



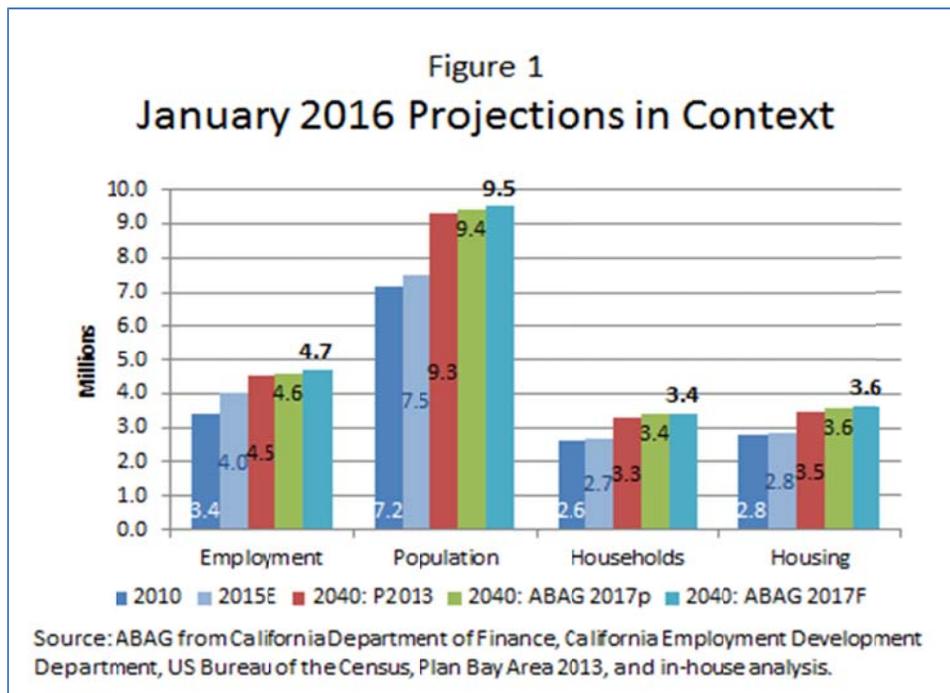
January 14, 2016

To: ABAG Executive Board  
 From: Cynthia Kroll, ABAG Chief Economist  
 Subject: Final Regional Forecast 2010-2040

ABAG research staff have revised the final forecast based on questions raised following release of the preliminary regional forecast and feedback from technical staff at REMI, Inc. (REMI designed the regional economic model which has been one of the tools used in our crafting of the regional forecast).

### Final Regional Forecast for Plan Bay Area 2040

Figure 1 and Table 1 show the revised projections for population, employment, households and housing units, to be adopted as the final forecast for Plan Bay Area 2040.



	2010	2015	2040	Change 2010-40	Change 2015-40	2010-2040%	2015-2040%
<b>Total Employment</b>	3,410.9	4,025.6	4,698.4	1,287.5	672.8	37.7%	16.7%
<b>Population<sup>[1]</sup></b>	7,150.7	7,609.0	9,522.3	2,371.6	1,913.3	33.2%	25.1%
<b>Households<sup>[2]</sup></b>	2,606.3	2,699.3	3,388.6	782.8	689.8	30.0%	25.6%
<b>Regional Housing Control Total<sup>[3]</sup></b>	2,784.0	2,839.6	3,606.6	822.6	765.0	29.5%	27.0%

Source: California Department of Finance (DOF) and Employment Development Department [2010], ABAG analysis.  
 [1] 2015 is July 2015 estimate from the DOF; [2] 2015 is ABAG estimate; [3] 2015 is DOF estimate for January 2015; later years are calculated as the household number divided by 0.95 to account for 5% vacancy plus the in-commute increment (added in proportionately from 2020 to 2040).

Projected growth from 2010 includes 1.3 million jobs, 2.4 million people, 783 thousand households. Including the in-commute adjustment required by the legal settlement with the Building Industry Association Bay Area (BIABA), the region is projected to add 823 thousand housing units over the thirty year period.

Comparing 2040 numbers in the final forecast to the preliminary forecast, the differences are:

- 97,000 additional jobs
- 79,000 additional people
- 2,000 additional households
- 15,000 additional housing units

The change in additional households is much smaller than the growth in population because the headship rates were updated, making use of more recent data from 2014. The housing unit total rises more than households because the in-commute estimate is higher. Attachment A to this memo explains the technical approach and details underlying the final forecast.

### **Why the Revisions?**

ABAG research staff revised the preliminary employment projections to better match the recent surge in job growth. Although there was extensive vetting by the technical advisory committee as the preliminary forecast was developed, we also solicited feedback from other experts, including Stephen Levy of the Center for Continuing Study of the California Economy. He pointed out some concerns with the level of the employment projection, and in particular the underestimate of projected employment in 2015. After further consultation with REMI we recalibrated our REMI-based analysis using a simpler set of assumptions at the national level and the regional level and better captured the surge since 2010 (see Attachment A for more details).

### **Is This the “Right” Forecast?**

There is no “right” forecast, given the level of uncertainties in the future about economic trends, innovation and entrepreneurialism, technological change, demographic characteristics and behavioral changes. A credible forecast needs to take account of two broad considerations. The projections need to be built on a realistic assessment of the national outlook and regional competitiveness relative to the nation (a “top down” economy requirement), but at the same time are expected to reflect the cumulative effects of local land use policies (a “bottom up” land use requirement), as well as the conditions aspired to by the regional plan and state policy.

A “business as usual” set of projections based on existing patterns of housing development would likely be driven by a continuing increase in housing prices, a tightening of vacancies, and an increase in household size, with a consequent redistribution of a portion of economic activity outside of the region as well as increasing in-commuting into the region. ABAG has for about a decade produced “policy-based” projections. The current set of projections is expected to move beyond current land use policies to reflect the requirements and spirit of SB375 to reduce GHG emissions and also to anticipate housing commensurate with the growth in the economy to minimize the exporting of the region’s labor force to neighboring regions. At the same time, recognizing that growth is a complex process, the projection used for future regional planning must still be anchored in realistic expectations so that the numbers produced are useful for planning long term investments in transportation and other infrastructure.

Depending on how much emphasis is placed on the constraints versus opportunities in the economy and assumptions regarding infrastructure and institutional capacity, different groups come up with different projections. There are lower population projections that have been released by credible groups, as there are higher employment projections also released by different credible groups.

#### *Compared to Lower Projections*

ABAG retained John Pitkin and Dowell Myers, nationally renowned demographic experts, to provide regional projections for the Bay Area out to 2040. Pitkin-Myers provided a base projection, as well as the model code allowing ABAG staff to adjust key components, like migration assumptions. The ABAG 2017F population projection is higher than the baseline version of the Pitkin-Myers Bay Area projections and higher than the California Department of Finance (DOF) 2040 projection. The Pitkin-Myers base projection (8.95 million in 2040) assumes that migration continues as it did in 2000 to 2010, a period of high net domestic outmigration. This pattern of migration has *not* continued in the past 5 years. A version of the Pitkin-Myers projection assuming a migration pattern similar to an average over earlier decades (a 15% increase in in-migration over 2000 to 2010 levels compared to the base) instead gives a population level of 9.49 million in 2040, much closer to ABAG 2017F. For comparison, the Department of Finance population projection completed in 2015 does not reach 9.5 million people until 2045. (However, the DOF household projection from March 2015, which goes only through 2030, is conversely slightly *higher* than the ABAG final household projection through 2030, because of different assumptions on changes over time in household headship rates. Those who prefer the lower DOF forecast would also be faced, for consistency, with a higher household forecast.)

#### *Compared to Higher Projections*

The ABAG 2017F employment projection is lower than the Center for Continuing Study of the California Economy projection released December 2015. At the level of total employment, the major difference is a slower rate of growth between 2015 and 2020 in ABAG 2017F as compared to CCSCE December 2015. This reflects a difference in interpretation of the observed 2010 to 2015 surge, which was triggered mainly by growth in the information, professional and business services and construction sectors. ABAG interprets the surge as driven by general cyclical and product cycle forces more so than a long term structural adjustment. Its effect on the long term base of growth would be modest, consistent with the pattern of highly volatile expansions and contractions during the past few decades, with strong build-up in employment during upswings followed by substantial losses during downturns. (We smooth out the likely correction sometime before 2020 by showing slower growth between 2015 and 2020). Treating the recent job surge as growth in the *long term* employment 2015 base could raise the 2040 employment by between 150,000 and 300,000 jobs, depending on other assumptions. To get the labor force commensurate with such job demand would entail either a population of over 10 million by 2040 or much higher in-commute levels (or both).

#### *Finding a Middle Ground*

ABAG 2017F projects a higher growth level than would occur were housing production to continue at the very slow pace of 2008 through 2012 or even the quickening pace of 2013-2015. In that sense, it is an optimistic projection assuming local and regional Plan Bay Area policies will lead to greater housing production and a housing market that serves the needs of a wider range of employees than is currently the case. At the projected employment level in ABAG 2017F, after 2020, the rate of housing production will need to meet and eventually exceed that experienced in the 1980s, as discussed below.

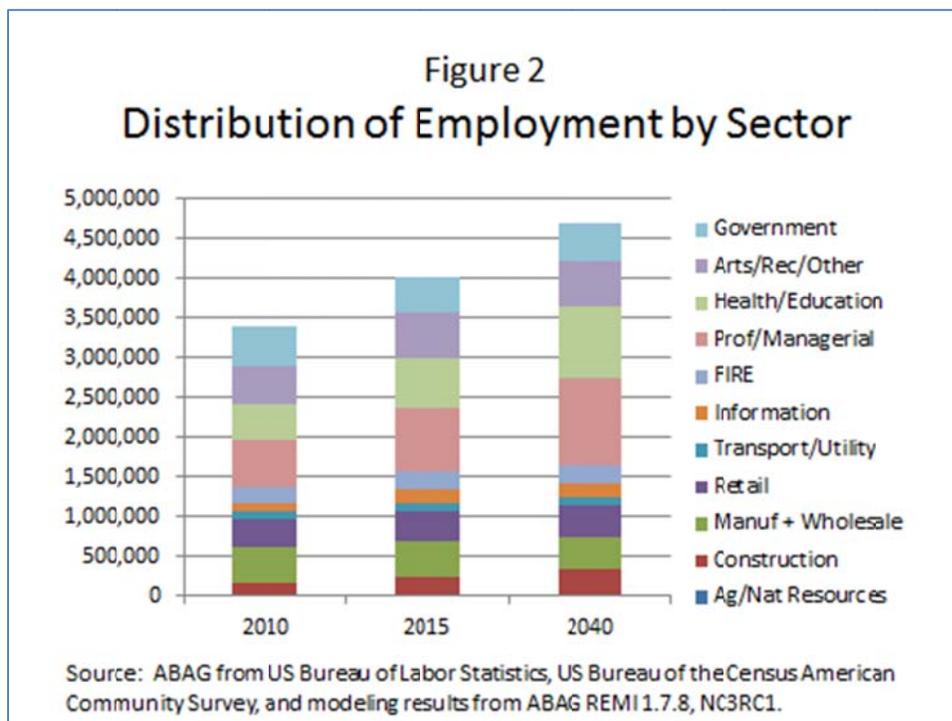
## Projection Details

Compared to 2010, the projections in ABAG 2017F include significant shifts in the economic structure of the Bay Area, the region's demographic base, the composition of households, and the pace of building construction.

### *Employment Growth and Change*

Figure 2 compares the level and distribution of employment in 2010, 2015 (estimated) and 2040 (projected). Table 2 shows 2010, 2015 and 2040 estimates of employment and employment change for aggregate Bay Area employment sectors.

Almost half of the projected job growth from 2010 had already occurred as of 2015. The 2010 to 2015 strength reflects a combination of recovery from the depths of the 2007 to 2009 recession and a strong surge in economic activity related to the technology and social media sectors. In this projection, employment growth slightly outpaces the nation, with the Bay Area share of U.S. employment growing from 2.5 percent in 2010 to 2.69 percent in 2015 and to 2.76 percent in 2040. Despite increases in output and demand in all sectors, employment declines in a few sectors, due to higher productivity from technological advances or production or operations displacement to lower cost sites.



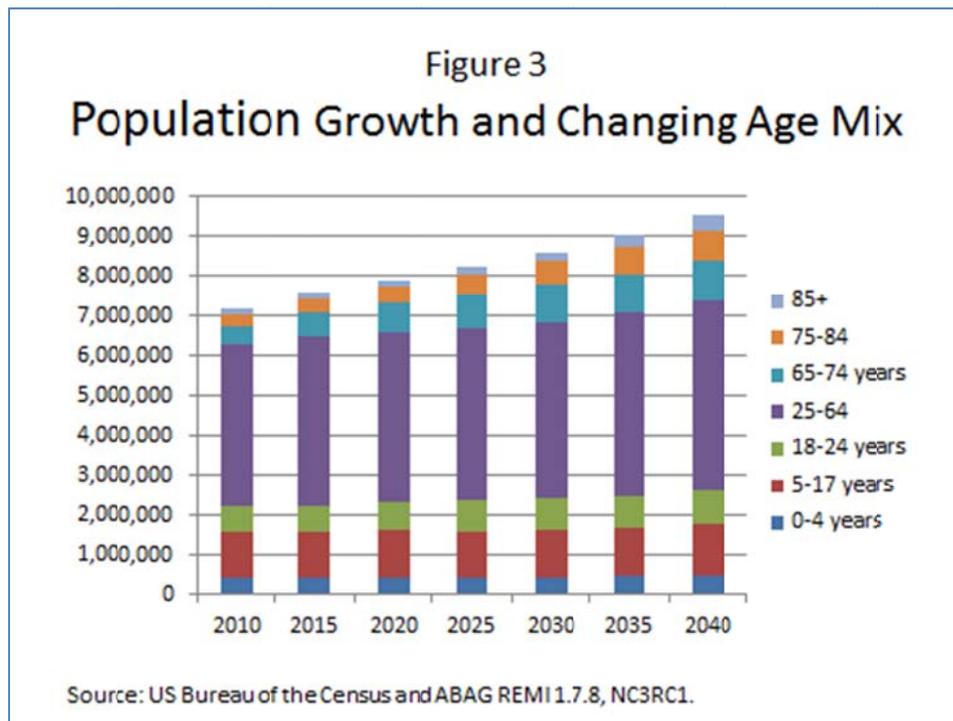
**Table 2: Projected Employment by Sector, San Francisco Bay Area 9 County Area, 2010 to 2040**

(Thousands)	2015	2020	2025	2030	2035	2040	2010-2040 %	2015-2040%
<b>Total Employment</b>	4,025.6	4,038.5	4,137.5	4,236.9	4,456.5	4,698.4	37.7%	16.7%
<i>Agriculture &amp; Nat Resources</i>	26.6	26.5	26.2	25.4	24.8	24.4	-2.9%	-8.4%
<i>Construction</i>	210.3	216.8	224.3	242.9	276.8	313.4	89.1%	49.0%
<i>Manufacturing &amp; Wholesale</i>	471.1	429.1	426.0	414.4	411.7	408.3	-4.7%	-13.3%
<i>Retail</i>	364.7	360.0	367.5	376.5	387.7	398.2	22.6%	9.2%
<i>Transportation &amp; Utilities</i>	112.2	103.9	102.8	102.6	106.4	110.5	13.7%	-1.5%
<i>Information</i>	164.1	159.3	156.3	158.4	161.9	165.0	39.8%	0.5%
<i>Financial &amp; Leasing</i>	220.8	223.1	222.3	221.0	227.4	234.5	20.3%	6.2%
<i>Prof'l &amp; Managerial Services</i>	799.1	810.0	860.0	914.1	1,000.3	1,093.4	74.9%	36.8%
<i>Health, Educational Services</i>	634.7	682.6	723.0	753.6	816.8	887.6	76.6%	39.8%
<i>Arts, Recreation, Other Serv</i>	562.5	559.0	560.3	557.5	573.4	591.8	24.2%	5.2%
<i>Government</i>	459.5	468.2	468.8	470.4	469.4	471.3	4.2%	2.6%

Source: ABAG forecast based on REMI version 1.7.8, model NC3RC1.

*Population Growth and Change*

While the 2040 population as a whole is projected to be 33 percent higher than in 2010, growth will differ widely by age group. (See Figure 3). The number of school aged children (5 to 17 years old) is projected to grow by only 11.5 percent, while the number of people 65 and over will increase by 140 percent, accounting for more than half of all growth in the region.



Between 2015 and 2040, employment is projected to grow faster than the population in prime working years between 25 and 64 (16.7 percent compared to 12.9 percent). The difference will be made up by faster increase of younger workers compared to employment growth (“college-aged” workers, aged 18 to 24, increase by 29.7 percent in that period), by a portion of older workers remaining in the labor force, and possibly by a small increase in the numbers in-commuting.

*Household Growth*

The amount of household growth projected in ABAG 2017F (Figure 4) assumes household size continues to be constrained by costs and is also affected by behavioral factors such as increases in the share of multigenerational households and a higher share of two person senior households (due to higher male survival rates). In the short run, household size continues to increase, as it has since 2010, but as new construction also increases, household size drops back to just below 2015 levels. (See Figure 5).

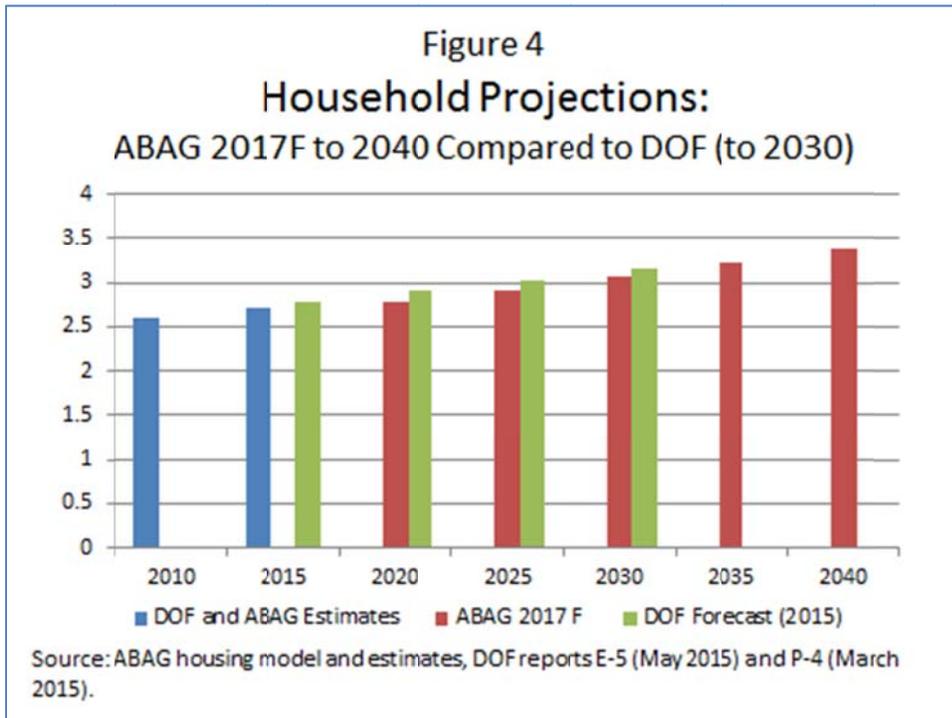
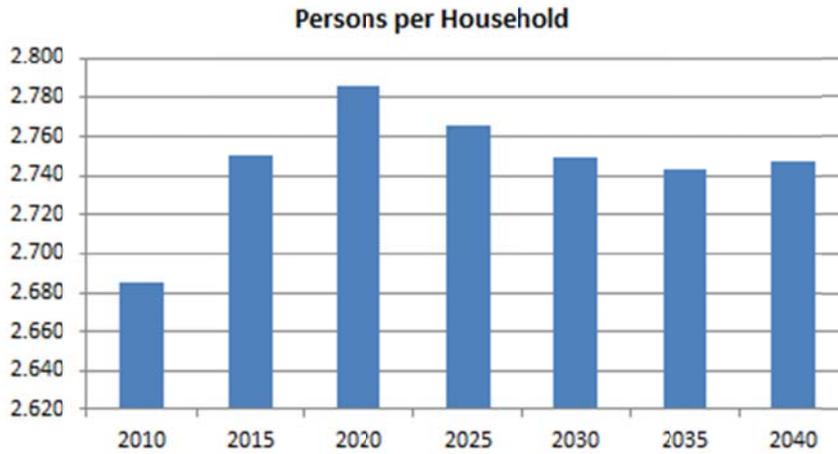


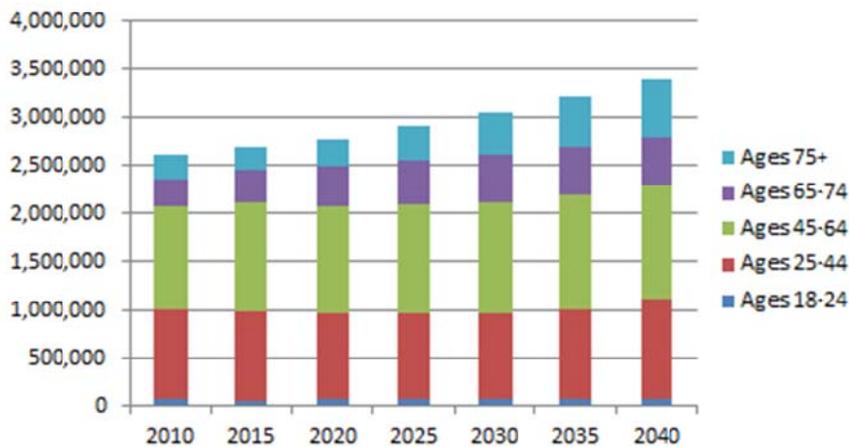
Figure 5  
Projected Household Size



Source: ABAG REMI 1.7.8, NC3RC1, and California DOF Report E-5, May 2015.

Characteristics of households are very much influenced by the changing age structure. As shown in Figure 6, households headed by people 65 and older account for the bulk of the increase from 2010 to 2040—some 568,000 households, or more than 70 percent of the 780,000 growth in households. Remaining household growth is divided between the 25 to 44 year old age group and the 45 to 64 year old group. This may shift overall demand from suburban single family homes to more urban settings.

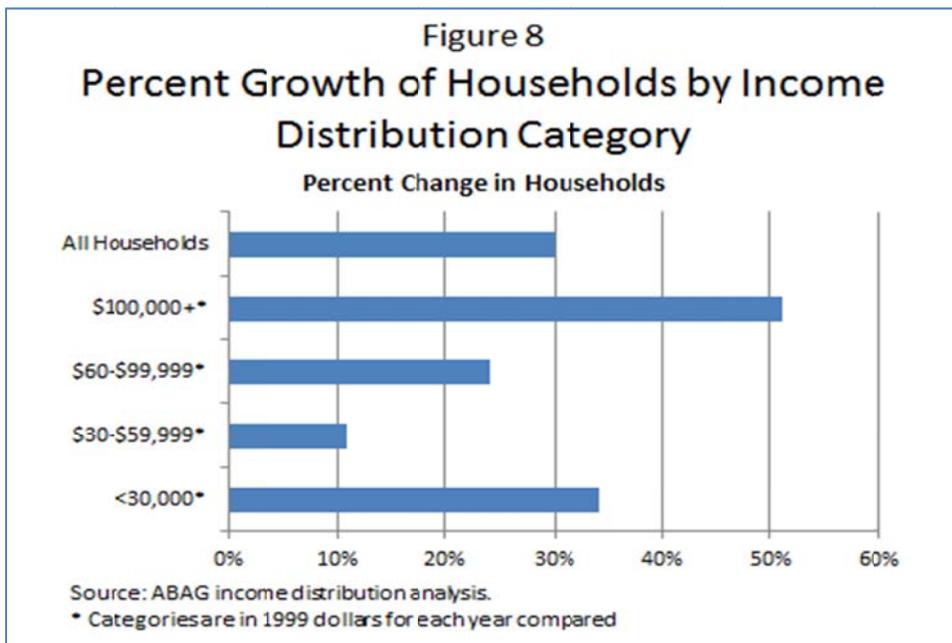
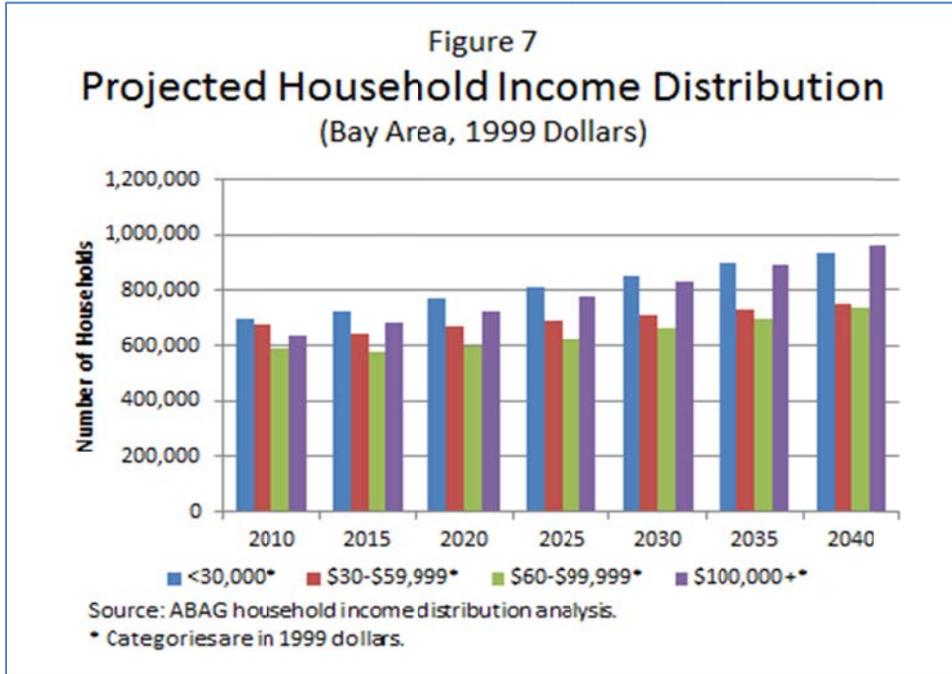
Figure 6  
Projected Households by Age of Household Head



Source: ABAG housing model.

*Household Income Distribution*

The “hollowing out” of the middle is projected to continue over the next 25 years, as shown in Figure 7. Household growth will be strongest in the highest income category, reflecting the expected strength of growth in high wage sectors combined with non-wage income. Household growth will also be high in the lowest wage category, reflecting wage stagnation, as well as the retirement of seniors without pension assets. Slowest growth will be in the lower middle category, highlighting concerns about advancement opportunities for lower wage workers. (See Figure 8)



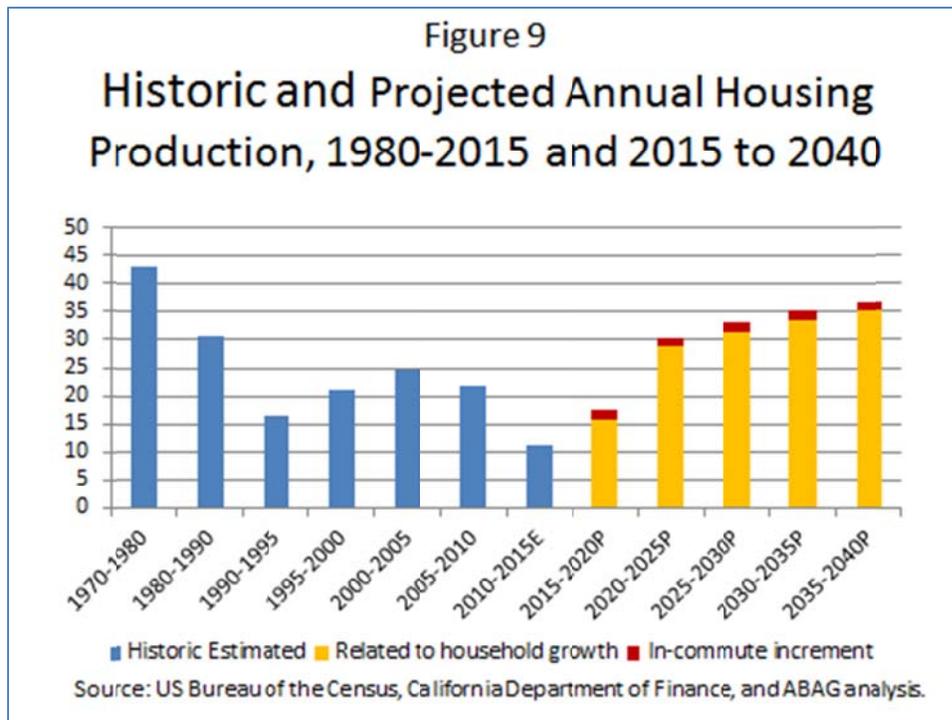
### *In-Commute Estimates*

Our estimate of net commuting between Bay Area counties and other areas shows that net in-commuting would be expected to grow by up to 53,000 between 2010 and 2040. The greater amount of this increase may have already occurred over the past 5 years.

Using a ratio of approximately 1.41 workers per household, we include an estimated additional 37,600 households related to the in-commute change in calculating the Regional Housing Control Total, to fulfill the requirements of the legal settlement of ABAG and MTC with the Building Industry Association Bay Area.

### *Housing Production*

ABAG 2017F projects an increase of 822,600 new housing units (including 39,600 associated with the in-commute) between 2010 and 2040, to a total of 3.607 million housing units). From the January 2015 base provided by the California Department of Finance, this implies an annual average rate of increase of between 17,000 and 37,000 units, depending on the time period (the level of demand for new housing units increases over the projection time period, as shown in Figure 9), and assuming the in-commute related increment of housing is added gradually over the full 25 year period. The great majority of the new housing units projected would be to fill the needs of projected household growth within the region. The portion of the projected bars shown in red is the added increment related to the projected growth of in-commuting.



The housing unit growth projected through 2040 would require a major jump in production beginning in 2020, returning to levels of sustained production not seen since the 1980s. In addition, because of changing demographics and requirements to reduce greenhouse gas production, we can expect multifamily to be at least as large a share of this as was the case in most of the 1980s, and possibly close to the share experienced in recent years (see Figure 10).

