water lines to their building. An additional almost ½ million-dollar charge adds significantly to the cost of construction.

⁴⁷ EPA.guam.gov

⁴⁸ Guam Administrative Rules, Ch. 22, Div. V, §25109

⁴⁹ <http://guamwaterworks.org/system-development-charge/>

Table 33: GWA System Development Charges

Meter Size	Water SDC	Sewer SDC	Total
¾"	\$2,126	\$3,474	\$5,600
1"	\$5,316	\$8,686	\$14,002
1½"	\$10,632	\$17,372	\$28,004
2"	\$17,011	\$27,795	\$44,800
4"	\$53,160	\$86,860	\$140,020
6"	\$106,320	\$173,720	\$280,040
8"	\$170,112	\$277,952	\$448,064

Source: Guam Waterworks Authority, System Development Charge, Implementation Guidelines

To assist with cost, GWA operates the *Wastewater Revolving Loan Fund Program*, which offers 10-year low interest loans to help cover sewer connections and upgrade costs primarily for individual residential projects.⁵⁰

3. Roads and Transportation

The quality of roads and transportation on Guam vary significantly, from acceptable, to poor, to unacceptable.⁵¹ The majority of roads and transportation systems are in central and northern Guam, consistent with population density. A major challenge with roads, particularly in the central and southern regions is the flooding that occurs frequently after heavy rains, bringing major roadways to a stop.

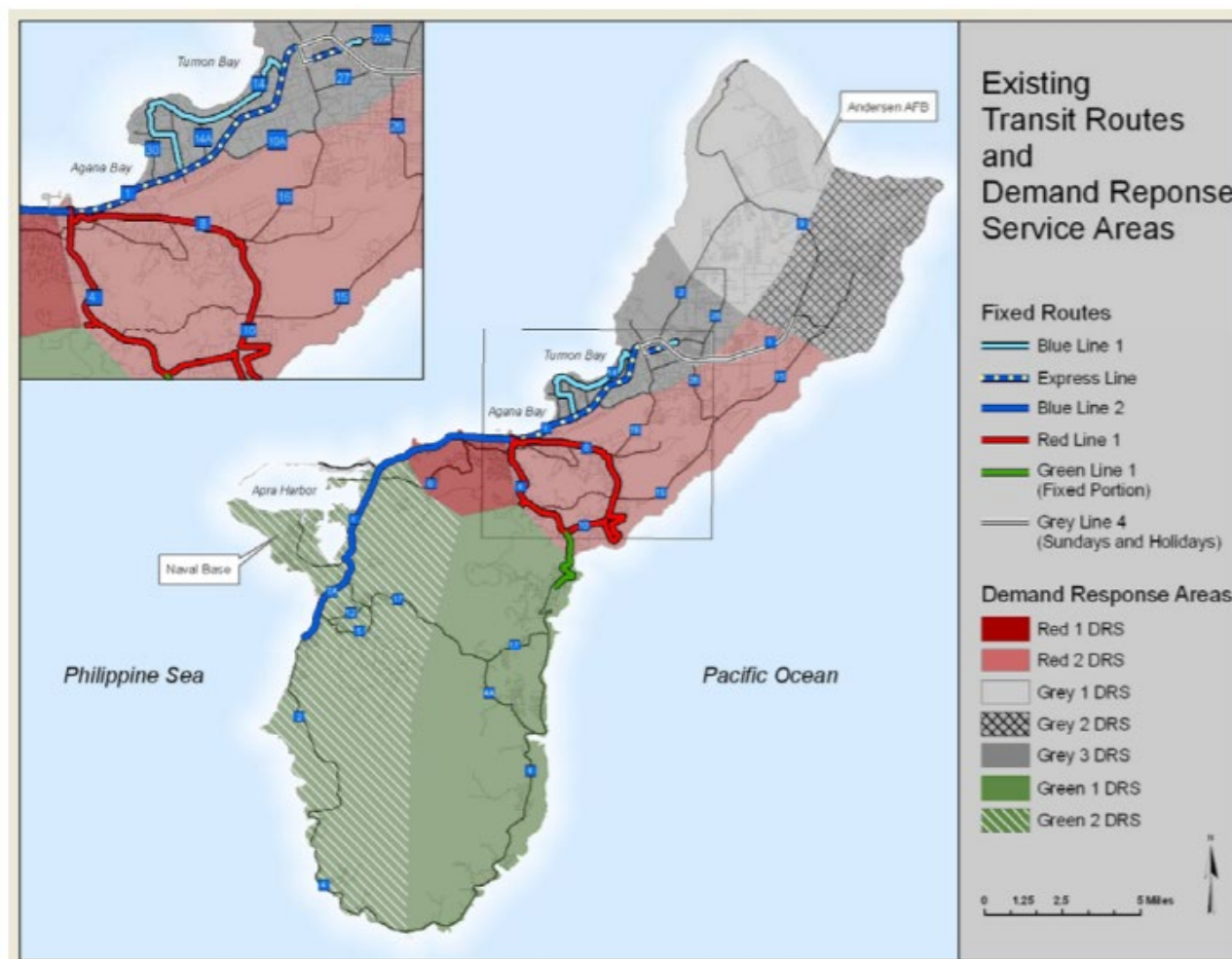
The Guam Regional Transit Authority (GRTA) operates a fixed transit system and a paratransit system. Figure 15 from the 2030 Guam Transportation Plan shows existing public transit routes and major highways. As shown, the existing transit routes are primarily located in the central and northern areas where most residents live, and employment centers are located. Paratransit services are available to residents within ¾ mile of the fixed transit system. The hours for both are 5:30am to 12:30pm and 2:30pm to 8:30pm. No service is available on Sundays and most holidays. This limited availability of the public transit system requires low income households to live in the Central and Northern areas where housing prices are higher, or, buy a car and incur the added expenses of an automobile. Vacancies in Public Housing projects in the south are partially attributed to the lack of transportation options for residents to commute to work. Due to lack of adequate public transportation, investors are not interested in developing in southern villages like Inarajan, Merizo, Umatac as access is limited.

Expanding transit routes and developing better access to rural areas was not identified as a priority in the 2030 plan, so this is unlikely to change soon. Development along existing transit routes is preferable.

⁵⁰ <http://guamwaterworks.org/documents/SewerFactSheet05192010.pdf>

⁵¹ Guam Transportation Plan 2030

Figure 15. Existing Transit Routes



Source: 2030 Guam Transportation Plan

The government needs to evaluate the benefits of covering the cost of expanding utilities and public transportation access rather than having the utilities pay for the cost by raising fees. Decreasing these barriers may promote additional and varied development.

D. MILITARY PRESENCE

Preparing for the military buildup has dominated Guam planning for the past twenty years. The 2009 Affordable Housing Plan focused significantly on the buildup and the housing units required. One of the challenges for planning has been the delays in the movement of additional personnel to Guam due to changes in military plans and delays in military construction leading to overall uncertainty in the media. Stakeholders have suggested that one reason for the large number of vacant housing units, is property owners waiting to renovate their units until more military renters enter the market. Apartment building upgrades have been delayed and permits for new buildings have not been issued.

Even with the uncertainty the community has been positive. The Guam Chamber of Commerce conducted a series of surveys of Guam residents in 2017, to measure public support of government efforts in support of the buildup.⁵² The last one showed 69 percent of the residents in support of the buildup and 15 percent opposed. There were response differences based on age (58% support for those under age 35, 91% over 65). Ethnically, the lowest level of support was from Chamorros (61%). Most of the community (82%) said it would bring jobs. Also, 51 percent said it would improve the quality of life on Guam and 21 percent said it would not.

Guam residents also recognized the downside of the buildup. As noted by local economic planners, another survey showed that 92 percent of residents agreed that the buildup will be good for Guam, but 82 percent also felt Guam's current infrastructure would not be able to support that level of growth.⁵³

Based on the number of military families and unaccompanied personnel expected to be stationed on Guam compared to the housing units available on base suggests there will be significant demand for housing in the community. The impact on the local community will be a greater need for housing, particularly at the lower end of the market.

E. LOW-INCOME AND SPECIAL NEEDS HOUSING

By its Charter, GHURA is responsible for planning for all the housing needs of the people of Guam, including homelessness and housing for the elderly and special need populations of the Territory.

1. Homelessness

Homelessness on Guam was experienced by 854 individuals on any given night in 2018, according to the Guam Point in Time (PIT) Count.⁵⁴ Of those, 85 percent (727 individuals) were unsheltered or sleeping on the streets. Guam has seen a 33 percent reduction in homelessness since 2013, a majority of those from those who were unsheltered. Figure 15 shows the trend in homeless persons on Guam since 2013.

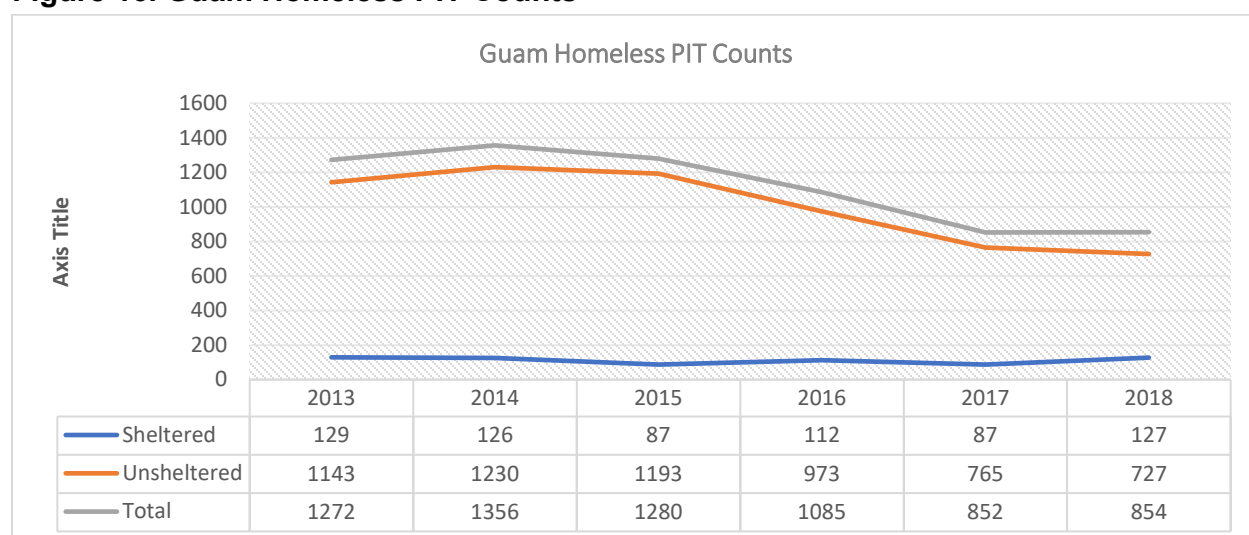
Adults make up the largest homeless age group, with 44 percent being between age 25 and 60. However, 42 percent are children under 18, and 9 percent are young adults age 18 to 24.

⁵² Webber, Lee P. 2017. Most support Guam's military buildup, Pacific Daily News, August 23, 2017.

⁵³ Guam CEDS, p. 26.

⁵⁴ Guam Homeless Point in Time Count, 2018

Figure 16. Guam Homeless PIT Counts



Source: Guam Point in Time Count

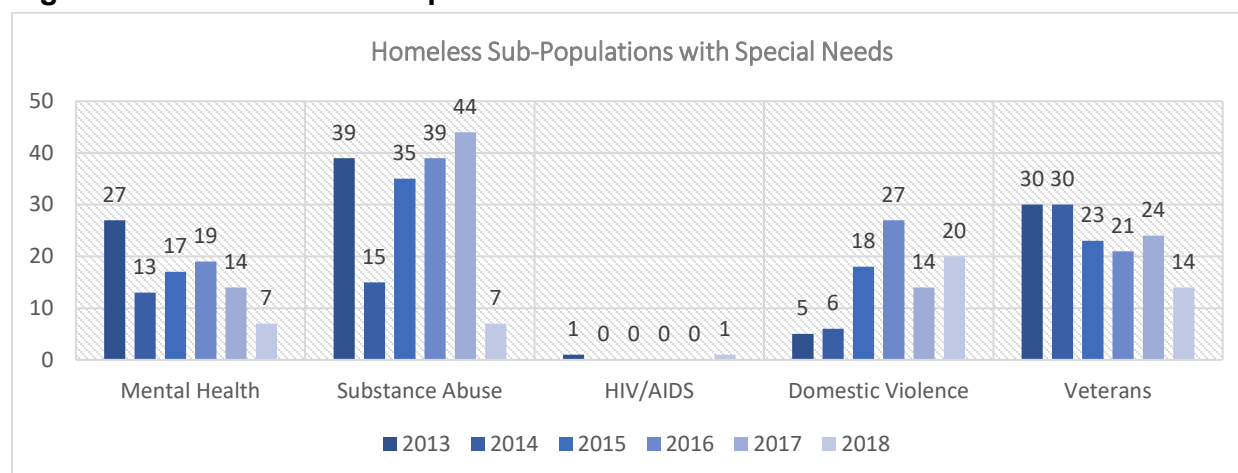
Members of the Guam Homeless Coalition (GHC) operate several emergency shelters, transitional shelters, permanent supportive housing, and rapid rehousing programs across the island. The Guam Continuum of Care (CoC) received \$1.1 million in federal funding in 2018 for homeless services.

The Salvation Army, a member organization of GHC, functions as the administrator for the Guam Homeless Management Information System (HMIS) database. This database is used by providers island wide for data tracking and managing homeless clients across programs. Still in the early phases, GHC recently launched their coordinated entry system (CES) on island. Managed by Salvation Army, this process allows providers to prioritize the most vulnerable homeless clients and families and to better allocate resources across the island. The new CES process, as of December 2019, was moving forward though still needing to gain complete buy in from providers, handling administrative and process decisions, and dealing with some coordination challenges with American Samoa.

a. Homeless Sub-Populations

Some of the sub-groups of those experiencing homelessness include veterans, as well as those dealing with mental health issues, substance abuse challenges, HIV or AIDS, and those fleeing domestic violence. As shown in Figure 16 substance abuse and veterans are the largest subgroups requiring supportive services.

Figure 17. Homeless Sub-Populations



Source: Guam Point in Time Count

b. Causes of Homelessness

The two main causes for homelessness reported by homeless clients were unemployment and financial problems. About 20 percent of them said they preferred to live the homeless life. Relatively few responded that addiction, mental or physical health were the primary reasons they were homeless. It seems reasonable then to conclude that homelessness on Guam is largely driven by and enmeshed in poverty.

Table 34: Reasons for Homelessness

Self-Reported Reasons for Homelessness		Self-Reported Reasons for Unemployment	
Unemployment	90	Transportation	101
Financial Problems	82	Lack of education or job skills	49
Personal Choice	63	Health condition	38
Other	58	Childcare	37
Eviction	25	No ID	34
Domestic Violence	16	Can't afford gas money or bus fare	32
Drug/Alcohol Abuse	13	Court and police clearance fees	23
Medical Needs	13	Criminal record	18
Mental Health Needs	7	Other	16
Fire/Disaster	2	Lack of jobs in your profession	8
HIV/AIDS	1	Limited English proficiency	8

Multiple-response allowed, n=314

Source: Guam Point-in-Time Count, 2019.

The major cause of homelessness was unemployment and the major cause of unemployment was transportation. Homeless survey responses identifying transportation as the biggest problem in finding or keeping a job were more than double the next highest answer (lack of job skills). And there were additional responses that people couldn't "afford gas money or bus fare." (Table 35) This underscores the lack of public transportation that would get people from low-income housing areas to job centers as a housing problem.

c. Location of Unsheltered Homeless

Based on the PIT Count data, the unsheltered population has remained in the same geographic areas over the past four years. The village with the largest population of unsheltered individuals is Dededo, with 34 percent of the unsheltered individuals. Patterns have changed over the last four years, but Dededo, Yigo, Hagatna, and Mangilao continue to have the larger share of unsheltered homeless people.

Table 35: Top Villages for Unsheltered Homelessness

Top Five Villages for Unsheltered Homeless Individuals by Year							
2015		2016		2017		2018	
Yigo	407	Yigo	384	Dededo	377	Dededo	246
Dededo	326	Dededo	306	Yigo	113	Yigo	96
Mangilao	83	Hagatna	51	Hagatna	54	Hagatna	75
Yona	83	Agat	48	Mangilao	41	Mangilao	71
Hagatna	71	Barrigada	31	Agat	40	Yona	59

Source: Guam Point in Time Count 2018

Villages with larger shares of unsheltered homeless persons are the same ones mentioned by Housing Demand Survey respondents as the places where they would like to live when they move to their next housing unit.

d. Shelter Beds and Housing Inventory

According to Guam's 2018 Housing Inventory Count (HIC), there are 140 emergency and transitional shelter beds (66% for families, 20% for single adults, and 14% for children) and 213 permanent housing or rapid rehousing beds (46% for families, 54% for single adults, and none for children). Most of the permanent housing or rapid rehousing beds listed in the HIC totals are vouchers for housing, rather than physical beds in facilities. There are significantly more emergency and transitional beds available than listed in the HIC. Health care providers serving mental health clients and the elderly, and some non-profit programs receive funding from non-government sources. These programs are not required to report bed counts to the CoC during the HIC. Below is data collected on facility bed counts collected from community service providers in the sector.

In all, the Guam CoC posted a bed count of 358 units in 2018 – 243 emergency shelter spaces, 102 transitional shelter spaces, and 13 permanent supportive housing units. With a shelter capacity of 358 and 854 annual homeless count, 727 of which are unsheltered, Guam's CoC will find the task of managing the needs of the homeless population to be quite challenging.

e. Needed Housing Units for Homeless

Homeless households need housing units when they enter or re-enter the resident housing market. With the advent of the "housing first" strategy for assisting homeless households, the units may be needed soon after an initial contact. The needed units are not currently part of

Guam's housing stock.⁵⁵ They are not part of pent-up demand because pent-up demand households are in housing units. Therefore, each homeless household entering the housing market signals the need for a new housing unit. Given the unemployment issues, it is likely that many of these units must be affordable units, multifamily rentals, perhaps with below market rents.

Not every homeless household will require a new unit. Some can return to a prior unit, be reconciled with their family, or move in with family or friends. Some may never return to the resident housing market but will need some form of permanent supportive housing, and some will require longer periods of treatment before they can return to their former position in the community. Estimating the number of households who will need new units within a specified period is still a nascent process. It depends on having exhaustive, accurate, transaction-based data on the homeless population with time series information on initial conditions, treatment delivered, and housing outcomes, short-range and long-range. Developing that sort of data was outside the scope of the present study.

We did have at our disposal homeless housing studies from other jurisdictions,⁵⁶ most notably the study produced for Hawai'i in 2019.⁵⁷ These studies used large-scale appropriate data in homeless households over several years to establish housing demand estimates resulting from movement into and out of the homeless community. We used their results to develop a ratio of affordable housing units needed to total homeless households identified. Using PIT Counts as a base, and the ratio developed for Hawai'i, we estimated the total affordable housing units needed to accommodate homeless households re-entering the resident housing market on Guam.

According to that analysis it is estimated that Guam has a need for 490 affordable housing units for homeless individuals and families between 2020 and 2025. This number does not include the demand for supportive, transitional or permanent supportive housing, only for basic affordable units. The accuracy of these estimates depends on the extent that Hawai'i's homeless CoC activities are similar to those on Guam. If Guam is more efficient in moving homeless households from initial contact through the process, then more units may be needed in any five-year period. Or, if Guam's ratio of end-of-service need for affordable units versus permanent supportive housing is substantially different from Hawai'i's then the PIT-Count-to-demand ratio may vary as well. In the end, the addition of 490 units in five years may not be a major problem for Guam housing planners. It serves, however, as a reminder that there are several sources of unit needs. Estimating from a single base is not likely to serve the planning effort well.

2. Housing for Persons with Disabilities

Increasing numbers of households with disabled persons from 2009 to 2019 indicate increased need for accessible housing units with supportive care services and facilities. This sentiment was confirmed in many stakeholder interviews. This population has a high rate of unemployment and

⁵⁵ Except perhaps in the case of evictions, homeless persons did not come from existing units.

⁵⁶ Corporation for Supportive Housing, Hawai'i Housing Projections and Financial Modeling, 2017.

⁵⁷ Hawai'i Housing Finance and Development Corporation. 2019. Hawai'i Housing Planning Study 2019, December 24, 2019, p. 60.

poverty (39%) and of those who are disabled but not in the labor force, 64 percent are living below the poverty level.⁵⁸ This confirms that housing affordability is a major issue for housing planners.

Households with at least one disabled member is a growing subsection of the Guam Population. Based on the Housing Demand Survey, the proportion of households affected by disability grew by about 4 percentage points in the last ten years.

Table 36: Households Reporting Someone with a Disability

Disabled Households	2009		2019	
Yes	5,479	12.3%	7,648	16.8%
No	38,980	87.5%	37,649	82.5%
Don't Know/Refused	92	0.2%	348	0.8%
Total	44,551	100.0%	45,645	100.0%

Source: Guam Housing Demand Survey, 2019

Service providers face challenges using the disability Section 8 vouchers authorized by HUD. The lack of housing with accommodations for disabled clients results in only 81 percent of authorized vouchers in lease.⁵⁹ The lack of housing for individuals and families in need of wheelchair accessible housing is particularly difficult. Structural requirements, wider doorways, lower toilets, roll in showers, railings, ramps, etc., (Table 38) are not easy upgrades to any unit and can be even more difficult in the concrete structures needed to withstand Guam storms and earthquakes.

Table 37: Housing Accommodations Needed

Special Need	Percent of HHs
Need bathroom grab bars in next unit	16.9%
Need shower seat in next unit	15.0%
Need ramps in next unit	9.0%
Need emergency call device in next unit	7.1%
Need wheelchair modifications in next unit	6.8%
Need roll-in shower in next unit	6.6%
Need textured walls for the blind in next unit	5.9%
Need railing in next unit	5.2%
Need alerting device for the deaf in next unit	4.7%

Source: Survey Data 2019

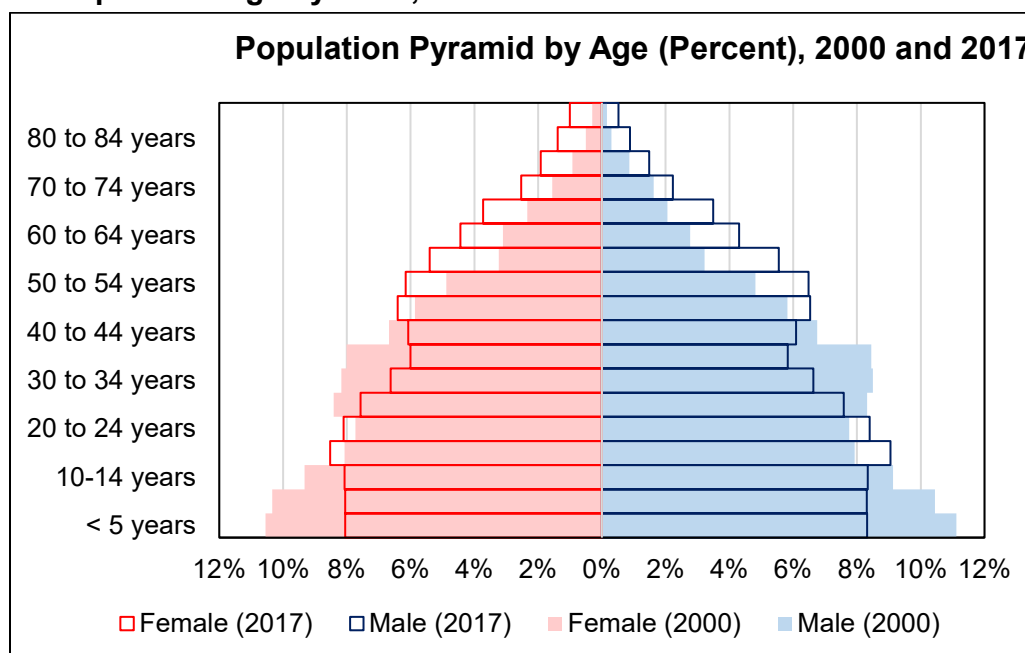
a. Housing for the Elderly

There is a demand for supportive housing for elderly persons on Guam. A cultural shift away from caring for elderly in the home has accompanied changes in economic, social, and lifestyle trends in younger population segments. There has been a decrease in the percent of the working-age population that increases the relative percentage of elderly in the population. As the senior citizen population increases, so do housing modification needs and the demand for assistive services.

⁵⁸ Guam Consolidated Plan, pg. 111.

⁵⁹ Table 33, Guam Housing and Urban Renewal Authority, Housing Choice Voucher Program

Figure 18. Population Age Pyramid, 2000 and 2017



Source: Guam Databook 2017 and 2000 Census data

There is currently no permanent care facility for the elderly on Guam. This is putting a strain on temporary facilities, hospitals, and shelters. Feedback from stakeholders in the sector showed a significant demand within the community for a long-term senior care center.

b. Housing Choice Voucher Program - Section 8

As of December 2019, GHURA managed 2,582 Housing Choice Vouchers, commonly referred to as Section 8 vouchers, on Guam. Section 8 allows individuals and families who cannot afford rent to have their rent and living expenses subsidized. Voucher holders pay a maximum of 30 percent of their monthly income toward rent. As of December 2019, 94 percent of the vouchers were in use and the Section 8 program had an active waiting list of approximately 500 individuals and families. The wait list is closed and was last opened and filled in October of 2018. At that time, 1,800 were selected for the waiting list by a lottery system.

Table 38: Housing Choice Vouchers (Section 8)

Housing Choice Vouchers (Section 8)	Authorized	In Lease	% in Lease
Regular	2,095	1,996	95%
Project-based Vouchers (PVB)	112	107	96%
VASH	56	43	77%
Non-elderly disabled (NED)	175	141	81%
Mainstream	11	11	100%
Family Self-sufficiency	133	129	97%
Overall	2,582	2,427	94%

Source: Guam Housing and Urban Renewal Authority

Challenges have been experienced within the Section 8 program on multiple fronts. HUD expects that a minimum of 98 percent of authorized vouchers should be in lease. Guam's low rates of vouchers in lease have led to HUD decreasing funding for this program in Guam, and decreases are expected to continue if issues are not addressed (Table 39).

In August 2019, HUD approved "Success Rate Payment Standards" to mitigate non-competitive rental levels by increasing the amount that voucher holders could pay for rent.⁶⁰

Landlords willing to rent to Section 8 clients are limited. There are no policies restricting income discrimination in Guam, so landlords lawfully decline to accept vouchers. Section 8 and other rental assistance clients must work directly with GHURA for a list of landlords that accept vouchers, then wait for openings at those facilities. Searching on their own for units often results in months of turn downs because landlords would rather not deal with the complications of renting through the program, especially with the alternative of renting to military households at higher prices.

According to many of those familiar with the Section 8 program, the Fair Market Rent (FMR) value, being used to assess the amount allotted through rental vouchers, is far too low for what is required to rent a unit on Guam. This limits the use of the program to a very small number of rental units that cannot meet the total demand and units that are more likely to be older

Older facilities are less likely to be able to accommodate individuals with special needs. They are generally not ADA compliant and unprepared financially to afford improvements. This issue is evident in the high rate of unused Section 8 NED vouchers for disabled (19%). There are not enough available units that can accommodate the disabled, such as accessibility for wheelchairs, on island to put these vouchers to use.

Older units within the approved funding limitations of the Section 8 program are much more likely to be in disrepair. Section 8 has very strict housing and inspection standards for all units to be undertaken annually. Units that are upgraded will look for renters willing to pay more for their unit.

Guam has encountered significant challenges in finding units affordable units that can pass these strict housing standards established by HUD.

⁶⁰ "GHURA to increase payment standards for section 8 households," Pacific News Center (PNC) Guam, August 15, 2019.

F. TOURISM AND HOUSING

The visitor industry is critical to Guam's economy with an estimated economic impact of \$946.5 million in fiscal year 2019 and a record 1.63 million visitors. This momentum continued to the end of calendar year 2019 with arrivals to Guam increasing by +7.6 percent to 1,666,665 visitors. Most visitors are from Korea (45%) and Japan (41%). In 2019 Japanese arrivals increased by 21.6 percent. The hotel occupancy rate continued to be quite high at 89.4% indicating a shortage of hotel rooms (85% occupancy rate is typically considered full capacity). Furthermore, the annual hotel room rate was at \$214.54 in 2019. The visitor industry is expected to continue strong growth in the future. The Guam Visitors Bureau (GVB) is forecasting continued growth at 1.5 percent for 2020⁶¹.

The traditional relationship between tourism and housing markets starts with tourism's benefits to local economies. Sources agree: (1) tourism is a good way to turn non-economic assets into exports, improve the economy, create jobs, and generate income⁶²; and (2) if you choose the visitor industry as a way to run your economy, you can expect high housing prices⁶³ and other problems.⁶⁴ Fitz (2006) showed that tourism leads to an increase in second homes⁶⁵, which increases property taxes and Biagi, *et al.* found that higher housing prices lead to issues in affordability, displacement, and gentrification.⁶⁶ Furthermore, a strong visitor industry may also bring higher population growth, fueled by more jobs and imported labor which may result in greater external housing demand, and higher housing prices.

More consequential to housing in Guam, as in other visitor destinations, is how short-term vacation rentals impact the residential housing stock. Some vacation rentals were built solely for rental to visitors, while others were originally in the resident rental pool are now operated as vacation rentals. Owners may be driven by the promise of higher rental rates from vacationers looking for alternatives to hotels. Vacation rentals are subject to regulations, registrations,

⁶¹ Nico Fujikawa, Director of Tourism Research, Guam Visitors Bureau, Dec 2019

⁶² Gunderson, Ronald J. and Pin T. Ng. 2005. Analyzing the effects of amenities, quality of life and tourism on regional economic performance using regression quantiles, *Regional Analysis & Policy*, vol. 35, no. 1.

⁶³ Reeder, Richard J. and Dennis M. Brown. 2005. Recreation, tourism, and rural well-being. United States Department of Agriculture, Economic Research Services, Economic Research Report Number 7, August 2005. See also Ko, Dong-wan and William P. Stewart. 2002. A structural equation model of residents' attitudes for tourism development, *Tourism Management*, Vol. 23, pp. 521-530, 2002. See also, Affordable homes and tourism are election issues in Midhurst, *Midhurst and Petworth Observer*, (UK), April 13, 2015.

⁶⁴ Carlino and Saiz (2008) used visitor arrivals as a measure of consumer preference for local amenities. They found: (1) amenities were linked to population and job growth; (2) "beautiful cities" attracted more skilled employees; (3) growth in visitor arrivals was related to accelerated housing price appreciation, especially in supply-inelastic markets; and (4) local investment in physical amenities resulted in increased demand for visits. They saw this as evidence of a self-perpetuating cycle of tourist development housing appreciation.

⁶⁵ Fitz, Richard G. (1982) Tourism, vacation home development and residential tax burden: A case study of the local finances of 240 Vermont towns, *American Journal of Economics and Society*, Vol. 41, No. 4, pp. 375-385, October 1982.

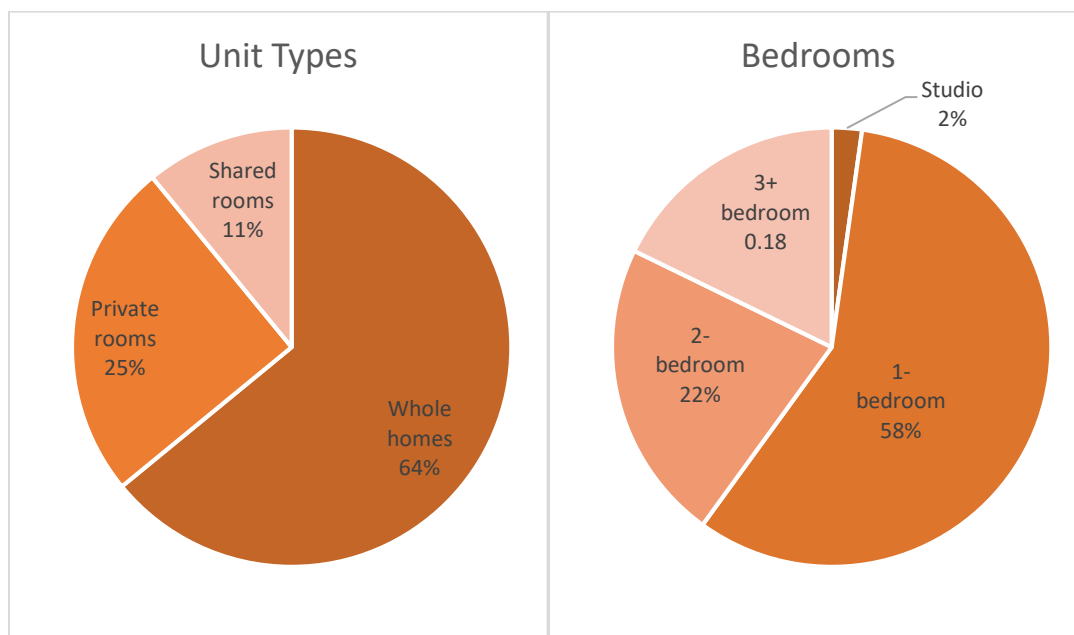
⁶⁶ Biagi, Bianca, Dionysia Lambiri, and Alessandra Faggian. 2012. The effect tourism on the housing market, in Uysal, M., *et al.*, (eds.), *Handbook of Tourism and Quality-of-Life Research: Enhancing the Lives of Tourists and Residents in Host Communities*, International Handbooks of Quality-of-Life, Springer Science+Business Media B.V. 2012.

business taxes, and tourist taxes. In Guam like other visitor communities, there are claims that many of these vacation rentals operate illegally, in violation of zoning codes or tax responsibilities.

What is the impact of the visitor industry on the residential housing market in Guam? The current high hotel room rates and lack of available hotel rooms may lead to the expansion of short-term vacation rentals. However, the increasing demand for these alternative visitor accommodations may also lead to the loss of residential housing stock.

Currently, the number of short-term vacation rentals on Guam is relatively small with 306 units listed on Airbnb and 33 units on VRBO, at the beginning of 2020⁶⁷. That is less than 1 percent of the total housing stock. Most of the units are rented out as whole homes like beach houses and vacation homes. According to Airdna, just about half of the units (46%) are fully dedicated to the short-term market (available full-time). The average vacation rental rate in 2019 ranged from a low of \$131 per night to \$138 per night.⁶⁸

Figure 19. Vacation Rental Units Characteristics



Source: Airdna.com

The current impact on housing stock appears to be minimal. That is certainly a result of relatively rigorous regulations of B&B units and short-term rentals on Guam. While some might condemn visitor rentals as detrimental to the interests of affordable housing advocates on Guam, this analysis suggests that the impact is small. Current regulation suggests that future growth will be difficult. However, there are counterforces that could change things. Short-term vacation rentals will continue to be a necessary part of the visitor industry in the near term as Guam is currently about 8,000 rooms short of the hotel rooms needed to meet the current visitor demand. Furthermore, GVB's push to expand beyond the main resort areas and the global trend of visitors wanting to be more adventurous will create a demand for non-hotel travel in residential and rural

⁶⁷ Data collected on January 10, 2020 from Airbnb.com

⁶⁸ Likibu.com

areas. Ultimately, this will result in an increase in the use of short-term vacation rentals and impact communities on Guam.

G. POLICIES AFFECTING HOUSING

The Territory of Guam has established zoning laws and building codes with management and oversight from multiple branches of government. While there is not a single cohesive plan for processing developments, particularly with reference to zoning procedures, it does not appear to be adversely affecting the development or preservation of housing. Stakeholders did not give substantial negative feedback relating to regulations and policies. Nevertheless, developing a comprehensive, single-path process for all developments may be beneficial in the long-run. It will promote understanding and avoid potential subversion of master community housing plans.

1. Regulations

a. Zoning

i. Mission and Intent

The Zoning Law of the Territory of Guam was established to create minimum regulations that protect and promote public health, safety, and general welfare for the residents of the Territory of Guam by encouraging the most appropriate use of land, providing adequate open space, prevent overcrowding of population, and providing access to community utilities and resources.⁶⁹

The Territory of Guam Zoning Map is established by the Land Use Commission and approved by the Legislature before being sent to the Governor for final approval.⁷⁰ A current and comprehensive Territory of Guam Zoning Map was not available publicly for review. Various community planning maps are available, but these are not official zoning maps. There is not simple public access to these maps.

ii. Laws and Regulations

Zoning and land use regulations on Guam are found in the Guam Code Annotated, Title 21 Real Property, Division 2 Regulation of Real Property Uses. Chapter 61 outlines zoning laws and provisions. There are 8 land zone types and each with permitted uses and conditional uses.⁷¹

Guam land zone types include:

- | | | | |
|-------------|--------------------------|-----------|-------------------------|
| • A | Agricultural Zone | C | Commercial zone |
| • R1 | One-Family Dwelling Zone | M1 | Light Industrial Zone |
| • R2 | Multiple Dwelling Zone | M2 | Industrial Zone |
| • P | Automobile Parking | LC | Limited Commercial Zone |

69 Guam Code Annotated, Title 21, Division 2, Ch.61, Article 1, § 61102

70 Guam Code Annotated, Title 21, Division 2, Ch.61, Article 2, § 61201, c

71 Guam Code Annotated, Title 21, Division 2, Ch.61, Article 2, § 61201, a

iii. Management and Oversight

Zoning and land use policy on Guam are managed, controlled, and regulated by three agencies of government: The Department of Land Management (DLM), the Guam Land Use Commission (GLUC), and the Guam Legislature. Each has different roles and degrees of authority related to oversight of housing and other development issues. DLM receives and processes land use applications and manages zoning maps. GLUC hears and makes determinations on conditional land use applications and zone change applications submitted to DLM. The Legislature regularly makes spot zoning changes through legislative bills during session. These changes are more expeditious than making changes through the traditional DLM/GLUC process.

b. Spot Zoning

GCA includes codified entries and some codified exemptions to the zoning map. In addition, the legislature regularly makes zoning changes through legislative bills. This procedure is unusual compared with codes in other parts of the nation and has at times been controversial in Guam and in the Legislature itself. Proponents of spot zoning feel the process is a faster, easier, and more effective method to make sensible changes in zoning that serve the needs of the people. Some legislators feel this is a power that enables appropriate legislative oversight of administrative actions and preserves the power of the people over lengthy or expensive administrative processes.

According to the legislative archives, Table 40 shows the number of spot-zoning bills passed during each session for the last 11 years.

Table 39: Legislative Bills Re-Zoning Property, Guam, 2008-2018

Year	Rezoning Bills Passed
2018	3
2017	2
2016	6
2015	1
2014	8
2013	3
2012	14
2011	4
2010	4
2009	2
2008	1
Total	48

Examination of these bills suggest that most bills proposed are passed. The 48 bills shown here represent many fewer projects because each bill represents a zoning change for a single parcel. The eight shown for 2014, for example were the result of a single action brought to a Senator. The projects that prompted the legislative actions often involve several parcels. The total number of projects presented in Table 40 is about 35. None of the spot zoning decisions made in the last 11 years involved large projects. All were smaller actions taken at the request of individual constituents. Among the 48 bills passed, 45 (94%) involved changing properties to commercial or industrial uses. Relatively few of the bills (4) shown in Table 40 were intended to change commercial or agricultural properties to residential uses.

On the other hand, 25 bills changed residentially zoned properties to commercial or industrial uses. Very few of the bills we reviewed showed evidence of involved extensive research and recorded justifications were brief. While many were proposed to establish commercial or industrial uses, none seem to have drawn negative reaction from NIMBY neighbors. Most of them passed unanimously.

It is easy to agree with the opponents of spot zoning on principle. There does not seem to be a substantial need for a direct path around the Territorial zoning code and it is an unusual procedure. There is no evidence, however, that the use of spot zoning has posed a threat to the production of affordable housing units on Guam in the recent past.

c. Density Restrictions

The GCA Title 21 Chapter 61 Zoning Law also regulates density by zone type. For new single family, multiple family construction, lot size is a minimum of 5,000 sq. ft. and height limitations are set at three stories not to exceed thirty feet, except for in specific zones that have received exemptions. Thus, exemptions are possible, and the restrictions do not seem to be onerous.

Stakeholders did not express concerns over limitations caused by density restrictions. Of course, restrictions that decrease lot or yard size and tighten height limitations will encourage greater density for new developments and infill in existing residential areas. Greater density allowances can prevent sprawl, reduce pressure on transportation systems, and lessen the costs associated with the need to expand infrastructure.

There may be benefits associated with reducing density limitations on Guam, but those restrictions do not seem to seriously hinder planning for additional affordable housing units.

d. Building Codes

The Territory of Guam has adopted the International Building Code (IBC), 2009 edition, as the building code for Guam.⁷² Updates, amendments, and exceptions are reviewed by the Guam Building Code Council, which is composed of seven appointed members from private and government sectors who serve terms of five years.⁷³

All IBC general standards apply. However, Guam's position as an island in a hurricane prone region earns it an IBC classification allowing a Basic Wind Speed (BWS) of 170 mph.⁷⁴ This BWS classification triggers additional protocols, governing planning, engineering, required materials, and inspections. These additional protocols are essential to ensure that structures can survive in hurricane force winds and other extreme weather conditions. The additional requirements and material exclusions also increase construction costs and delays.

Due to limitations in materials required by IBC BWS requirements and cost, most buildings in Guam are constructed of concrete hollow-block and poured concrete. After the island was devastated by two typhoons in 1962 and 1963, the Legislature passed the Guam Rehabilitation Act of 1963, which appropriated \$45 million for construction of concrete homes and other structures.⁷⁵ While the prominence of this building style makes Guam's communities much more resilient after storms and disasters, it also makes alterations difficult. We have heard from stakeholders that this challenge affects availability of housing units for the disabled, particularly those in wheelchairs. For example, standards for residential single-family dwellings that are not

⁷² Guam Code Annotated, Title 21, Ch. 67, Article 1, § 67101

⁷³ Guam Legislative Archives

⁷⁴ International Building Code, Section 1609 – Wind Loads

⁷⁵ Congressional Record: Proceedings and Debates of the 90th Congress, Second Session, Volume 114, Part 20, Section 19

required to be wheelchair accessible are minimal. Most doorways end up being 24-28 inches wide instead of the ADA standard of 32 inches.

To be useful to the full range of households, older concrete buildings need to be updated. Because of Guam's building codes, alterations are expensive. It may be necessary to incentivize landlords and homeowners to undertake necessary upgrades.

Under the same building codes, new construction on Guam seems to allow construction that would require alterations for ADA compatibility. Guam should consider adjusting codes to accommodate special needs households.

e. Permitting Process

Developers for the most part feel the construction permitting process on Guam is OK. They tell us it takes about six months for a permit to be approved. In February 2019 then Acting Governor Joshua Tenorio was to sign an executive order to speed up application for and granting government of Guam permits for buildings, houses and road projects. In addition, the time for an occupancy permit was to be reduced.⁷⁶ The overall concern was that with the increase in construction projects due to the military realignment the demand for permits will increase and the permitting process will need to operate more efficiently.

A task force was created to evaluate and make recommendations to improve the process. The chairman of the task force believed that many of the problems were "linked to bureaucracy and administrative rules and regulations. Additional issues were associated with the general lack of proper information or knowledge of the whole permitting process among members of the public."⁷⁷ The task force was to present their findings in August 2019, but no report could be found as of the end of 2019.

Guam housing expert Siska S. Hutapea suggested in 2019 that Guam's housing situation could benefit from streamlining the permitting and approval process. There is no doubt that housing production will be accelerated through streamlining processes and we join others on Guam and across the nation in encouraging it. We are not certain, however, that Guam's six-months permitting, and approval process is a major issue in improving production of affordable housing units.

H. HOUSING PLANS

There is no comprehensive plan for affordable housing on Guam. The North and Central Guam Land Use Plans⁷⁸ cover housing to some extent. The purpose of these two plans was to identify a vision and establish goals and policies to achieve the vision. The intention was that remaining villages would be covered in a later planning phase but no plan for the Southern Division has been completed.

⁷⁶ "Tenorio: 3-month wait for occupancy permit inspection doesn't make sense," *Pacific Daily News*, February 18, 2019.

⁷⁷ Does GovGuam's permitting process let you down? Reforms may soon come," *Pacific Daily News*, July 29, 2019.

⁷⁸ North and Central Guam Land Use Plan, Bureau of Statistics and Plans – Government of Guam, ICF International, September 2009,

1. Existing Plans

The three major goals and related policy recommendations found in the North and Central Regional Plans that relate to affordable housing were:

- Through land use classification, designate enough land area and appropriate locations to allow for choice of housing types and prices to meet diversity of household needs and incomes based on the most recent (2009) Guam Housing Study.
 - Policy H-3 Develop and administer land use plans and policies that will effectively ensure enough land is available for housing development including government-assisted housing, housing for low-income families, senior housing, multi-family housing, group homes and foster care facilities. Ensure that regularly updated housing data is available for planning and development needs.
- Increase the homeownership rate and the availability of affordable permanent housing.
 - Policy H-4: Provide new opportunities for low and moderate first-time homeowners, such as sweat equity loans, low/no interest loans to first time homeowners, and education and counseling for first time homebuyers.
 - Policy H-5: Implement affordable housing measures to expand the availability of affordable permanent housing.
 - Policy H-6: Take advantage of the influx of construction workers related to military expansion by encouraging temporary worker housing to be located near existing or planned transit, follow Transit Ready Development principle and be built for eventual conversion to permanent housing.
- Encourage a variety of housing choices throughout North and Central Guam.
 - Policy H-7: Provide for a variety of densities, based on compact traditional patterns, with highest densities located near village centers, public facilities and services, commercial services, major transportation corridors, and within easy walking distance of employment centers and transit stops.
 - Policy H-8: Adopt development standards that promote innovation in housing, such as small lot development, mid-rise development, mixed use buildings, clustering and other measures that support creativity.
 - Policy H-9 Provide a requirement or incentives for inclusion of affordable housing in larger residential developments. For example, consider a requirement or incentives to provide at least 15% of housing units built at a price affordable to households earning 80% to 120% of local income adjusted for family size. Incentives could include density increases, flexibility in development standards or other measures.
 - Policy H-10: Increase the supply of supportive housing for persons with disabilities, such as supportive group homes, enhanced single room occupancy and affordable rental assistance.
 - Policy H-11: Increase opportunities for supportive and transitional housing for homeless individuals and families.

- Policy H-12: Increase the supply of senior housing, retirement homes, and assisted living facilities, co-located where possible with senior centers, parks, schools and community facilities.

Strategic and implementation recommendations were developed for each of these policies with responsibility assigned to different departments and agencies including GHURA. The extent to which these policy recommendations have been implemented is unclear at this point.

The primary planning tool for GHURA's housing-related activity is the Consolidated Plan developed for HUD every five years, along with its annual updates. The consolidated plan focuses on the best use of HUD funds. HUD funding is discussed in the following Funding section. Let it suffice to say here that HUD funding at current levels may not be enough to support a comprehensive plan to provide affordable housing for all of Guam's people. If that is the case, then improving the Consolidated Plan may not be the best way to address the affordable housing issue. It will be useful to consider developing a long-range functional housing plan for the Territory.

2. Housing Data

The current affordable housing plans cannot be tracked or evaluated with existing data. Housing unit counts are available only every ten years when the decennial census is conducted. Building permits data cannot be reconciled with Census data, and there are no ACS data available for Guam. Data available at the Department of Revenue and Taxation provide an excellent source for tracking properties and their tax codes but are not suited to counting or tracking housing units.

There are at least three possible means of addressing the data problem. The first is to request that the U.S. Department of Commerce expand the ACS to cover Guam. The second is to expand the coverage of the tax assessment data to include information on housing units. The third is to develop an independent data system for affordable housing on the model of the HMIS for homeless counting tracking. None of these options are without its costs and disadvantages. Any of them would make planning for affordable housing, and tracking of housing production strategies, possible in the future.

I. AFFORDABLE HOUSING FUNDING

1. Federal Funding

a. Construction Support

The main federal sources of funding to support construction of affordable housing units are the HUD programs for Community Development Block Grants (CDBG) and the HOME Investments Partnership Program (HOME). Both programs offer formula-based funding that depends on the population. With Guam's population, total funding is limited and difficult to change. Housing plans cannot simply increase formula-based funds to support affordable housing development.

Recently, GHURA has relied heavily on the IRS Low-Income Housing Tax Credit (LIHTC) program. The total allocation through LIHTC since 2006 has been \$15,632,650 over the course of six projects.⁷⁹

Due to recent federal tax cuts, LIHTC projects are less appealing to investors and fewer are pursuing them. However, GHURA has never failed to award credits allocated to them. The most recent project came online in 2019.

b. Grants and Competitive Funds

Guam receives funds from other HUD programs including the Emergency Solutions Grant Program (ESG) that offers competitive grants for various housing projects. As shown in Table 41 the grant amount is much smaller than other sources.

In addition to these, the Guam CoC is eligible to compete annually in the HUD Notice of Funding Availability (NOFA) for competitive grant awards in various areas. Programs renewals in the NOFA awards are based heavily on evaluation and performance, and new projects are based on the merit of applications.

Below is a listing of HUD funding allocated to Guam in 2018.⁸⁰ There is opportunity annually for the Guam CoC to increase its funding by submitting high quality new projects for funding. Optimizing competitive grant efforts could be done by expanding training in grant proposal writing with local non-profits, as well as improving evaluation and performance review efforts across the sector. As shown in Table 41, CDBG provides 56 percent of federal funding allotments

Table 40. Federal Funding Allotments, 2018

Year	State	Program Name & Type	Amount
2018	Guam	CDBG	\$3,096,003
2018	Guam	HOME	\$1,073,432
2018	Guam	ESG	\$235,382
2018	Guam	CoC: NOFA Competitive Grants	\$1,047,940
Total			\$5,549,785

Source: HUD State Funding Allocations

⁷⁹ HUD LIHTC Database, <https://lihtc.huduser.gov/>

⁸⁰ HUD State Funding Allocations 2018

Table 41: Federal Funding Project Allocations, 2018

Project Type	CDBG	HOME	ESG
Homeowner Housing Rehabilitated: 20 Housing Units	\$50,000	\$602,919	
Public Facility or Infrastructure Activities other than Low/Moderate Income Housing Benefit: 69,075 Persons Assisted	\$2,087,582		
Public service activities other than Low/Moderate Income Housing Benefit: 2193 Persons Assisted Tenant-based rental assistance / Rapid Rehousing: 112 Households Assisted Homelessness Prevention: 28 Persons Assisted	\$568,156		\$215,925

Source: Guam Five-Year Consolidated Plan (2015-2019)

Of funds allocated, 20 housing units will be restored, mostly funded with HOME dollars and a small portion of CDBG money. The majority of CDBG funds are being allocated to make public facility and infrastructure improvements, such as acquiring land to construct a new Central Precinct Command facility for the Guam Police Department and improving school gym facilities typically used as storm shelters.⁸¹ The remainder of CDBG funds is combined with ESG funding to support Prevention, Rapid Rehousing and Housing First initiatives.

Guam should consider reserving CDBG funds more strictly for affordable housing development and/or rehabilitation projects. Assuming the cost to rehabilitate a housing unit is \$32,645 (based on the numbers in Table 42); the 2018 CDBG funds could rehabilitate 94 housing units.

2. Government of Guam Funding for Affordable Housing

The Guam Housing Corporation (GHC) was established for the purpose of providing mortgage financing for first-time homeowners in the low to moderate income ranges. As part of this program GHC owns 125 houses in Dededo and 24 apartments in Yigo for rent to low-to-moderate income families.⁸² GHC is the administrator for a Housing Trust Fund (HTF) which is intended to finance affordable housing projects on the island.⁸³ The funds have historically been used to support programs like the First Time Homeowner Assistance Program (FTHAP), which has helped qualified first time buyers purchase homes and provide additional funding to housing first programs. The fund originally lacked a constant source of funding, but now receives transfers of dormant and unclaimed bank account funds from the treasurer of Guam.⁸⁴

⁸¹ Guam Five-Year Consolidated Plan (2015-2019)

⁸² Guam Housing Corporation Citizen Centric Report Fiscal Year 2018.

⁸³ <https://guamhousing.org/wp-content/uploads/2015/07/Housing-Trust-Fund-Public-Hearing-Packet-b.pdf>

⁸⁴ Guam Legislative Archives

The Guam Housing Corporation (GHC) was established for the purpose of providing mortgage financing for first-time homeowners in the low to moderate income ranges. GHC manages a Housing Trust Fund (HTF) which is intended to finance affordable housing projects on the island.⁸⁵ GHC also manages the First Time Homeowner Assistance Program (FTHAP), which has helped qualified first time buyers purchase homes and provide additional funding to housing first programs. The fund originally lacked a constant source of funding but based on recent legislation will receive transfers of dormant and unclaimed bank account funds from the treasurer of Guam.⁸⁶ The funds currently going to the HTF are insufficient to serve all the qualified FTHAP applicants.⁸⁷

Guam does not have an Affordable Housing Trust Fund of the type used by the States to produce affordable housing units. Those trust funds grant loans to housing projects that produce affordable units. Most have received HUD funds to get started and have generated local funding to increase capacity. As with FTHAP, interest and service fees will increase the base. The trust fund can also accept funds for charitable agencies, payments for unit developed under inclusionary housing programs, and accept gifts of land or developed properties. Most of them are also funded by local government using a portion of property taxes or other government revenues.

The HTF program does have a significant number of requirements. The HUD portion of the HTF funds are distributed by formula. HUD dictates that “grantees are required to use at least 80 percent of each annual grant for rental housing; up to 10 percent for homeownership housing; and up to 10 percent for the grantee's reasonable administrative and planning costs. HTF funds may be used for the production or preservation of affordable housing through the acquisition, new construction, reconstruction, and/or rehabilitation of non-luxury housing with suitable amenities. All HTF-assisted rental housing must meet a minimum affordability period of 30 years. All HTF-assisted homeownership housing must meet the minimum affordability period of 10, 20 or 30 years based on the amount of HTF investment in the unit.

An affordable Housing Trust Fund that is focused on the production of new units, the renovation of old units, or the preservation of affordable housing stock, could serve Guam well at this point. Additional staffing may be required to address all the HUD reporting requirements for this type of funding.

3. Housing Services Provided by Non-Government Organizations

Aside from accessing federal funding, advocates in the non-profit community have filled gaps in costs with private grants and donations. It should be noted that compared to the United States and Hawaii, there seem to be far fewer agencies operating on island. Only seven major providers operate shelter facilities on Guam and many of these same providers are involved in providing community services, rental assistance programs, and mental health services, and only one of these provides permanent housing facilities.

Growth in the number of community service providers and non-profits working in the region may help generate additional outside private funding for initiatives and projects on Guam.

⁸⁵ <https://guamhousing.org/wp-content/uploads/2015/07/Housing-Trust-Fund-Public-Hearing-Packet-b.pdf>

⁸⁶ Guam Legislative Archives

⁸⁷ Guam Housing Corporation 2018 Annual Report

PART IV. AFFORDABLE HOUSING PLAN RECOMMENDATIONS

The table below summarizes Guam housing needs identified earlier. The greatest housing need is for households with incomes less than 30 percent (34%), usually considered to be public housing. That is followed by units needed for households with incomes between 30 and 80 percent (27%) the low and moderate income households.

Table 42: Needed Housing Units by Broad HUD Income Classifications

		Total Units Needed, 2020 through 2025			
		HUD Income Classification			
		LT 30	30 to 80	80 to 140	140+
Guam		3,401	2,641	2,185	1,681
	Ownership Units	1,240	1,415	1,119	1,130
	Single-Family	1,141	1,205	1,003	1,003
	Multi-Family	99	209	115	128
	Rental Units	2,161	1,227	1,066	551
	Single-Family	1,072	697	302	415
	Multi-Family	1,090	529	764	136

Source: Table 37: Total Units Needed by HUD Income Classifications.

About 22 percent of needed units will accommodate households with incomes between 80 to 140 percent (22%) – sometimes thought of as the gap group. The needs of households with incomes greater than 140 percent of AMI are usually considered to be served by the commercial housing market. Pent-up demand at this level is higher than usually seen for this income level.

In this report we have described the size, growth rate, and characteristics of Guam’s housing stock and the many issues that surround housing production. Throughout the report we have described issues that affect affordable housing production and the kinds of solutions that might be considered by housing planners on Guam. In this section we will turn toward the kinds of planning elements that might be applied to improving affordable housing, given current conditions on Guam.

A. GHURA MISSION AND GOALS

The mission of GHURA is:

“Strengthening Families and Building Communities One Project at a Time”.

According to Public Law 6-135, GHURA’s purpose is to “... promote the health, safety and welfare of Guam’s people by the elimination of slum and blight conditions, by the orderly redevelopment and renewal of communities, by proper planning of community development and by provision of safe, decent and sanitary dwellings for low to moderate-income families, through all available federal and local governmental programs and through encouragement of Guam’s private enterprises to participate in the common task of improving our island community, while upholding family values.

The primary housing goals for GHURA are reflected in its mission:

- To plan and engage in the orderly redevelopment and renewal of communities; and
- To provide safe, decent and sanitary dwellings for low-to-moderate income families.

B. HOUSING OBJECTIVES, CHALLENGES & STRATEGIES

To achieve its goals, GHURA has the following objectives:

1. Manage the short-term and medium-term housing need for low to moderate income families.
2. Develop a Comprehensive Affordable Housing Plan that guides expanded funding, coordinates supportive policies and provides better opportunities for affordable housing into the future.

1. Objective: Manage short-term and mid-term housing needs

a. Challenges to be Addressed in Support of this Objective

The primary barriers to achieving this objective are: current funding levels for developing and renovating affordable housing are low; construction costs are rising due to competition for labor, the cost of materials, the cost of infrastructure for new development, and the maintenance cost associated with existing infrastructure. Rent levels are higher than low income households can afford, and landlords prefer to rent units to tenants other than Section 8 voucher holders.

Current funding levels have enabled two LIHTC project to be undertaken every two years. There are enough LIHTC developers on Guam to take advantage of these tax credits, and several have noted that they could do more projects if funding levels were increased. CDBG funds have been used to support housing or community facilities for special needs residents and for community facilities and equipment. GHURA has noted in its Consolidated Plan that they have not received proposals for smaller housing-related projects.

Vacant housing units that are not available for purchase or rent limits the supply of housing. The average age of public housing units is 38 years, and 36 percent of the units were built 46 years ago. It has been suggested that some units are not occupied due to renovation needs. Likewise, it has been reported that there are vacant housing units throughout the island that need retrofitting due to aging, storms and lack of oversight by off-island owners.

The cost of multi-family LIHTC projects have increased due to the rising cost of development much of which is not controllable by developers/contractors. The H-2B visa restrictions for civilian projects and for using Filipino labor for construction has limited the number of projects that can be undertaken. Rising tariffs on building materials and shipping costs have increased due to the Jones Act. A major complaint is the high cost of water and sewer costs for new development including the cost of reaching the property as well as the hook up and System Development assessments. Where property costs are lower, like in the South, water and sewer lines are not close and there is no reliable public transportation for residents to access jobsites. Therefore, the lower property cost is offset by the higher cost for infrastructure.

Higher rent levels have been reported by stakeholders and MLS levels show rent levels that appear to target military housing allowances on Guam. To rent to military requires the property to meet the standards set by military housing standards. Landlords appear willing to invest in reaching these standards because of the higher rents they can receive and the knowledge that if there are any tenant issues, they can work directly with the military housing office. These are not “perks” that come with renting to Section 8 holders.

b. Strategies to Overcome Challenges

- maximizing funding opportunities.
- enabling and encouraging the development of new housing, particularly rentals that can be sustained for longer periods of time.
- ensuring current public housing is maintained or renovated to maximize the number of units available; and
- ensuring the availability of private residential rental properties for low-income households.

The following strategies have been identified because they can or must be implemented within the next five years and are more likely to show results in the near term.

Focus CDBG and other housing-related funds on projects that makes more affordable housing available.

Continue to focus CDBG funds on the development and rehabilitation of affordable and special needs housing. Affordable housing has been the focus of the Consolidated Plan, but over the course of implementation of the plan, the funds have been redirected to community facilities. To increase the number of proposals for housing-related efforts will require outreach to smaller developers and contractors who may not be aware of these opportunities and may require assistance in developing proposals. These may be actions that work better when construction is slower on Guam and the H-2B restrictions are eased, but education and outreach will take time to prove fruitful.

There are additional funds and programs that may be available and worth looking into. The HUD Difficult Development Area program provides funding to areas with high land, construction and utility costs relative to the area median income. The USDA Section 502 – Rural Housing Loan Program assists low- and very-low-income applicants obtain housing by providing payment assistance to increase an applicant's repayment ability. Payment assistance is a type of subsidy that reduces the mortgage payment for a short time.

Reduce the number of housing units not available for rent or purchase.

Increased funding must be allocated to renovate/rehab housing units that are not currently habitable. The cost of rehabilitation is usually significantly less than building new units. Incent or require owners of houses that need rehabilitation to upgrade their property.

For homes on agricultural lands, funds and low-cost loans are available through Rural Development Authority to rehab housing units.

Implement regulations requiring homeowners to maintain their properties or be assessed a higher tax rate or penalty. Of course, this would be waived for a given period after a major storm, but it would require out-of-state owners to oversee their property and ensure that it is maintained at an appropriate level. This type of oversight and possible investment may also encourage homeowners to rent their properties to cover the cost of maintenance.

Request lower fees hookup fees and System Development Assessments for multi-family low income and affordable housing projects from GWA.

Much of the increased cost of housing development is out of the control of Guam government. One significant cost is the charge imposed by GWA. Meet with GWA to identify their willingness to adjust fees for low income housing projects.

Develop programs to assist Section 8 voucher recipients to find and retain housing.

Develop a program internally or partner with an NGO to support Section 8 recipients. The program would include working with landlords to understand the benefits of Section 8 renters and to support managing problems that may occur during rental periods. The program could be similar to the military housing program that helps facilitate finding appropriate units and offers landlords an option to work with them should problems arise. This program could help overcome objections landlords have to renting to Section 8 recipients.

Note that some potential Section 8 landlords have indicated that the cost of upgrading their units to meet HUD requirements is too high relative to the rent they receive. Likewise, many units are not configured for persons with disabilities, such as hallways wide enough to accommodate wheelchairs. Where possible provide funding/loans to landlords to assist in upgrading their units to meet standards for an agreement to rent to Section 8 recipients.

Implementing this program should alleviate the challenge of vouchers not being used, and the churn of Section 8 recipients who cannot find housing having to go to the end of the list and restarting the process.

2. Develop a Comprehensive Affordable Housing Plan

Currently there is no comprehensive Affordable Housing Plan for Guam. Given ongoing population growth and the upcoming military build-up it is essential that a plan be developed to meet those needs. Without low-income and moderate-income housing, workers needed to support the economic engines of Guam, tourism and military, will leave impacting the economic viability of Guam.

The North and Central Land Use Plan includes a section on housing but does not cover the Southern districts. The Plan includes several policy change recommendations that are included here. GHURA has a Consolidated Plan for HUD funds, but to meet the housing needs for the future will require efforts throughout the government, particularly as it relates to tracking, funding and regulations.

Overall, GHURA alone cannot meet the challenges of providing affordable housing for Guam, it will take the concerted effort of multiple agencies, departments, for-profit and not-for-profit organizations to make significant change. This recommended planning effort will guide this renewed focus on affordable housing for Guam.

a. Challenges to be Addressed in Support of this Objective

The North and Central Guam Land Use Plan was released in 2009 and it appears that there has been no update to track the status of recommendations, nor has the plan been expanded to include a South Land Use Plan. This plan does have a section for housing but given the high level of need, a comprehensive affordable housing plan should be developed, to directly address the efforts required to better meet these needs.

Guam does not have an ongoing reliable system to track housing units overall or the subset of available affordable housing units. Currently the most referred to resource for housing data is the decennial census. The American Community Survey is a valuable source of data between decennial census periods for the States but is not available not for Guam and other territories. This lack of interim data puts Guam at a disadvantage for planning and tracking of housing supply and household growth. Internally housing data is generated in different departments and not connected: Public Works oversees Residential Construction Permits and Occupancy Permits; Revenue and Taxation manages tax assessments; GHURA oversees LIHTC projects; and Guam Housing Corporation (GHC) manages the First Time Homeowners Assistance Program.

There is no long-term sustainable funding source for affordable housing beyond what is provided by HUD. The Guam Housing Corporation has 125 houses in Dededo and 24 apartments in Yigo for rent to low-moderate income families. GHC also oversees the First Time Homeowner Assistance Program, a loan program to assist first time homebuyers. Initially there was an investment of \$1.4 million into the fund, and it is expecting to receive escheatment funds. Potentially these funds could be allocated to acquiring or rehabilitating more affordable rental properties or combined with other funding sources to build additional affordable housing units.

In other states, including Hawai'i, a percent of property tax collected is dedicated to building and managing affordable housing projects. This funding is combined with HUD allocations enables more projects to be completed. Property taxes collected on Guam is relatively low compared with other states, with a large percentage of potential taxes being waived due to applied tax exemptions. To dedicate a percentage of property taxes for affordable housing and have that amount be significant will require increasing the level of property taxes assessed and collected, never a politically easy task.

Zoning codes and building regulations/processes need to be reviewed to ensure the current requirements are not negatively impacting the development of affordable housing and should be supporting affordable housing.

b. Strategies to Overcome Challenges

GHURA should be given the responsibility, authority and resources to develop a Comprehensive Affordable Housing Plan and to guide its implementation. This plan will focus on reducing needed affordable housing units and layout the priorities for the Guam government, departments and agencies to support the process. Strategies and implementation steps will be designed and coordinated with other departments and agencies. The actions that must be undertaken are significant and only with cooperation of all involved will change take place.

Strategies that should be included in this plan include the following.

Develop a reliable, continually updated database of affordable housing units for Guam.

The recent literature on affordable housing has repeatedly urged that efforts to provide affordable housing for all people be accompanied by accurate data and rational analysis. Building and maintaining an accurate and up-to-date database will require resources and patience, especially for the initial development phase. Having the data to understand affordable housing, knowing what happens to affordable housing units over time, and having the ability to develop effective housing programs and evaluate them for continuous improvement will be worth the effort.

For purposes of this database, affordable housing units are units produced specifically to be sold or rented at prices below market level. They are subsidized by government agencies in order to address the housing need among households in specified income groups. Those units may or may not enter the market at below-market prices or rents. When they do, they may or may not remain at an affordable price forever. Tracking is applied to determine the length of time these units remain affordable.

The key design elements required for this type of data base are content, software, geographical interface, input and output processes, access, management and security. It takes a coordinated effort, funding and time for appropriate system development.

Develop dedicated, sustainable funding for affordable housing development.

More funding is critical to increasing the supply of affordable housing. More HUD funding may be possible with a larger census count and applying for grants that are not formula grants. Ideally some funding should be provided by the Guam Government. This is generally accomplished by dedicating a portion of property taxes for affordable housing. Given Guam's relatively low level of property taxes collected, the overall property tax level and collection process would need to be changed before the dedicated portion would be significant enough to have an impact.

Develop and coordinate with other agencies specific strategies to address housing needs by HUD income levels.

Strategies for developing affordable housing changes by HUD level being served must be developed. To increase the number of available housing units for households with less than 50 percent HUD income levels is generally the responsibility of government through the renovation and building of public housing units. CDBG funds should be focused primarily on this use and combined with government funds.

LIHTC projects develop units for households in the 30 to 60 percent HUD median income level. A higher census count can assist with a higher allocation of funds. For these units maximize the affordability period as is currently being done. Additional incentives should be considered such as offering government land for construction at low to no cost or faster permitting processes.

Housing for HUD median income levels between 60 to 140 percent can be addressed by offering incentives or placing requirements (inclusionary zoning) on large developers to dedicate a given percent of units or construction budget to create affordable housing. All civilian construction projects could be subject to this requirement. Generally, this type of requirement works best when a strong development trend is anticipated. Additional "workforce" housing would benefit commercial enterprises by making housing more available to their employees.

Chamorros make up a significant portion of households needing affordable housing units. The Chamorro Land Trust could explore options to generate funding to support building housing units on the land in the Trust. The price for development will be lower because the land is already in the Trust and if infrastructure development can be coordinated, the development costs can be minimized.

Reduce the cost of development for affordable housing projects

The proposed plan will guide infrastructure expansion to ensure that future affordable housing developments can be coordinated to minimize the cost of extending electricity, water, sewer, roads and public transportation. The government can subsidize the installation of infrastructure to minimize the cost burden to developers. In addition, discussions with GWA and GPA should be undertaken to offer reduced rates for affordable housing developments.

Increase the supply of housing units to meet the special needs in the community.

Building codes should be reviewed and updated to better support households with special needs, particularly the disabled. Require a percent (or all) new housing units to be ADA compliant. These codes will at a minimum require wider hallways that can accommodate wheelchairs. Most housing units in Guam are concrete block to be able to sustain the storms that are experienced frequently. This type of construction cannot easily be renovated. Building codes should be revised for the development of new housing to be able to accommodate persons with disabilities.

For existing housing units provide funding or a loan program to encourage home additions that are ADA compliant that will better enable seniors to age in place. Funds should also be put towards building supportive and long-term care facilities for seniors who cannot be cared for by family.

Multi-family projects should be required to have a given percent and/or first floor units designed to be accessible to households that include someone who is disabled.

Implement policies that restrict landlords from income discrimination. This will enable more housing units to be available to Section 8 clients.

Plan for the future

Longer term consideration must be given to building housing that is less expensive and still durable enough to sustain hurricane winds. Encourage the funding of pilot programs that incorporate alternative materials and methods to build housing that can sustain high winds and be less expensive. At the same time work with the Insurance and Banking Commission to enable successful pilot programs to qualify for home insurance. Financing for new homes will not be approved without home insurance, therefore this is a critical step for new building options on Guam.

Encourage developers to build housing that can better adapt to climate change. For example, materials and landscaping that can better absorb rainwater rather than flooding roads. Also roofs that reflect rather than absorb sunlight to keep homes cooler and reduce dependence on air conditioning.

The siting of new developments is also a consideration as ocean levels rise. Wise planning now will reduce the cost of moving communities in the future.

Continue to focus CDBG funds on the development and rehabilitation of affordable and special needs housing in addition to community enhancement projects. Reach out to small developers who may need to better understand this opportunity and provide assistance to complete the appropriate applications for funding. Small developers may be less impacted by the shortage of skilled labor relative to larger contractors overseeing major projects.

Seek additional funding from the HUD Difficult Development Area program that provides funding to areas with high land, construction and utility costs relative to the area median income.

PART V. APPENDIX

3.1 GUAM HOUSING DEMAND SURVEY, 2019 - TECHNICAL REPORT

This study was conducted as an update to the Guam Housing Study, 2019. The research design was developed to match past survey content, sampling method, data collection, and data processing procedures as closely as possible.

Methods

SMS Research designed the survey instrument based on the Guam Housing Demand Survey, 2009 and the Hawai'i Housing Demand Survey, 2019. The reviewers suggested several changes in content, and those changes were incorporated in the final survey instrument.

Thirty pre-test surveys were conducted among Guam households using the same methodology as were employed for the actual survey. The purpose of the pre-test was to determine whether survey items were understandable to the general public, included the most appropriate response options, and were arranged in the proper order for effective inquiry. Some minor changes to the survey content were made as a result of the pretest.

Sampling

The target population for this survey included all residents of Guam residing in non-institutionalized housing units with working telephone (land-line or cell phone) at the time of the study. The sample design was a multi-frame design in which independent samples were selected from two different sampling frames representing the same population. In this case the two frames were the list of landline telephone numbers (12,680 numbers) and a list of cell phone numbers (13,070 numbers). Both lists were purchased from MSG.

Phone numbers were selected at random from both lists to create the sample. No disproportionate sample was conducted for geographic areas.

The number of households in 2019 was estimated by SMS Research and sample sizes were selected to produce standard errors of the proportion of plus-or-minus five percentage points at the 95 percent confidence level, with $p = .05$.

The result was 99 completed surveys from Land Lines and 264 completed surveys from Cell phones. The final survey sample is shown in Table 1.

Interviewer Selection and Training

Surveys collected from respondents in either landline or cell-phone sampling frames were conducted as telephone interviews. SMS Research was responsible for the selection, training, and supervision of all interviewers assigned to this project. Regardless of background or experience, all interviewers were specially trained to conduct the housing survey interviews. The training session included: a review of general telephone interviewing procedures; a question-by-question review of the survey instrument; on-screen CATI training, and a question-and-answer session to make sure that interviewers had all problems handled before beginning work on the survey. During the fielding of the survey, there were frequent, short debriefing sessions in which interviewers could bring up any additional question or issue and have them addressed by the project manager.

Data Collection

Survey data were collected by phone from October 10, 2019 through November 8, 2019. All interviews were conducted from the SMS Honolulu Calling Center. The Calling Center is equipped with a computer assisted telephone interviewing (CATI) system that was used for this project. The system provides for rigorous control of sampling, disposition of all calls dialed, and survey administration. Calls were placed between the hours of 1:00 PM and 9:00 PM on weekdays and 10:00 AM and 7:00 PM on weekends (Guam Standard Time). An unlimited callback procedure was employed. In practice, some numbers were re-dialed as many as eight times in order to complete the interviews.

At least one supervisor was always present during the fielding process and was responsible for monitoring calls. Interviews were monitored on a rotating basis through the CATI system and neither the interviewer nor the caller is aware that monitoring is taking place. Monitors follow the course of the interview and watch the choices being recorded as the respondent answers. If any deviation from procedures is noted, the call monitor conducts a short re-training session with the interviewer to assure that inter-coder reliability is maintained.

Data Processing

Following the fielding process, data files are reviewed and edited for internal consistency and other possible errors. Edited data are then coded by trained research staff who assign numeric codes to any open-ended items, and sort and check verbatim responses.

Weighting and Balancing of Demand Survey Data

An analysis was conducted to identify any serious non-response bias in the demand survey data. Disproportionate coverage for several demographic variables was noted, especially in the cell-phone surveys

Following the procedures developed by The Centers for Disease Control for the Behavioral Risk Factor Surveillance System, with some adaptations based on the weighting procedure applied at Pew Research, SMS has developed a weighting system for multi-frame sample surveys. The weighting has three components as shown below.

1. **Sample Weights:** A disproportionate sample design seeks equal precision by district but results in an unbalanced sample across districts. Sample weights are designed to statistically adjust survey results for a disproportionate design by weighting survey results to the distribution of the populations from which each county sample was drawn. Weights were constructed by dividing the population estimates by the sample counts on a cell-by-cell basis. We did not develop *sample weights* for this dataset because the sample design was not drawn disproportionately.
2. **Sample Raking:** The weighting scheme for the housing demand survey in 2019 must also account for multi-frame sampling (a difference in telephone and Internet service available to each household) and the heavier non-sampling error associated with multi-frame sample surveys involving cell phones. Since the exact number of households by type of phone and Internet service, household size, home ownership, and age of respondents, etc., was unknown, the standard methods of post-stratification (statistical adjustment for non-sample error) would not work. The solution was to use one of several methods of sample balancing or raking as it is better known these days. The method begins with sample weights applied as noted above, and then balances the sample for type of communications service (landline only, landline-cell, and cell only). In the same procedure survey data were simultaneously balanced for disproportionality in other raking variables: homeownership (tenure) and imputed income. The weights were developed to bring the dataset in alignment with known tenure and income distributions from the National Behavioral Risk Factor Surveillance System study.
3. **Replicated Weights:** Replication-based weights have been developed to adjust for variance distortion resulting from complex sample designs. They are required to adjust sample variances used for statistical tests and certain forms of multivariate analysis. Using the replicated weights, users can estimate standard errors for simple estimators like totals or complicated ones like logistic regression parameter estimates. We did not develop replication weights for this dataset. Replication weights can be supplied upon request from survey sponsors.

Sample weights and raked weights were applied in all tabulations developed for and all analyses conducted based on demand survey data. This weighting was necessary to statistically adjust housing demand survey so that the data accurately represent the number of households by district, the size of household, number of children in the household, unit tenure, marital status, age of respondent, as well as landline and cell-phone usage.

3.2 THE HOUSING CONDITION SURVEY, 2019

The Housing Condition Survey was an informal survey where a team of workers drove around selected community/areas, took notes of the structures, and recorded observations. The Housing Condition Survey was conducted from a car and provided a visual overview of a community. Conditions and trends in the community that could affect living conditions of the population were also noted. This data helped to provide insight and context for living quarters in the community or for knowing living conditions of a homes in selected areas.

SMS Research and Marketing Inc. partnered up with PCR Environmental Inc. to conduct the Housing Condition survey. Twenty blocks across six zones were chosen to be observed as a representative sample for Guam. A team was then assigned to each zone for observation.

The teams were instructed to record the condition of all units on the block. There were instructed to rate the condition of each unit based on the following rubric:

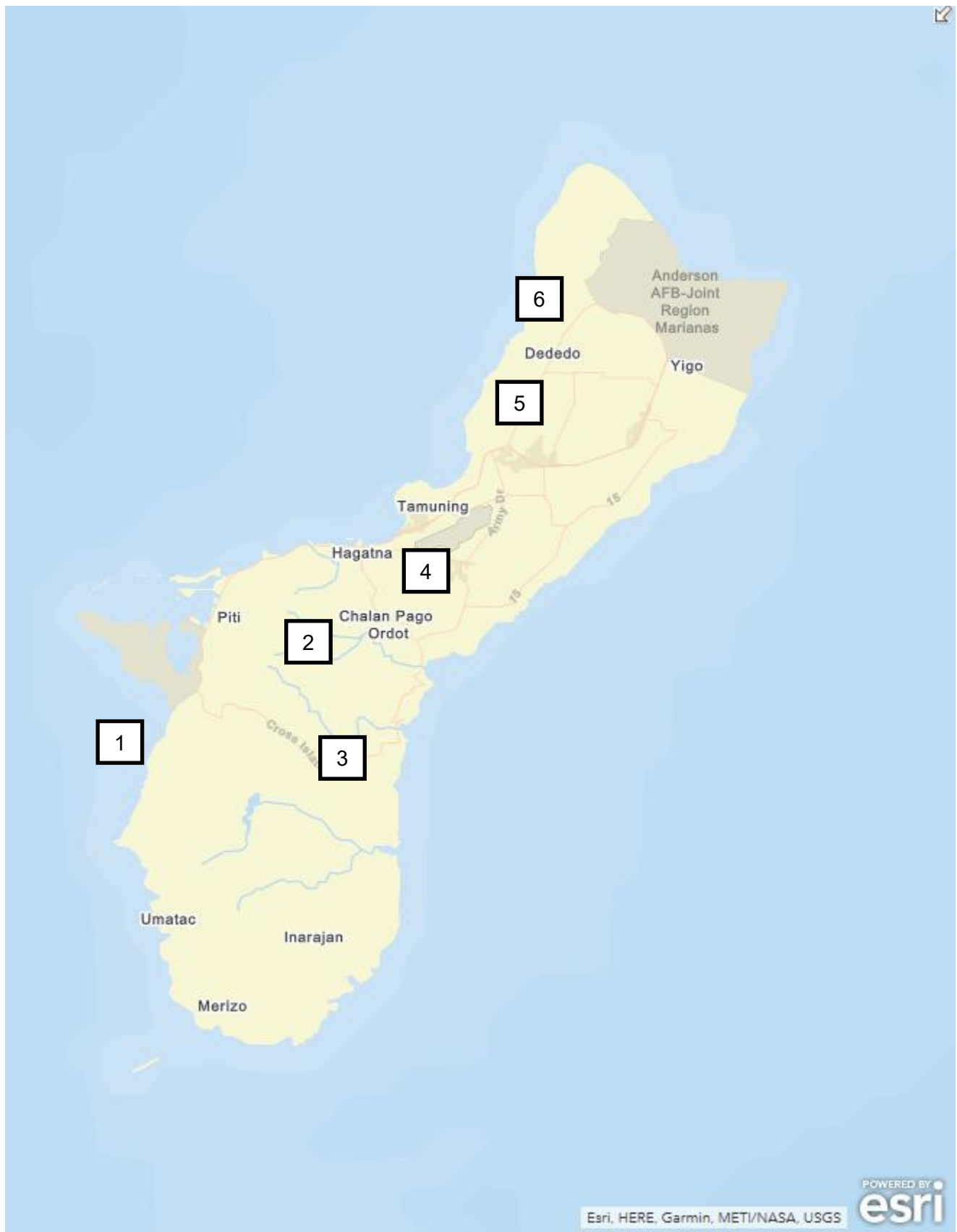
Condition	Qualifiers
Good	unit is a nice place, safe, comfortable and decent to live in
Needs Upkeep	seeing no damage to the unit, but the unit might need some work done like minor painting, yard work, cleaning, etc.
Superficial	superficial damage: the damage that was noticed could be easily fixed, i.e., broken windows or doors, stairs or walkways broken or sagging, roof missing tiles or shingles, etc. but no structural damage
Structural Damage	obvious damage such as sagging or broken roof, missing exterior walls or damage to walls like holes or missing bricks, foundation damage or building falling off the foundation
Unusable	boarded up, abandoned, or had very serious structural damage

Condition of Housing Units by Zones

	Unusable		Structural Damage		Superficial Damage		Needs Upkeep		Good		Total Observations
	Count	%	Count	%	Count	%	Count	%	Count	%	Count
Zone 1	1	1%	5	5%	3	3%	6	6%	80	84%	95
Zone 2	1	1%	3	1%	1	1%	6	1%	450	97%	461
Zone 3	1	1%	2	2%	17	18%	3	3%	72	76%	95
Zone 4	3	1%	3	1%	2	1%	11	3%	304	94%	323
Zone 5	6	2%	3	1%	26	10%	13	5%	213	82%	261
Zone 6	3	1%	24	10%	26	11%	36	15%	153	63%	242
Total	15	1%	40	3%	75	5%	75	5%	1,272	86%	1,477

Source: Guam Housing Condition Survey, 2019

Guam Housing Condition Study Zone Maps



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3.4 DATA TABLES

		Regions on Guam						Total	
		North		Central		South			
		Military	Non-Military	Military	Non-Military	Military	Non-Military		
Total Households		3,043	17,784	1,171	13,440	1,552	8,295	5,766	39,879
Tenure	1 - Own	26.3%	45.0%	22.8%	54.3%	20.8%	71.6%	24.1%	53.7%
	2 - Rent	59.4%	43.2%	67.9%	38.2%	56.0%	20.6%	60.2%	36.8%
	3 - Occupy without payment	14.3%	10.4%	9.3%	7.5%	23.2%	6.5%	15.7%	8.6%
	8 - DON'T KNOW	0.0%	1.4%	0.0%	0.0%	0.0%	1.3%	0.0%	.9%
	9 - REFUSED	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Number of Bedrooms	0	3.6%	1.4%	0.0%	0.0%	0.0%	0.0%	1.9%	.6%
	1	7.1%	9.3%	18.6%	8.1%	23.2%	8.7%	13.8%	8.8%
	2	29.3%	35.0%	21.5%	21.8%	14.0%	29.8%	23.6%	29.4%
	3	33.5%	37.0%	18.6%	42.2%	35.0%	42.6%	30.9%	39.9%
	4	16.8%	10.7%	41.4%	17.8%	27.8%	15.7%	24.8%	14.1%
	5	9.7%	5.8%	0.0%	8.9%	0.0%	1.0%	5.1%	5.8%
	6 or more	0.0%	0.9%	0.0%	1.2%	0.0%	2.2%	0.0%	1.3%
Current Mortgage Payment	01 - Less than \$400	10.1%	9.9%	0.0%	10.6%	0.0%	8.9%	5.8%	9.9%
	02 - \$400 to \$599	0.0%	13.9%	0.0%	5.9%	0.0%	2.7%	0.0%	8.0%
	03 - \$600 to \$799	0.0%	4.3%	0.0%	10.6%	0.0%	4.0%	0.0%	6.4%
	04 - \$800 to \$999	10.1%	4.0%	0.0%	0.0%	0.0%	5.8%	5.8%	3.1%
	05 - \$1,000 to \$1,199	0.0%	8.3%	0.0%	3.7%	0.0%	15.1%	0.0%	8.6%
	06 - \$1,200 to \$1,499	0.0%	16.2%	0.0%	12.1%	50.0%	7.1%	11.6%	12.2%
	07 - \$1,500 to \$1,999	0.0%	15.2%	0.0%	9.9%	0.0%	5.4%	0.0%	10.6%
	08 - \$2,000 to \$2,999	10.1%	3.3%	30.2%	9.5%	0.0%	12.9%	11.6%	8.1%
	09 - \$3,000 or more	0.0%	4.0%	0.0%	2.2%	25.0%	1.3%	5.8%	2.6%
	10 - Already paid for	46.5%	19.1%	69.8%	26.7%	0.0%	31.1%	40.2%	25.1%
	88 - DON'T KNOW	23.3%	1.0%	0.0%	6.2%	25.0%	5.8%	19.2%	4.1%
	99 - REFUSED	0.0%	1.0%	0.0%	2.6%	0.0%	0.0%	0.0%	1.2%
Average Mortgage Payment		\$950	\$1,195	\$2,500	\$1,425	\$1,425	\$1,172	\$1,461	\$1,192
Current Rent Payment	01 - Less than \$200	0.0%	2.8%	0.0%	0.0%	12.5%	6.3%	3.1%	2.2%
	02 - \$200 to \$399	6.0%	2.8%	0.0%	9.8%	0.0%	20.8%	3.1%	7.4%
	03 - \$400 to \$599	6.0%	13.4%	0.0%	13.4%	12.5%	0.0%	6.3%	11.8%
	04 - \$600 to \$799	0.0%	22.2%	0.0%	13.4%	0.0%	6.3%	0.0%	17.2%
	05 - \$800 to \$999	13.9%	10.2%	13.7%	15.5%	0.0%	12.5%	10.4%	12.3%
	06 - \$1,000 to \$1,499	6.0%	32.8%	0.0%	24.0%	0.0%	18.8%	3.1%	28.1%
	07 - \$1,500 to \$1,999	0.0%	8.8%	31.6%	12.7%	0.0%	0.0%	7.2%	9.1%
	08 - \$2,000 to \$2,499	6.0%	2.8%	13.7%	4.9%	0.0%	0.0%	6.3%	3.2%
	09 - \$2,500 or more	42.1%	1.4%	41.0%	4.2%	25.0%	20.8%	37.6%	4.7%
	10 - No Cash Rent	13.9%	1.4%	0.0%	0.0%	50.0%	0.0%	19.8%	.7%
	88 - DON'T KNOW	6.0%	1.4%	0.0%	2.1%	0.0%	0.0%	3.1%	1.5%
	99 - REFUSED	0.0%	0.0%	0.0%	0.0%	0.0%	14.5%	0.0%	1.7%
Average Rent Payment		\$2,500+	\$988	\$2,423	\$987	\$599	\$985	\$2,487	\$988
Soonest Will Move	01 - Less than 6 months	10.7%	8.3%	9.3%	8.6%	16.2%	4.3%	11.9%	7.6%
	02 - 6 months to a year	10.7%	4.4%	9.3%	5.4%	33.2%	0.0%	16.5%	3.8%
	03 - 1 to 2 years	41.5%	11.5%	49.3%	13.4%	28.0%	11.0%	39.5%	12.0%
	04 - 3 years	2.7%	5.4%	0.0%	3.0%	7.0%	2.6%	3.3%	4.0%
	05 - 4 to 5 years	9.7%	7.1%	6.9%	9.4%	0.0%	5.1%	6.5%	7.4%
	06 - 6 to 10 years	2.7%	4.4%	0.0%	0.0%	0.0%	2.9%	1.4%	2.6%
	07 - Over 10 years	0.0%	1.7%	9.3%	2.0%	5.2%	1.9%	3.3%	1.8%
	08 - Probably never	18.5%	46.5%	15.9%	47.7%	10.4%	61.9%	15.8%	50.1%
	88 - DON'T KNOW	3.6%	10.8%	0.0%	10.5%	0.0%	10.3%	1.9%	10.6%
	99 - REFUSED	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

		Regions on Guam						Total	
		North		Central		South			
		Military	Non-Military	Military	Non-Military	Military	Non-Military		
Total Households		3,043	17,784	1,171	13,440	1,552	8,295	5,766	39,879
Move Where	1 - Stay on Guam	25.4%	49.2%	22.1%	68.2%	0.0%	27.1%	17.5%	52.4%
	2 - Move away from Guam	61.5%	36.4%	77.9%	29.1%	92.2%	58.6%	73.6%	37.4%
	8 - DON'T KNOW	13.1%	14.4%	0.0%	2.7%	7.8%	14.3%	9.0%	10.2%
	9 - REFUSED	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Age	1 - (UNDER 18)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	2 - 18 to 21	13.3%	3.7%	0.0%	.8%	23.2%	2.6%	13.2%	2.5%
	3 - 22 to 34	33.8%	15.5%	46.4%	16.3%	54.2%	6.4%	41.8%	13.8%
	4 - 35 to 59	40.6%	48.2%	37.6%	44.1%	17.4%	37.7%	33.8%	44.6%
	5 - 60 to 65	2.7%	12.3%	0.0%	5.5%	0.0%	18.5%	1.4%	11.3%
	6 - 66 to 74	0.0%	14.8%	15.9%	19.3%	5.2%	22.5%	4.6%	18.0%
	7 - 75 or older	6.1%	4.4%	0.0%	12.6%	0.0%	10.3%	3.2%	8.4%
	8 - (DON'T KNOW)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	9 - (REFUSED)	3.6%	1.0%	0.0%	1.4%	0.0%	1.9%	1.9%	1.4%
All the people in your HH related to you?	1 - ALL are related to me	84.2%	81.4%	100.0%	80.2%	69.5%	94.8%	82.5%	83.8%
	2 - Only SOME are related to me	5.3%	5.8%	0.0%	8.6%	13.1%	4.1%	6.8%	6.4%
	3 - NONE are related to me	10.5%	10.8%	0.0%	8.7%	17.4%	1.1%	10.7%	8.1%
	8 - DON'T KNOW	0.0%	2.1%	0.0%	.9%	0.0%	0.0%	0.0%	1.3%
	9 - REFUSED	0.0%	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%	.5%
Generation s In HH	1 - one	26.2%	41.8%	46.3%	48.0%	36.5%	46.1%	33.8%	44.8%
	2 - two	53.6%	40.5%	53.7%	31.5%	63.5%	42.4%	56.6%	38.0%
	3 - three or more	20.2%	15.3%	0.0%	18.6%	0.0%	11.5%	9.5%	15.5%
	8 - DON'T KNOW	0.0%	2.4%	0.0%	1.8%	0.0%	0.0%	0.0%	1.6%
	9 - REFUSED	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unrelated individuals are a family or single individuals?	1 - A family or families	33.3%	18.4%	0.0%	55.9%	24.7%	50.0%	28.3%	35.8%
	2 - Single individuals	33.3%	77.5%	0.0%	44.1%	75.3%	50.0%	57.5%	62.0%
	3 - Both	33.3%	4.1%	0.0%	0.0%	0.0%	0.0%	14.2%	2.2%
	8 - DON'T KNOW	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	9 - REFUSED	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Appendix Table 1: Housing Units Sales and Median Sales Price, Guam, 2008 to 2018

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Residential Sales	\$208.1	\$158.3	\$173.9	\$173.1	\$153.9	\$163.0	\$186.5	\$211.9	\$250.6	\$282.3	\$298.8
SFD Sales	\$162.4	\$136.1	\$141.7	\$141.2	\$129.8	\$132.0	\$123.6	\$148.6	\$181.8	\$199.7	\$220.1
Condo Sales	\$45.7	\$22.2	\$32.2	\$31.9	\$24.1	\$31.0	\$62.9	\$63.3	\$68.8	\$82.6	\$78.7
Residential Transactions	948	763	769	713	667	722	819	889	953	1,089	1,077
SFD Transactions	705	612	586	541	530	557	514	582	655	761	738
Condo Transactions	243	151	183	172	137	165	305	307	298	328	339
Residential Median Price	\$190,000	\$184,800	\$199,000	\$214,000	\$201,000	\$191,350	\$195,000	\$200,000	\$225,000	\$225,100	\$250,000
SFD Median Price	\$215,000	\$200,000	\$212,250	\$245,000	\$215,500	\$200,000	\$213,625	\$224,550	\$245,000	\$240,000	\$269,450
Condo Median Price	\$140,000	\$124,000	\$140,000	\$132,500	\$150,000	\$139,905	\$167,200	\$175,000	\$186,500	\$200,000	\$190,000

Appendix Table 2: Average Rent by Unit Type and Size, North Region, Guam, 2010-2019

	# of Bedrooms	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Single-Family	1	\$650	---	---	\$475	\$565	\$500	\$480	\$2,200	\$1,625	\$725
	2	\$1,179	\$1,250	\$950	\$925	\$1,110	\$858	\$883	\$1,176	\$1,112	\$1,492
	3	\$2,067	\$2,142	\$2,197	\$2,202	\$2,105	\$2,210	\$2,358	\$2,368	\$2,385	\$2,368
	4	\$2,477	\$2,442	\$2,437	\$2,667	\$2,450	\$2,483	\$2,583	\$2,683	\$2,558	\$2,500
Multi-Family	# of Bedrooms	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	1	\$1,125	\$896	\$1,300	\$1,200	\$1,248	\$1,121	\$1,388	\$1,192	\$1,183	\$1,450
	2	\$900	\$967	\$833	\$844	\$1,073	\$1,175	\$1,200	\$1,202	\$1,186	\$1,325
	3	\$1,850	\$1,603	\$1,437	\$1,427	\$1,893	\$1,863	\$2,035	\$2,068	\$2,204	\$2,103
	4	\$1,697	\$1,875	\$1,573	\$1,847	\$1,742	\$1,867	\$2,087	\$1,942	\$1,967	\$1,992

Source. Multiple Listing Service (MLS) Guam, 2010-2019.

Appendix Table 3: Average Rent by Unit Type and Size, Central Region, Guam, 2010-2019

Single-Family	# of Bedrooms	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	1	\$1,918	\$1,278	\$1,300	\$976	\$1,400	\$1,716	\$1,425	\$1,774	\$1,232	\$1,115
	2	\$1,304	\$1,262	\$1,491	\$1,264	\$1,494	\$1,306	\$1,129	\$1,725	\$1,572	\$1,858
	3	\$2,014	\$1,926	\$1,839	\$1,826	\$1,835	\$1,957	\$2,139	\$2,222	\$2,258	\$2,317
	4	\$2,214	\$2,699	\$2,266	\$2,148	\$2,543	\$2,514	\$2,488	\$2,551	\$2,381	\$2,500
Multi-Family	# of Bedrooms	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	1	\$926	\$850	\$833	\$843	\$806	\$1,063	\$918	\$1,141	\$1,062	\$1,033
	2	\$1,028	\$788	\$1,105	\$979	\$908	\$1,156	\$994	\$1,104	\$1,412	\$1,473
	3	\$1,628	\$1,407	\$1,429	\$1,517	\$1,494	\$1,544	\$1,798	\$1,990	\$1,889	\$1,904
	4	\$2,450	\$2,250	\$2,021	\$2,113	\$2,073	\$1,338	\$3,135	\$1,900	\$2,538	\$2,297

Source. Multiple Listing Service (MLS) Guam, 2010-2019.

Appendix Table 4: Average Rent by Unit Type and Size, South Region, Guam, 2010-2019

Single-Family	# of Bedrooms	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	1	\$1,900	\$1,550	\$1,225	\$1,980	--	\$1,125	\$1,492	--	\$1,350	\$2,205
	2	\$1,238	\$1,570	\$1,349	\$929	\$1,263	\$1,788	\$1,820	\$1,325	\$1,321	\$2,143
	3	\$1,807	\$2,128	\$2,065	\$2,172	\$1,997	\$2,201	\$2,291	\$2,236	\$2,310	\$2,319
	4	\$2,241	\$2,700	\$2,325	\$2,705	\$2,285	\$2,505	\$2,463	\$2,487	\$2,872	\$2,571
Multi-Family	# of Bedrooms	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	1	\$751	\$1,900	\$1,800	\$1,500	\$1,225	\$1,167	--	--	\$700	\$1,600
	2	\$1,144	\$1,475	\$1,081	\$1,367	\$1,217	\$967	\$1,550	\$1,000	\$833	\$1,201
	3	\$1,750	\$1,900	\$1,750	\$1,902	\$2,500	\$1,533	\$2,327	\$2,203	\$2,240	\$2,287
	4	--	\$1,100	\$995	\$1,050	--	\$945	\$1,100	\$1,300	--	\$2,205

Source. Multiple Listing Service (MLS) Guam, 2010-2019.