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MEMO

REPORT DATE:	August 2, 2018
TO:	San Juan County Council San Juan County Planning Commission
CC:	Mike Thomas, County Manager
FROM:	Adam Zack, Planner II
VIA:	Linda Kuller, AICP, Planning Manager
SUBJECT:	2036 San Juan County Comprehensive Plan Update: Housing Unit Forecast
MEETING:	August 17, 2018
ATTACHMENT:	A. Office of Financial Management (OFM) Intercensal Housing Estimate Methodology and County Housing Reporting Form B. 1990 to 2010 OFM Postcensal Estimates Table C. Excerpt from U.S. Census Bureau *Selected Appendixes: 2010,* descriptions of 2010 Census Operations

ACTION REQUESTED: Staff requests Planning Commission and County Council to recommend a housing unit forecast method from the two methods proposed in the staff report dated July 5, 2018.

DISCUSSION: At the joint briefing on July 20, 2018, Planning Commission and County Council identified follow-up questions about the two housing unit forecast methods presented by staff. Staff was asked to provide additional information about the following questions:

I. What is the median number of people per household in San Juan County?

II. What is the rate of change in Washington State Office of Financial Management (OFM) housing unit counts for each period (OFM data slope analysis)?

III. What is the methodology for U.S. Census Bureau housing unit counts?

IV. What information do we have on occupancy rates?

V. How will the housing unit forecast relate to the *Land Capacity Analysis*?

VI. What demographic changes can be expected (i.e. the 'boomer wave') and how will this impact housing?

BACKGROUND: The housing unit forecast is one component of the *Housing Needs Assessment*, an appendix to the San Juan County Comprehensive Plan that helps to define what housing will be needed in the County through the year 2036. Two methods of forecasting expected housing units were presented in a staff report from the Department of Community Development (DCD) dated July 5, 2018:

- Method One: Total Housing Unit Forecast using Office of Financial Management (OFM) Data
- Method Two: Total Housing Unit Forecast Using Annual Building Permit Average from Employment Security Department (ESD) building permit data from the U.S. Census Bureau

The forecasting methods and analysis utilized four data sets: the County adopted *Population Forecast* (Res. 27-2017), Washington State Office of Financial management (OFM) housing unit counts, Washington State Employment Security Department (ESD) permit counts, and DCD building permit data from 2004 to 2017. The data sets from OFM and ESD draw from U.S. Census Bureau data. Trends in each data set that made forecasting difficult, leading to the questions above.

RESPONSES TO FOLLOW-UP QUESTIONS:

I. What is the median number of people per household in San Juan County?

The median household size is not provided by the 2015 American Community Survey (ACS) – U.S. Census Bureau information. This data set from the years 2010-2015 does not include enough information to calculate a median household size. Median household size is not otherwise available.

One of the key ways of understanding how population and housing numbers interact is through the rate of people-per-household. The people-per-household rate used in the 2015 ACS is 2.04. This rate tells the exact relationship between households and population based on a survey conducted by the U.S. Census Bureau[1]. The rate of people-per-household from the 2015 ACS was calculated by dividing the total population by the total number of households[2]:

$$\frac{\text{15,769 Population}}{\text{7,708 Households}} = \text{2.04 People per Households}$$

The people-per-household rate of 2.04 can be used to forecast future households, provided it is used appropriately. This rate may be used to determine the number of households expected based on the proportion of total population and households. For reference, the rate of people-per-household according the U.S. Census Bureau was 2.05 in 2010 and 2.16 in 2000[3]. This rate seems to experience only minor fluctuations over time, suggesting it is a sound figure to use in future analysis.

II. What is the rate of change in Office of Financial Management (OFM) housing unit counts for each period?

The housing unit count collected annually by the OFM are based on a specific methodology that takes into account the federal decennial census and changes in housing units reported by local governments and institutions[4]. Attachment A includes the form the County uses to report housing unit changes and a methodology that explains how OFM develops their housing unit numbers in years between decennial censuses. The OFM housing unit data forms the basis for the analysis below.

Further analysis of the OFM rates of change in total housing units for each decade since 1990 shows that each decade has a distinct average annual rate of change in housing units. The spikes in number of units for the years 2000 and 2010 skewed the average for the 2000 to 2010 decade. As a result of this anomaly, the rate of change for that decade was calculated without those two data points to reflect better the trend for those years. Table 1 below shows the average annual rate of change in the OFM housing unit counts for each decade.

[1] (U.S. Census Bureau 2018)
[2] (U.S. Census Bureau n.d.)
[3] (U.S. Census Bureau n.d.)
[4] (Washington State Office of Financial Management 2017)

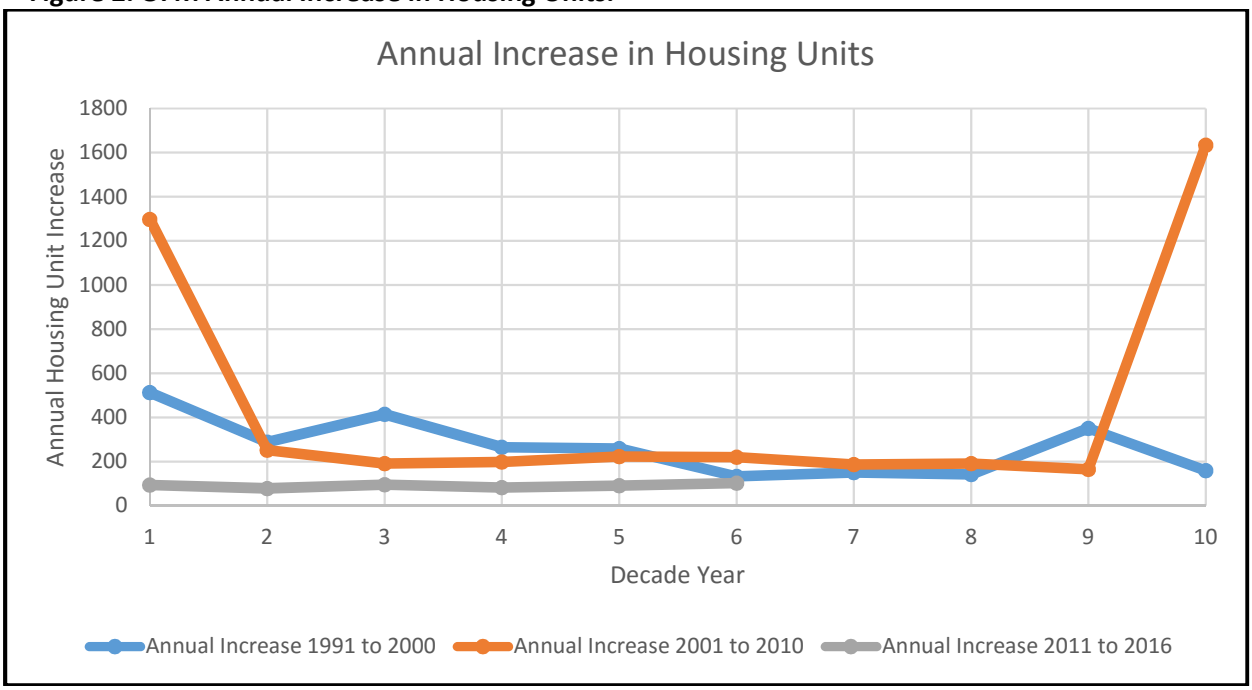
Table 1. Average Annual Rate of Change in OFM Housing Unit Counts.

	1991 - 2000	2002 - 2009	2011 - 2016
Average Annual Rate of Change	**268**	**204**	**91**

Source: OFM Postcensal Housing Unit Counts 1990 - 2016[5]

Figures 2 and 3 below show the average annual rate of change in housing units. Figure 2 shows the annual increase in housing units including the year 2001 and 2010 data points, to help show how those outliers skew the data set. The annual increase for 2000 to 2010 does not include major fluctuations in the annual increase with the exception of those significant increases in 2001 and 2010. Figure 3 shows the annual increase for each period excluding the years 2001 and 2010. Figure 3 also includes lines showing the average annual rate of change in housing units for each period, represented by the flat horizontal lines.

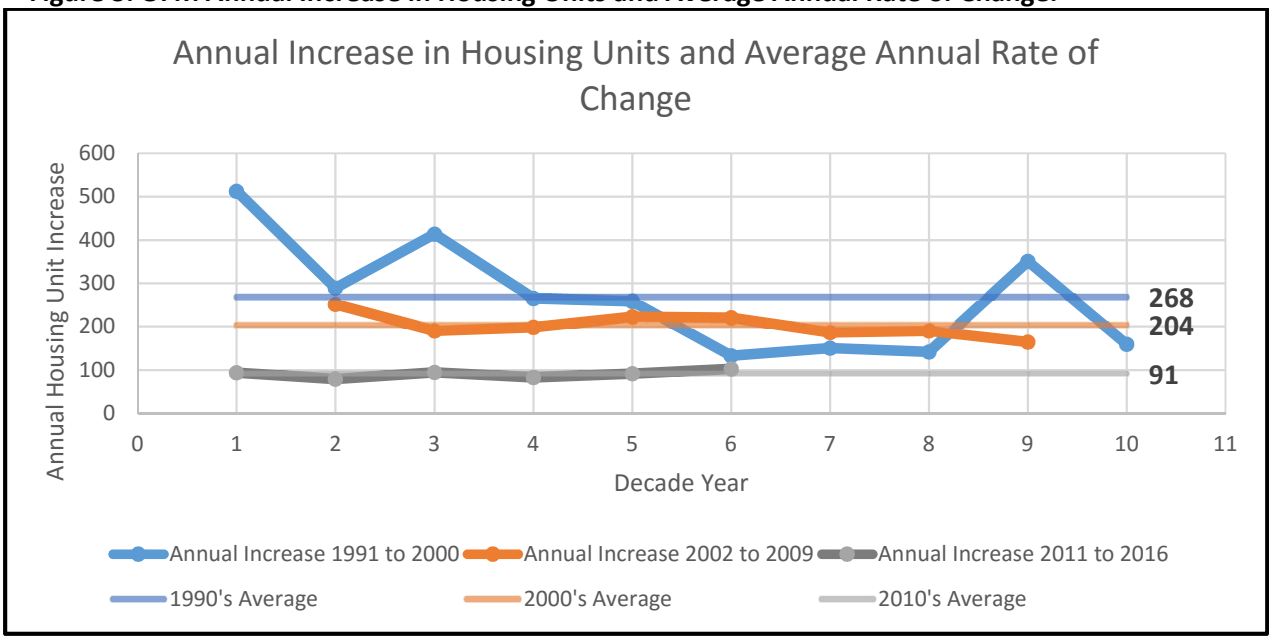
Figure 2. OFM Annual Increase in Housing Units.



Source: OFM Postcensal Housing Unit Counts 1990 - 2016[6]

[5] See Attachment B for data table
[6] See Attachment B for data table

Figure 3. OFM Annual Increase in Housing Units and Average Annual Rate of Change.



Source: OFM Postcensal Housing Unit Counts 1990 - 2016[7]

There are some events worth noting from the periods represented in these figures. The blue lines in both figures represent a timeframe primarily prior to the adoption of the County's Comprehensive Plan, a major policy shift that influenced housing numbers by reducing density in some places. The early 2000's were marked by an economic downturn known as the "dot-com bubble", this occurred at the tail end of the blue line and the beginning of the orange line[8]. The 2008 recession occurred during the years of transition between the orange and grey lines. The 2008 recession in particular was centered on housing markets; marked by widespread mortgage defaults, foreclosures, and a reduction of financing available for new housing development[9]. These factors have likely informed the trends seen in the number of housing units for each decade.

The average annual rates of change can be compared with housing unit forecast Method Two from the staff report dated July 5, 2018[10]. The average annual rate of change in the 1990s, 268 units per year, was higher than the rate proposed in Method Two, 209 units per year. The rate for the years 2002 to 2009 is 204 units per year, much closer to the Method Two rate. The rate for 2011 to 2016 was 91 units per year, well below the Method Two projection. The annual rate of change, the orange line in Figures 2 and 3, began to decline in 2007 before dropping considerably in 2011. What this seems to suggest is that the impact of the 2008 recession and other recent market forces affecting the housing counts did not begin to appear in the data until 2011 when housing unit growth dropped considerably. The average annual rate of change began to rise between 2014 and 2016, the grey line in Figures 2 and 3, suggesting that housing unit numbers in the County may be beginning an upward trend.

[7] See Attachment B for data table
[8] (Geier 2015)
[9] (Bordo 2008)
[10] (Zack and Kuller 2018)

III. What is the methodology for U.S. Census Bureau housing unit counts?

The U.S. Census Bureau utilized twenty-six different data gathering operations during the 2010 decennial census[11]. A full list of these operations from a U.S. Census Bureau report dated May 2012 is included in Attachment C. These operations include

- address canvassing;
- in-person follow ups;
- comparing independent sources and census records;
- mailed surveys; and
- telephone questionnaire assistance.

These operations were completed between April 6, 2009 and June 15, 2011. The U.S. Census Bureau sends a questionnaire form to every address. They review the returned responses to identify housing units that did not responds to the mailed out questionnaire and follow up by telephone. Following that, the Census Coverage Measurement (CCM) program conducts field operations to determine the provide estimates of "net coverage error and omissions and erroneous enumerations for persons in housing units and for the housing units themselves[12]."

The U.S. Census Bureau defines housing units as follows:

> "A housing unit is a living quarters in which the occupant or occupants live separately from any other individuals in the building and have direct access to their living quarters from outside the building or through a common hall. Housing units are usually houses, apartments, mobile homes, groups of rooms, or single rooms that are occupied as separate living quarters. They are residences for single individuals, groups of individuals, or families who live together. A single individual or a group living in a housing unit is defined to be a household. Additional details about housing for the elderly population and group homes are provided in the section "Housing for the Older Population.
>
> For vacant housing units, the criteria of separateness and direct access are applied to the intended occupants whenever possible. Nontraditional living quarters such as boats, RVs, and tents are considered to be housing units only if someone is living in them and they are either the occupant's usual residence or the occupant has no usual residence elsewhere. These nontraditional living arrangements are not considered to be housing units if they are vacant[13]."

This definition of housing units is broader than what would be captured by permits. Particularly the 'nontraditional living quarters' category would capture a wider swath of structures than County permitting information for dwelling units. The County defines dwelling units in San Juan County Code (SJCC) 18.20.040 "D" definitions as follows:

> "Dwelling unit" means a single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation. A principal residence and an ADU that meets the requirements of SJCC 18.40.240 constitute a single dwelling unit. Recreational vehicles are not dwelling units[14].

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[11] (U.S. Census Bureau 2012)
[12] (U.S. Census Bureau 2012)
[13] (U.S. Census Bureau 2012)
[14] (San Juan County Code 2018)

This definition more narrowly defines what the County considers a housing unit. This is likely to be the major cause of the disparity in U.S. Census Bureau housing unit counts and San Juan County and OFM housing data. The major increases in the OFM housing unit counts every ten years, which include the decennial census counts, is not likely a matter of incorrect counting but rather an inclusion of different units than the County would consider under the umbrella term 'housing units'.

IV. What information do we have on occupancy rates?

Information about the occupancy and vacancy rates for housing units comes from the U.S. Census. The U.S. Census Bureau defined occupied and vacant housing units as:

> **"Occupied Housing Unit** – A housing unit is classified as occupied if it is the usual place of residence of the individual or group of individuals living in it on Census Day, or if the occupants are only temporarily absent, such as away on vacation, in the hospital for a short stay, or on a business trip, and will be returning.
>
> The occupants may be an individual, a single family, two or more families living together, or any other group of related or unrelated individuals who share living arrangements. Occupied rooms or suites of rooms in hotels, motels, and similar places are classified as housing units only when occupied by permanent residents; that is, occupied by individuals who consider the hotel their usual place of residence or who have no usual place of residence elsewhere. However, when rooms in hotels and motels are used to provide shelter for people experiencing homelessness, they are not housing units. Rooms used in this way are considered group quarters.
>
> **Vacant Housing Unit**—A housing unit is classified as vacant if no one is living in it on Census Day, unless its occupant or occupants are only temporarily absent—such as away on vacation, in the hospital for a short stay, or on a business trip—and will be returning.
>
> Housing units temporarily occupied at the time of enumeration entirely by individuals who have a usual residence elsewhere are classified as vacant. When housing units are vacant, the criteria of separateness and direct access are applied to the intended occupants whenever possible. If that information cannot be obtained, the criteria are applied to the previous occupants.
>
> Boats, RVs, tents, caves, and similar shelter that no one is using as a usual residence are not considered living quarters and therefore are not enumerated at all[15]."

Table 2 below shows the 2000 and 2010 Census vacancy and occupancy rates for San Juan County and includes 1990 rates for reference. The vacancy rate between the years 2000 and 2010 rose by slightly more than 9 percentage points. Between 2000 and 2010, vacant housing increased by 2,414 units. The number of units used for seasonal, recreational, or occasional use increased by 1,972 units.

[15] (U.S. Census Bureau 2012)

Table 2. San Juan County Housing by Occupancy.

	1990 Census	2000 Census	2010 Census
Total housing units	6,075	9,752	13,313
Owner occupied	4,392 (total occupied)	4,754	5,360
Renter occupied	Not provided	1,712	2,253
Vacant housing units	1,683	3,286	5,700
Percentage of Total			
Owner occupied	72.29% (total occupied)	48.75%	40.26%
Renter occupied	Not provided	17.56%	16.92%
Vacant housing units	27.70%	33.70%	42.82%
Vacant Housing Unit by Type			
For seasonal, recreational, or occasional use	Not provided	2,776	4,748
For sale only		82	187
For rent		129	311
Rented or sold, not occupied		63	57
For migrant workers		0	5
Other vacant		236	392

Source: U.S. Census Bureau, 1990[16], 2000 and 2010 Census[17]

Table 2 also shows that between 1990, 2000 and 2010, occupancy rates for both owner and renter occupied housing declined. Vacant housing units by type was not included in the 1990 census data. The most significant decline came in the percentage of the housing stock that was owner occupied. The owner occupied share of housing declined by 8.49 percentage points from 2000 to 2010. Renter occupied housing experienced a more modest decline in share of housing. Renter occupied housing declined by 0.64 percentage points.

Table 3 below provides occupancy and vacancy rates for Washington State. The total numbers are not particularly important to consider, but the proportions of occupied and vacant housing is worth noting. Compared to the statewide rate, the County's vacancy is nearly four times as high. This indicates that this aspect of the County's housing stock is affected by the overall market differently than at the state level.

[16] (U.S. Census Bureau 1992)
[17] (U.S. Census Bureau n.d.)

Table 3. Washington State Housing by Occupancy.

	2000 Census	2010 Census
Total housing units	2,451,075	2,885,677
Owner occupied	1,467,009	1,673,920
Renter occupied	804,389	946,156
Vacant housing units	179,677	265,601
Percentage of Total		
Owner occupied	59.85%	58.01%
Renter occupied	32.82%	32.79%
Vacant housing units	7.33%	9.2%

Source: U.S. Census Bureau, 2000 and 2010 Census[18]

Considering the information in Tables 2 and 3, vacancy rate is an important element to consider when planning for housing in the County. In 2010, a significant proportion of the housing stock was vacant in San Juan County, the majority of which was used for seasonal, recreational, or occasional use. A low proportion of the vacant housing stock was available rent or sale despite the increase in overall vacancy[19]. Vacancy is likely to continue to occupy a major proportion in the housing market in the coming twenty years given that it comprises two-fifths of the housing stock.

2016 American Community Survey Occupancy Rates

The American Community Survey (ACS) is prepared by the U.S. Census Bureau annually. The U.S. Census Bureau describes the ACS as

> The American Community Survey (ACS) is a relatively new survey conducted by the U.S. Census Bureau. It uses a series of monthly samples to produce annually updated estimates for the same small areas (census tracts and block groups) formerly surveyed via the decennial census long-form sample[20].

The ACS uses a combination of mailed surveys, phone follow-ups, and personal visits to collect data on housing[21]. These methods are similar to the decennial census the U.S. Census Bureau conducts but are not aimed at producing a comprehensive count.

Table 4 below shows the 2016 occupancy and vacancy estimates from the ACS. This shows that the vacancy rate in 2016 is likely to be around the same level as the 2010 census. The indication is that vacancy rates are likely to remain proportionally significant in the County's housing stock.

Table 4. 2016 American Community Survey Housing Estimates.

	Total	Percent
Total Units	13,728	100%
Occupied Housing Units	7,623	55.5%
Vacant Housing Units	6,105	44.5%

Source: 2016 American Community Survey[22]

[18] (U.S. Census Bureau n.d.)
[19] (U.S. Census Bureau n.d.)
[20] (U.S. Census Bureau 2018)
[21] (U.S. Census Bureau 2018)
[22] (U.S. Census Bureau n.d.)

The 2016 ACS estimates that the vacancy rate remained slightly above forty percent through 2016. This lends credence to the concept that the proportion of vacant housing in the County will remain between forty and forty-five percent. If anything, the trends in vacancy and occupancy suggest that vacant housing as a share of the housing stock may continue to grow gradually.

V. How will the housing unit forecast relate to the Land Capacity Analysis?

The Department of Community Development is currently working on three analyses to form the basis of the Comprehensive Plan update: the *Land Capacity Analysis* (LCA), *Housing Needs Assessment* (HNA), and *Population Forecast*. The housing unit forecast is one component of the HNA[23]. The HNA will help define the topics that housing goals and policies will need to address to help meet the County's housing needs. The *Population Forecast* defines the County's expected population through the year 2036. The LCA will quantify the potential dwelling units and non-residential building areas that exists in the County given regulatory parameters. These will be the foundation for forming informed goals and policies during the Comprehensive Plan update.

The housing unit forecast is a tool that will be used in the overall assessment of housing needs. For planning purposes, it will be helpful to know how many housing units can be expected to be constructed in addition to the number of people expected (*Population Forecast*) and the number of potential dwelling units that the regulations would allow (*LCA*). The housing unit forecast method the County elects to use is a single piece of the HNA that will fit within this larger analytical framework. This framework will be of particular interest as the County evaluates planning issues such as:

- the size of urban growth areas (UGA);
- rural densities;
- affordable housing strategies; and
- land use designations.

VI. What demographic changes can be expected (i.e. the 'boomer wave') and how will this impact housing?

To begin with, some information regarding population projections by age cohorts has been excerpted from the October 2017 draft Housing Needs Assessment. HNA Table 5-2 and Figure 5-1 provide what might be expected in age cohorts based on the OFM intermediate population projection. OFM projects that the proportion of residents over the age of 60 will remain large through the year 2035.

[23] (San Juan County 2017)

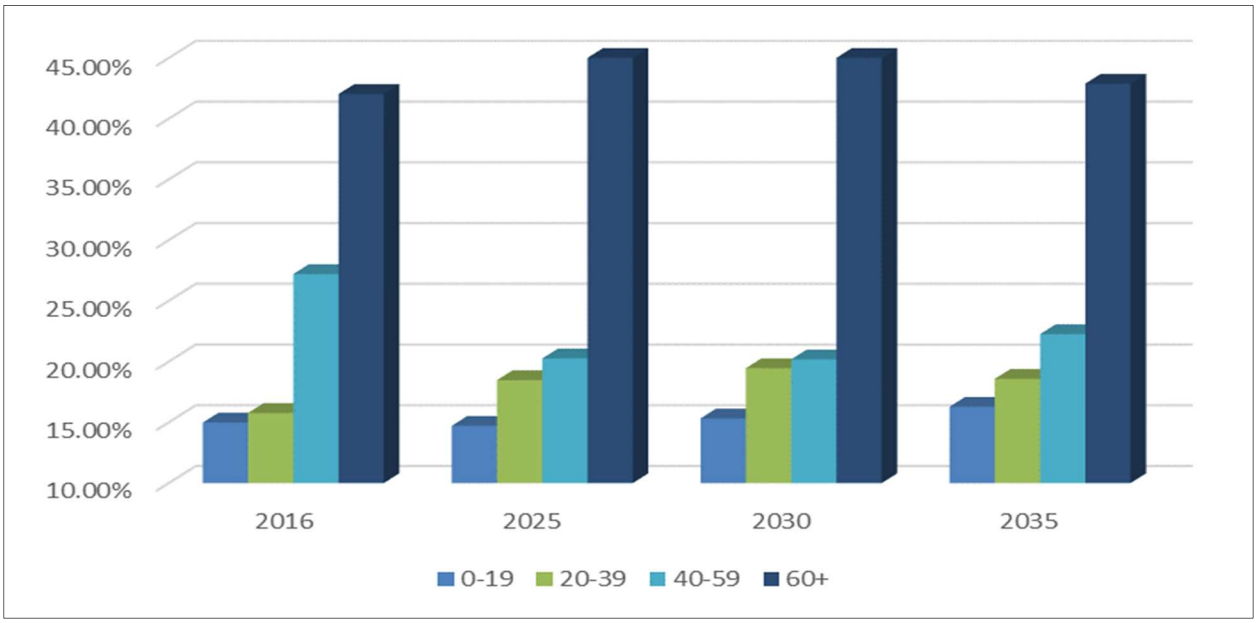
DRAFT HNA Table 5-2. OFM Population Projection by 4 Year Age Cohort.

	2016	2025	2030	2035
Age	Total 16,320	Total 16,606	Total 16,939	Total 17,216
0-4	459	600	632	642
5-9	580	619	676	710
10-14	710	601	686	758
15-19	697	623	602	693
20-24	627	614	587	577
25-29	552	767	717	664
30-34	653	926	944	880
35-39	743	761	1,048	1,078
40-44	812	746	846	1,150
45-49	961	763	794	896
50-54	1,170	856	820	857
55-59	1,497	999	958	929
60-64	1,781	1,412	1,109	1,071
65-69	1,848	1,665	1,428	1,121
70-74	1,349	1,686	1,561	1,370
75-79	842	1,438	1,478	1,403
80-84	517	875	1,149	1,198
85+	522	655	904	1,219

Source: WA OFM GMA 2012 Intermediate Projections

Figure 5-1 presents the projected arc of the age of the County's population over time according to the OFM intermediate projections. The OFM projects the 60+ population demographic to plateau around 2025 and then slowly to begin to recede.

DRAFT HNA Figure 5-1. San Juan County Population by Age Percentage over Time.



Source: WA OFM GMA 2012 Intermediate Projections

> The migration component of population change is more volatile than the natural component. Major economic, social, climate or national changes can generate spurts and slowdowns in migration that are difficult to predict. Uncertainty about the pace and nature of economic recovery, property costs, and the availability of medical services may affect County migration trends in the future.
>
> The combination of low wage employment in the seasonal service and recreation sectors, and lack of affordable housing weighs against the in-migration of younger people with limited personal capital and favors affluent older people with greater personal capital. This characteristic is reflected in the age of the County's population[24].

The entire October 2017 draft HNA is available on the county website, here https://www.sanjuanco.com/DocumentCenter/View/13231/10-16-17-Housing-Needs-Assesment--Second-Draft. The draft HNA includes more in depth discussion of possible demographic changes as they relate to housing. The draft explores additional topics including income and home price.

Baby Boomers

The population of San Juan County is expected to age in the coming years. Table 5 below shows the age distribution of the County's population from the 2016 ACS. Of note, the 2016 ACS places the median age for the County at 55.1 years old. People considered "baby boomers" were born between 1946 and 1964[25], between the ages of 54 and 72. Baby boomers make up around 39.7 percent of the County's population[26].

As the baby boomer generation continues to age, it is likely that the median age in the County will continue to increase because this generation makes up a significant proportion of the population. The County could expect to have increased demand for medical services, lower labor-force-participation rates as older people retire, and growth in demand for housing types suited for retirees. Data is not available to quantify how the supply of these factors will drive overall demographic changes as the baby boomer generation ages. It is possible that the lack of senior care facilities or retirement living options will drive some older residents to move back to the mainland. It is also possible that the growth in demand will prompt the market to provide these types of goods and services. Comprehensive Plan goals and policies could address these specific challenges.

[24] (San Juan County 2017)
[25] (Cable News Network (CNN) 2017)
[26] See Table 5

Table 5. 2016 ACS San Juan County Age Demographics.

	San Juan County, Washington					
	Total		Male		Female	
	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
Total population	16,056	*****	7,739	+/-44	8,317	+/-44
AGE						
Under 5 years	2.9%	+/-0.1	2.8%	+/-0.2	3.1%	+/-0.2
5 to 9 years	4.3%	+/-0.3	4.2%	+/-0.4	4.5%	+/-0.6
10 to 14 years	4.0%	+/-0.3	4.2%	+/-0.4	3.8%	+/-0.6
15 to 19 years	4.6%	+/-0.2	5.1%	+/-0.4	4.2%	+/-0.2
20 to 24 years	3.5%	+/-0.2	3.3%	+/-0.2	3.6%	+/-0.4
25 to 29 years	3.8%	+/-0.2	3.8%	+/-0.2	3.8%	+/-0.3
30 to 34 years	4.0%	+/-0.2	4.1%	+/-0.3	3.9%	+/-0.3
35 to 39 years	3.5%	+/-0.5	3.9%	+/-0.7	3.1%	+/-0.6
40 to 44 years	6.0%	+/-0.5	5.9%	+/-0.7	6.1%	+/-0.6
45 to 49 years	5.6%	+/-0.2	5.5%	+/-0.3	5.7%	+/-0.2
50 to 54 years	7.6%	+/-0.3	7.5%	+/-0.4	7.7%	+/-0.3
55 to 59 years	9.9%	+/-0.5	9.5%	+/-0.7	10.3%	+/-0.7
60 to 64 years	10.8%	+/-0.5	10.4%	+/-0.7	11.2%	+/-0.7
65 to 69 years	11.3%	+/-0.6	11.3%	+/-0.8	11.2%	+/-0.9
70 to 74 years	7.7%	+/-0.6	8.5%	+/-0.8	7.0%	+/-0.9
75 to 79 years	5.0%	+/-0.4	5.3%	+/-0.6	4.7%	+/-0.6
80 to 84 years	2.6%	+/-0.3	2.5%	+/-0.4	2.7%	+/-0.4
85 years and over	2.9%	+/-0.4	2.3%	+/-0.4	3.5%	+/-0.6

Source: 2016 American Community Survey[27]

Staff Recommendation:

In light of the information presented above and the analysis in the July 5, 2018 staff report, DCD recommends that Method Two be used to forecast a housing unit total of 18,059 for the year 2036. Method Two uses the annual building permit average from ESD building permit data from the U.S. Census Bureau to forecast total housing units. Staff believes that the permit data used in Method Two is the best basis for making an estimate of housing unit growth because it captures a broader picture of development and accounts for periods of higher and lower levels of development than Method One.

In Question II, a slope analysis was done for three decades of data. The average growth is documented for each described period with three different rates of change in the number of housing units. The Method Two forecasted growth rate is approximately midpoint between the highest and lowest growth rates of these three periods. It is nearly the same rate of growth between 2000 and 2010, the decade after the adoption of the Comprehensive Plan and prior to the 2008 recession.

[27] (U.S. Census Bureau n.d.)

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Development of the Intercensal Estimates of Population and Housing, 2000-2010
Washington State Office of Financial Management, Forecasting Division

Intercensal estimates are estimates developed between census years. Intercensal estimates are considered more accurate than other types of estimates because they are bracketed on both sides by decennial census counts or state-certified special census counts.

The intercensal estimates developed by the Office of Financial Management (OFM) are based on the housing unit method. The housing unit method assumes that the change in the number people varies with the change in number of housing units and counts of population living in group quarter facilities, as reported to OFM by local governments and institutions over the decade.

The basic assumptions of model are as follows:

- The federal decennial census counts for 2000[1] and 2010[1,2] are correct.
- State certified special census counts are assumed to be correct for any given year in the series.
- The OFM estimated populations for new incorporations are assumed to be correct[3].
- The change in household population change mirrors the pattern of housing change as reported to OFM by counties, cities and towns each year.
- The change in group quarter population[4] mirrors the change in population counts as reported to OFM annually.

The 2000-2010 intercensal estimates were developed using slightly different methodology than that used for OFM's 1990-2000 intercensal estimates[5] although both are based on the housing unit method and rely on many of the same basic assumptions. The 2000-2010 intercensal estimate series uses two interpolation techniques, simple linear interpolation and the interpolation method described in *The Methods and Materials of Demography* (Siegel & Swanson, 2004, p. 535) which utilizes the following equation:

$$P_t = Q_t \frac{[(10 - t)Q_{10} + tP_{10}]}{10Q_{10}}$$

Where t is expressed in the years since the first census, P_t is the intercensal estimate at time t, Q_t is the postcensal[6] estimate at time t, P_{10} is the April 1, OFM adjusted 2010 federal census count, Q_{10} is the OFM April 1, 2010 postcensal estimate, and Q_0 is the OFM adjusted April 1, 2000 census count.

Note: We believe that the Siegel and Swanson method yields superior results compared to the method used by OFM to interpolate housing units for the 1990-2000 series. We intend to update the 1990-2000 series using the Siegel and Swanson method in the near future in order to provide a consistent set of intercensal estimates from 1990 onwards.

The basic process steps are as follows:

- Total housing units, occupied housing units, and group quarters populations were estimated by applying the above equation to decennial census and OFM county and city estimate data.
- Household size (average persons per occupied housing unit) estimates were developed using linear interpolation between decennial census points.

- Household population was estimated by multiplying estimated occupied housing units by estimated household size.
- Total population was estimated by adding household population estimates with group quarter population estimates.
- Occupancy rates were estimated by dividing estimated occupied housing units by estimated total housing units.

Notes:

1. This series uses adjusted federal census counts where applicable. The adjustments include:
    a. Controlling for annexations occurring between January 1 and April 1 in the decennial census years to account for boundary changes related to the timing of the federal census. City boundaries were fixed as of January 1 for data collection purposes whereas the actual census date is April 1.
    b. The substitution of state-certified special census counts in place of federal census counts.
    c. Federal corrections to census counts.

2. If the Census Bureau releases corrections resulting from the 2010 Census Count Question Resolution (CQR) Program, this data series may be revised in the future.

3. The City of Liberty Lake incorporated on August 31, 2001. The City of Spokane Valley incorporated on March 31, 2003.

4. Some changes in group quarter populations may be due to definitional changes and/or the inconsistent application of group quarter classifications between federal censuses. In a select number of cases, group quarter populations were treated as household populations to accommodate these differences.

4. For information about the 1990-2000 estimate methodology, please see the following document: http://www.ofm.wa.gov/pop/hseries/ofm_april1_intercensal_estimates_methodology_1990-2000.pdf.

5. Postcensal estimates are developed based on data from the most recent census count. Postcensal estimates differ from intercensal estimates which are period estimates between census points.

References:

Siegel, J. & Swanson, D. (Eds.). (2004). *The methods and materials of demography* (2nd edition). Elsevier Academic Press, London.

Lowe, T. (2004). *Population trends*. Olympia, WA: Washington State Office of Financial Management.

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ATTACHMENT A

2018 COUNTY HOUSING Unit Report For the Unincorporated Area

San Juan County

RETURN BY MARCH 2, 2018, TO:

Yi Zhao
Office of Financial Management
Forecasting and Research Division
P. O. Box 43124
Olympia, Washington 98504-3124

****

The data requested are needed to develop April 1, 2018 COUNTY populations. According to RCW 36.13.100, the Office of Financial Management's official April 1 population determinations are specified for use whenever population is used to distribute funds to counties, determine county program eligibility, or for program administration.

****

A. Building permits issued for housing units in unincorporated areas:

Please enter by structure type the number of building permits issued for housing units and added mobile homes/trailers in the unincorporated area during calendar year 2017.

NOTE: A housing unit is one or more rooms intended for occupancy as separate living quarters by one or more persons as a usual place of residence. For example, a permit for a triplex should be counted as one permit (for a 3-unit structure) with 3 housing units. A permit for a 19-unit apartment building should be counted as one permit (for a 5-or-more unit structure) with 19 housing units.

Number of housing units per structure	Number of permits issued for housing structures			Number of housing units (e.g., 2 in duplex, 4 in quadruplex)		
	Total	Year round	Seasonal*	Total	Year round	Seasonal*
1-unit						
2-unit						
3-unit						
4-unit						
5 or more units				**	**	**
Manufactured Home[1]						
Total						

*Units intended for occupancy during only a season of the year; for example, units for summer or winter recreational use. Do not include migratory worker housing (e.g., units for herders or loggers). If the number of permits issued is unknown, give an estimate of the number of permits issued for seasonal units.
**Enter the specific number of housing units.
[1]Also known as mobile homes or house trailers

B. Additional manufactured home/mobile home/house trailer information:

1. How are changes in the number of manufactured homes/mobile homes/house trailers determined (e.g., septic permits)?

_____

_____

_____

_____

_____

2. Does your mobile home/trailer information include mobile homes/trailers added in mobile home/trailer parks?

Check one: ☐ Yes ☐ No

C. Demolition of housing units in unincorporated areas:

Please enter the number of demolitions in the unincorporated area (include those destroyed by fire) in calendar year 2017. The assessor's office is a good source of information on demolitions or units destroyed by fire, etc. (If unknown, give an estimate of the number.)

Housing units In structure	Number of ***housing*** structures demolished	Number of ***housing units*** demolished*
1-unit		
2-unit		
3-unit		
4-unit		
5 or more units		
Mobile homes/trailers**		
Total		

*State the specific number of housing units destroyed.
**Include mobile homes/trailers that have moved out of unincorporated county area.

ATTACHMENT A

D. Group quarters facilities:

Has there been any change in group quarters facilities in the unincorporated area in calendar year 2017 (e.g., added or enlarged facilities, closures, etc.)?

Check one: ☐ Yes ☐ No

If yes, please indicate the group facility name, type, and population change.

_____

_____

_____

_____

_____

NOTE: Group quarters populations include persons in mental and penal institutions, nursing and retirement homes, college dormitories, military installation barracks, lodging and boarding homes, or other quarters containing ten or more persons where nine or more residents are unrelated to the head of the house.

The Office of Financial Management (OFM) receives annual reports on group quarters population in military installations, college dormitories, and mental/penal institutions. OFM does not receive information on changes in nursing/retirement home populations. Please report any facility additions or closures.

Comments:

_____

_____

_____

_____

In accordance with RCW 43.62.040, I am furnishing the Office of Financial Management the information requested in this form regarding changes to this county's housing stock from January 1, 2017 through December 31, 2017.

I hereby certify that all reported information is valid and accurate to the best of my knowledge.

Name (print): _____ Date: _____

Signature: _____

Title: _____

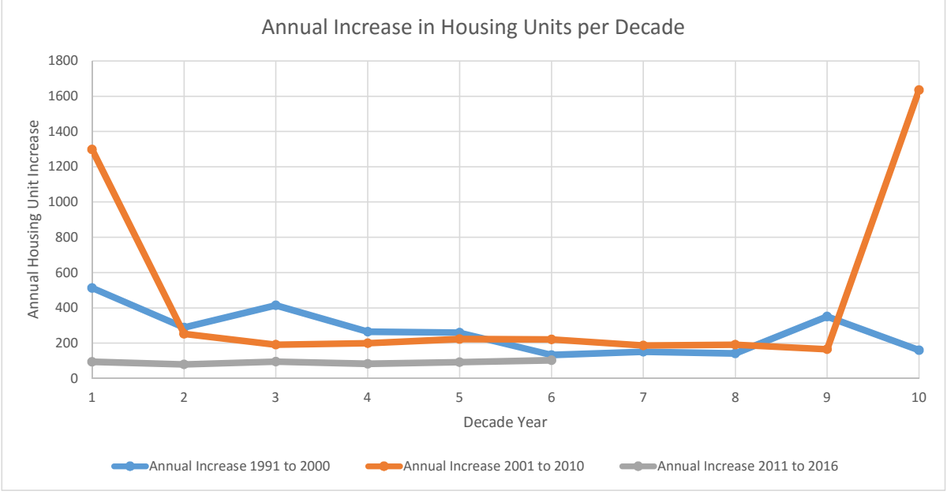
Telephone: _____

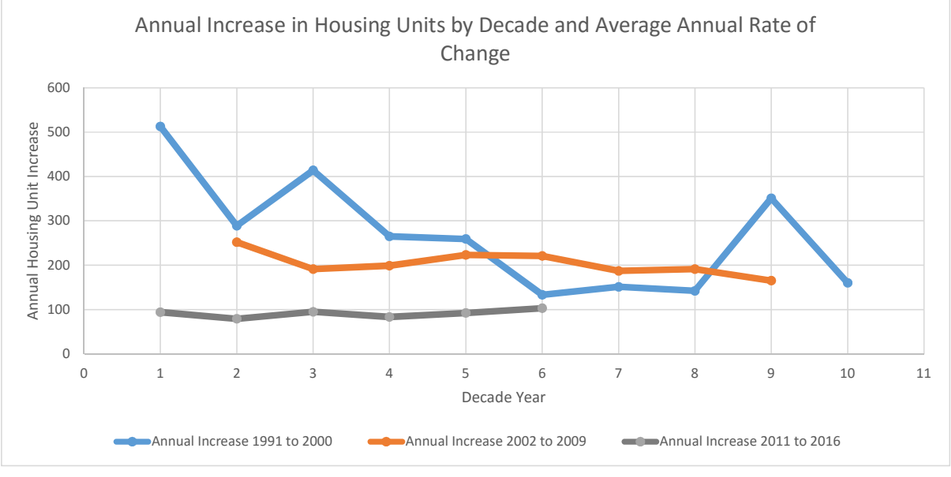
Email: _____

Annual Housing Unit Increase

Attachment B
1990 to 2010 OFM Postcensal Estimates

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
increase	513	289	414	265	259	133	151	142	351	160	1298	252	191	199	223	221	187	191	165	1634	94	79	95	83	92	103
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6





THUMBNAIL DESCRIPTIONS OF 2010 CENSUS OPERATIONS

Address Canvassing—A field operation where census workers systematically canvass all census blocks looking for living quarters and updating the address and map information on a hand-held computer.

Be Counted Program—A program designed for persons who believe they were not counted in the 2010 Census. The Census Bureau will place unaddressed census questionnaires at selected public sites so that individuals that did not receive one in the mail can complete the census.

Census Coverage Follow-Up—A census operation designed to ensure that no person is left out or counted in more than one place in the census and to clarify responses previously collected to improve the accuracy of the census.

Census Coverage Measurement (CCM) Final Housing Unit Follow-Up—A coverage measurement field operation designed to gather additional information to determine reasons for differences between the Independent Listing operation and census records.

Census Coverage Measurement (CCM) Independent Listing Operation—A coverage measurement field operation to construct a list of all housing units, independent of the census, contained within select CCM block clusters.

Census Coverage Measurement (CCM) Initial Housing Unit Follow-Up—A coverage measurement field operation designed to gather information to determine reasons for differences between the Independent Listing operation results and the preliminary census address file.

Census Coverage Measurement (CCM) Person Follow-Up—A coverage measurement field operation designed to collect additional information about persons or households to determine reasons for differences between the CCM Person Interview and the census enumeration.

Census Coverage Measurement (CCM) Person Interview—A coverage measurement field operation designed to collect information about the current resident(s) of each sample housing unit and certain persons who had moved out of the sample address between Census Day and the time of the CCM Person Interview.

Enumeration at Transitory Locations—A census operation where census workers conduct a personal interview with individuals who do not have a usual home elsewhere.

Field Verification—A census operation where census workers verify the existence of units that had been geocoded to a census block but did not match an address in the Master Address File.

Group Quarters Advance Visit—A census operation designed to inform the group quarters contact person of the upcoming enumeration.

Group Quarters Enumeration—A census operation designed to count people living or staying in places such as college residence halls, skilled-nursing facilities, group homes, military barracks, and correctional facilities.

Group Quarters Validation—A census operation designed to determine the correct classification of addresses identified as "other living quarters" during the address canvassing operation.

Mailout/Mailback—A census operation where most households in the United States will be mailed a census questionnaire by the U.S. Postal Service. Household respondents will be asked to fill out the questionnaires and mail them back to data capture centers.

Military Group Quarters Enumeration—A part of the Group Quarters Enumeration operation conducted on military bases and carried out in coordination with the military base point of contact to count military personnel.

Military/Maritime Vessel Enumeration—A part of the Group Quarters operation conducted to enumerate persons on U.S. owned and operated flagged military and maritime vessels.

Nonresponse Follow-Up—A census operation where census workers visit housing units that did not return a completed questionnaire by mail to conduct a personal interview to obtain the required information.

Nonresponse Follow-Up Reinterview—A quality check operation designed to ensure that the production enumerator followed field procedures and to identify enumerators who intentionally or unintentionally produced data errors so that work can be redone.

Questionnaire Assistance Center—A center established by a local census office to assist people with completing their questionnaires. The centers were established in community centers, large apartment buildings, childcare and educational centers, and so forth. The centers are staffed by volunteers and Census Bureau employees; also called walk-in questionnaire assistance centers.

Remote Alaska—A method of data collection used to enumerate the most sparsely settled, isolated parts of Alaska—areas accessible only by small plane, boat, snowmobile, 4-wheel-drive vehicle, dog sled, or a combination of these.

Remote Update/Enumerate—A method of data collection conducted with a "team enumeration" method in sparsely inhabited areas of Maine and Alaska, where all enumeration is completed in just one visit.

Service-Based Enumeration—A group quarters operation designed to enumerate persons receiving services at shelters, soup kitchens, regularly scheduled mobile food vans, and those staying at preidentified nonsheltered outdoor locations.

Telephone Questionnaire Assistance—A customer service operation assisting respondents who call in to inquire about census activities going on in their neighborhood or who want to obtain clarification to questions on the census questionnaire or who request to fill out the form through an interview over the phone.

Update/Enumerate—A method of data collection conducted only in communities determined by local census officials where continually low response rates have been established from previous censuses or ongoing survey efforts, and mailing or hand-delivering forms is not cost beneficial. Enumeration is done by census takers who personally interview each household to collect information and update census address lists and maps at the same time.

Update/Leave—A census operation where census workers update paper versions of census address lists and maps and leave questionnaires at housing units in mainly rural areas without street names and/or house numbers. Household respondents are expected to fill out the questionnaires and mail them to data capture centers.

Vacant Delete Check—A census operation where census workers visit addresses that workers recorded in Nonresponse Follow-Up as either vacant or not a housing unit on Census Day, April 1.

TIMELINE OF 2010 CENSUS OPERATIONS

Operation	Conducted
Address Canvassing	April 6, 2009–July 19, 2009
CCM Independent Listing Operation	August 28, 2009–December 5, 2009
Group Quarters Validation	September 28, 2009–October 23, 2009
Remote Alaska	January 22, 2010–May 5, 2010
Group Quarters Advance Visit	February 1, 2010–March 19, 2010
Telephone Questionnaire Assistance	February 25, 2010–July 30, 2010
Questionnaire Assistance Centers	February 26, 2010–April 19, 2010
Update/Leave	March 1, 2010–April 2, 2010
CCM Initial Housing Unit Follow-Up	March 4, 2010–April 23, 2010
Mailout/Mailback	March 15, 2010–September 30, 2010
Be Counted Program	March 19, 2010–April 19, 2010
Update/Enumerate	March 22, 2010–May 29, 2010
Enumeration at Transitory Locations	March 22, 2010–April 16, 2010
Remote Update Enumerate	March 22, 2010–May 29, 2010
Service-Based Enumeration	March 29, 2010–March 31, 2010
Military Group Quarters Enumeration	March 30, 2010–May 14, 2010
Group Quarters Enumeration	April 1, 2010–May 14, 2010
Military/Maritime Vessel Enumeration	April 1, 2010–May 14, 2010
Second Questionnaire Mailing in Mailout/Mailback Areas (either targeted or blanket delivery)	April 1, 2010–April 10, 2010
Coverage Follow-Up	April 26, 2010–August 13, 2010
Nonresponse Follow-Up	May 1, 2010–July 10, 2010
Nonresponse Follow-Up Reinterview	May 7, 2010–July 17, 2010
Vacant Delete Check	July 24, 2010–August 25, 2010
Field Verification	August 6, 2010–September 3, 2010
CCM Person Interview	August 14, 2010–October 2, 2010
CCM Person Follow-Up	January 28, 2011–March 19, 2011
CCM Final Housing Unit Follow-Up	May 5, 2011–June 15, 2011

LIST OF STATES' SERVICES BY EACH REGIONAL OFFICE

Atlanta	**Alabama, Florida, Georgia**
Boston	**Connecticut, Massachusetts, New Hampshire, New York** (all counties except those covered by the New York regional office listed below), **Rhode Island, Maine, Puerto Rico, Vermont,**
Charlotte	**Kentucky, North Carolina, South Carolina, Tennessee, Virginia**
Chicago	**Illinois, Indiana, Wisconsin**
Dallas	**Louisiana, Mississippi, Texas**
Denver	**Arizona, Colorado, Montana, Nebraska, Nevada, New Mexico, North Dakota, South Dakota, Utah, Wyoming**
Detroit	**Michigan, Ohio, West Virginia**
Kansas City	**Arkansas, Iowa, Kansas, Minnesota, Missouri, Oklahoma**
Los Angeles	**Hawaii, Southern California** (counties of Fresno, Imperial, Inyo, Kern, Kings, Los Angeles, Madera, Mariposa, Merced, Monterey, Orange, Riverside, San Benito, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, Tulare, and Ventura)
New York	**New Jersey** (counties of Bergen, Essex, Hudson, Middlesex, Morris, Passaic, Somerset, Sussex, Union, and Warren), **New York** (counties of Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Suffolk, and Westchester)
Philadelphia	**Delaware, District of Columbia, Maryland, New Jersey** (all counties except those covered by the New York regional office listed above), **Pennsylvania**
Seattle	**Alaska, Idaho, Northern California** (all counties except those covered by the Los Angeles regional office listed above), **Oregon, Washington**

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