

Date: June 29, 2010
To: Regional Advisory Working Group
From: Regional Agency Staff
Subject: Regional Housing Target: Options for Determining Total Housing Demand

Summary

This memo explains our interpretation of SB 375's "house all the population of the region" requirement and offers four options for how we can determine the total housing demand. Background information on the requirements that SB 375 places on the long-term forecast, as well as how the forecast, including the projection of household growth, is traditionally prepared is presented in Attachment 1.

Key Points

- 1) Housing all of the region's population, as required by SB 375, means going beyond the traditional means for estimating household growth, using the region's economic and demographic models. The models take into account various constraints on housing development, including land availability and other constraints that may limit housing supply or development.
- 2) Estimating Housing Demand or Need is a different process than what is used to estimate household growth. Determining total demand requires only looking at what the total housing demand would be, considering natural increase, migration and employment growth. The traditional or historical limitations on housing development/supply (such as local land use constraints that limit housing production) are not taken into account.
- 3) There are options for estimating total housing demand. Housing demand could be a factor of employment growth, in-commuters (where the number of in-commuters serves as a proxy for unmet housing demand) and/or headship rates.

Questions for the Regional Advisory Working Group

- 1) Of the options for determining the total housing demand, which is preferable?
- 2) Are there other options for determining total housing demand?
- 3) What issues/ assumptions should be considered in forecasting employment, population growth, housing demand and housing constraints?

Implications of "House all of the Population of the Region"

Senate Bill 375 states that the Sustainable Communities strategy must "identify areas within the region sufficient to house all the population of the region, including all economic segments of the population, over the course of the planning period of the regional transportation plan, taking into account net migration into the region, population growth, household formation and employment growth."

The Bay Area regional agencies, as well as the State Department of Housing and Community Development (HCD), interpret this requirement to mean that the region must plan for housing sufficient to meet total new demand, as generated by natural population increase (net births), household formation and employment growth. In other words, the SCS can not allow for displacement. Instead, the region must demonstrate how all of the region's growth in housing demand can be met within the Bay Area's nine county borders, and not by surrounding counties via "spill-over". The purpose of this requirement, presumably, is to reduce the amount of long commutes into the region caused by unmet housing needs and the resulting high cost of housing in the Bay Area.

Before SB 375, when the regional agency prepared the forecast, it was assumed that there would continue to be a regional imbalance of jobs and housing, resulting in a net in-commute into the region. Now with SB 375, to assume that housing demand will be fully met within the region means that enough housing will be planned and built in the Bay Area to meet total demand. This will require us to assume increased housing supply through modifications to local land use plans, expanded subsidies for below-market rate housing and changes to travel behavior given the persistent differences in the housing costs between the Bay Area and the Central Valley.

Options for Determining Total Regional Housing Demand

Total regional housing demand, unconstrained by supply, is demand which is generated by employment growth, natural increase and migration. Determining total demand for housing could be done in various ways. Four options are presented below: 1) jobs-housing balance; 2) headship rates, 3) in-commute; and 4) a combination of jobs-housing balance, headship rates and in-commute. Staff seeks input on which of the four options is the most preferable. We also seek input on other options for determining total housing demand.

Option 1: Job-Housing Balance

Jobs-Housing balance refers to the ratio total jobs to housing units. The theory is that if there is a relative “balance” between jobs and housing within a region, then there would be sufficient homes to house workers, and therefore the region’s housing demand would not “spill over” into surrounding counties. There is also the issue of jobs-housing “fit” meaning the jobs and the housing should economically match, or that the housing is affordable given the range of job-types, and therefore incomes, projected to occur within the region. The literature on jobs-housing balance suggests that the ideal jobs-housing balance is 1.5 jobs for every household. Conversely, for every new job, the region ought to supply .5 homes. The Bay Area currently has a jobs/housing ratio of 1.3. That ratio is projected to be 1.54 by 2035. If jobs-housing balance were the method for determining total housing demand, then the question becomes what ratio should the region select? If 1.5 is the selected ratio, then if the region is estimated to add 1.6 million jobs by 2040, the region should also supply 800,000 housing units.

Option 2: Headship Rates

A headship rate is the percentage of people in a population group who are household heads. Since a household may have only one head, each household head requires a separate household and a separate housing unit. Different age groups tend to have different headship rates. Generally, the older the age group, the higher the headship rate. Younger adults are more likely to live with their parents or with multiple roommates. Seniors are more likely to reside as couples and then as singles. According to data compiled by a housing economist at the National Association of Home Builders (NAHB), U.S. age-specific headship rates ranged from 16.2 to 66.6 in 2002. Headship rates for those age 65 and over have a rate four times that of 15- to 24-year olds, and about third larger than those in the 25- to 34-year old category. Age-specific headship rates could alter the estimate of housing demand considerably. Using the estimated national average age-specific headship rates from 2002, by 2040 it is estimated that the region would need to supply approximately 1.1 million housing units to meet total housing demand.

Option 3: In-Commute

The third method for estimating total housing demand is to assume that the growth in the number of in-commuters” represents the number of potentially deficient housing units in the region. The assumption behind this theory is that those in-commuting into the region are doing so because their demand for housing within the region is not being met. For example, if the total number of new in-commuters is projected to be 320,000 people, then this would be added to a current projection of household growth to arrive at a total housing demand figure. Using Projections 2009 data, the region would need to supply 920,000 housing units.

Option 4: Combination or Average Approach

A third option is to take some combination of these three methods. For example, if the jobs-housing balance generates a total demand of 800,000 units, the headship rate estimates 1.1 million units and the in-commute approach generates a need of 920,000 units, and if we take the average of these three, then the region would need to supply 940,000 housing units.

Attachment 1

The Regional Forecast and the Sustainable Communities Strategy

Senate Bill 375 mandates that California's 18 Metropolitan Planning Organizations (MPOs) create a "Sustainable Communities Strategy" that:

- Identifies the general location of uses, residential densities, and building intensities within the region;
- Identifies areas within the region, over the 25 year planning period of the RTP, sufficient to house all the population of the region;
- Identifies areas within the region sufficient to house an eight-year projection of the region's housing need;
- Identifies a transportation network to service the transportation needs of the region;
- Gather and consider information regarding resource areas and farmland in the region;
- Sets forth a forecasted development pattern, which, when integrated with the transportation network, and other transportation measures and policies, will reduce greenhouse gas emissions from automobiles and light trucks; and
- Quantifies the reduction in greenhouse gas emissions projected to be achieved by the SCS.

The development pattern in the SCS also needs to comply with federal law, which requires that the assumptions used to forecast future conditions must be based on the latest available information, including information from local governments, current general and specific plans.

As described above, SB 375 essentially requires that the forecast evolve from a simple projection of development by census tract, into a more detailed assessment of where and how growth may occur in order to meet certain metrics, such as a per capita reduction in GHG emissions from cars and light trucks and to house the region's total housing need. Other metrics and performance measures the region may choose will not be discussed here.

Projecting Household Growth

Since 1973, the Association of Bay Area Governments (ABAG) has been preparing a long-range economic and demographic forecast, known as *Projections*. The forecast is updated every two years and includes estimates of population, households and jobs for the entire nine-county San Francisco Bay Area. Data is produced for the region, counties, subregional study areas, priority development areas, cities, and census tracts. Forecast data is available in five-year increments, over a thirty year time horizon.

The current national and international economic situation causes a substantial amount of uncertainty in our regional forecasts. Our assumptions about the duration of the recession and the strength of the recovery; particularly as it relates to employment and housing, will be important to any future forecast.

Three models are used to produce the economic and demographic forecasts, including total projected households. HENRY is the model used to develop regional and county level data. The PECAS model (to be implemented by the end of the year) estimates residential and employment activity to a zonal level (about 200 zones). The CLARA model assigns values to individual census tracts. The models — HENRY, PECAS, and CLARA — are deployed sequentially. All three models are revisited, updated, and improved every two years, as part of the forecasting process.

Projecting household growth for the region is done through the estimates of jobs, population and migration. These variables determine total households in the region and are estimated via the HENRY model. The model does this in the following way:

- A regional input-output table demonstrates the relationships between the various goods and services produced and consumed within the regional economy. The regional input-output tables are used to produce employment forecasts by industry, at the regional level.
- County-level input-output tables produce employment forecasts for the counties. These totals are reconciled with the regional estimates of employment. The result is county-level employment by 11 different sectors.
- A county demographic component ascertains population and household growth for each county.
- A migration/commuting patterns component calculates migrations and commuting patterns within and between counties.

Estimating Total Bay Area Jobs

To estimate jobs for the region, a set of input/output (I/O) tables are used to represent the Bay Area's economy and future job growth. The I/O tables show the flow of goods and services between sectors. Outputs from one regional industry becomes the input for another, or an economic sector can use inputs from outside the region. Some outputs are locally sold; others are exported from the region.

The various economic relationships shown in the I/O table are what drive regional employment patterns. Demand in each year is driven by assumptions about consumer spending, government spending, capital investment, and exports. Every two years, staff examines federal, state and other forecasts of demand for goods and services. Using demand as a gauge of input, the regional economic model then forecasts outputs of goods and services throughout the region and over the forecast period.

Estimating Population Growth

The county-level demographic component of the HENRY model uses the cohort-survival method to develop population forecasts. This method works by starting with a beginning population for each county, identified by age cohorts, and growing it over time using age-specific information about birth rates, birth timing, death rates, and net migration.

Since data are available for individual county populations, staff estimates county populations directly. This is in contrast to employment estimates where regional data are used to estimate total regional employment and then allocated to individual counties.

Migration/Commuting Patterns

Migration and commuting are important parts of the HENRY model and how total households are estimated. Migration and commuting are driven by economic opportunity in the Bay Area relative to opportunities outside the region. The intersection of the economic and demographic forecasts occurs through migration and commuting. The population forecast is used to generate a regional labor force forecast. A primary driver of in-migration occurs when a tight labor market causes people (economic migrants) to relocate to obtain employment. Migration is also composed of (although to a much lesser extent) social migration and retirement migration, which is dependent on employment, income and the cost of living. The number of people migrating into each county is also subject to available housing.

A related component of the population forecast is inter-regional commuting. People working in the Bay Area, but living outside the region are motivated by factors similar to economic migrants. However, housing costs and opportunities cause them to make different choices, i.e. to live just outside of the region in surrounding counties, rather than within the region.

These three components, job growth, population growth and migration are used to estimate total housing production. A person per household rate is assumed and that rate is applied to the population forecast at the county and then census tract level to determine total household growth. Land use supply, based on local general and specific plans, is used to check the ability for housing to be produced, given the projected population and job growth forecast.

Estimating Household Growth

These above three variables – job growth, population growth, and migration – are used to estimate total households or housing production. The number of households (occupied housing units), as a ratio of the

population (household size), has varied significantly over the last several decades due to changing demographic factors, including fertility and racial composition, and varying rates of household formation. Household formation is influenced by availability of housing and the relationship between housing costs and income. Considering these factors, persons per household rate is determined and that rate is applied to the population forecast at the county and then census tract level to determine total household growth. Land use supply, based on local general and specific plans, is used to check the ability for housing to be produced, given the projected population and job growth forecast.

Assumptions

In order to run the regional models, a series of “inputs” or assumptions are needed. These assumptions are used by the models to output the regional population, household and job data for counties, cities, and census tracts.

ABAG staff will be providing more information regarding these assumptions as part of the dialogue with the RAWG. We will identify the assumptions used in prior *Projections*, and begin discussing how assumptions will be generated for the SCS forecast.

National Economic Assumptions

The primary assumption for the national economy is Gross Domestic Product, or GDP. GDP helps to quantify demand for Bay Area goods and services from outside the region. Commercial interest rates and consumer price index are also national economic inputs in to the model.

Regional Economic Assumptions

Regional economic assumptions include mortgage interest rates, energy costs, productivity or output per worker, growth in personal consumption, capital spending, and gross regional product.

Demographic Assumptions

Fertility and Births

In generating the forecast, period fertility rates are used specific to the cohorts age 15 and older. Period rates reflect the number of children that will be born to women of a particular age in each year of the forecast. Period fertility rates are different than completed fertility rates, which represent the number of children a woman has by the end of her childbearing years.

Mortality Rates

Mortality rates have decreased over time, with expectation for continued declines.

Migration Rates

Migration rates fluctuate substantially due to short-term economic conditions. Income and future employment prospects are the most important considerations for households making migration decisions.

Households and Household Size

The number of households, as a ratio of the population (household size), has varied significantly over the last several decades due to changing demographic factors, including fertility and racial composition, and varying rates of household formation. Household formation is influenced by availability of housing and the relationship between housing costs and income.

Race, Ethnicity, Age and Sex Distributions

Race, ethnicity, age and sex distributions used in the most recent iteration of the forecast and are compiled from the various sources, including the U.S. Census Bureau and the State Department of Finance.

Labor Force Participation

Labor force participation is the percentage of the population that makes up the labor force. Labor force participation rates are available by age, sex and county. Participation rates are used to estimate employed residents. Base data is obtained from the U.S. Census Bureau, with future rates assumed for the 25 year forecast period.