

M E M O R A N D U M



Agenda Item 6.a - Attachment A

TO: Regional Planning Committee
FR: Bobby Lu, Lisa Zorn and Paul Fassinger
RE: Plan Bay Area 2050: Draft Regional Growth Forecast

DATE: March 4, 2020

Summary

The Regional Growth Forecast is an important element of the Plan Bay Area 2050 long-range planning process. The forecast identifies how much the Bay Area might grow between the Plan baseline year (2015) and the Plan horizon year (2050), including population, jobs, households, and associated housing units. The forecast also includes characteristics of that growth, including employment by sector, population by age and ethnic characteristics, and the demographic characteristics and income distribution of households. The Regional Growth Forecast will be used during the Blueprint planning phase to identify the total amount of growth, which will then be distributed to local areas using the UrbanSim 2.0 land use model based on strategies integrated into the Plan.

After integrating feedback from the public, key stakeholders, and a technical advisory committee¹, the ABAG Executive Board approved the Regional Growth Forecast Methodology in September 2019. Staff has continued to work with the technical advisory committee on implementation of the forecast methodology; this memorandum summarizes the Draft Regional Growth Forecast which was informed by their input.

Staff continues to seek further input through spring 2020, at which point the Regional Growth Forecast will be finalized. This memo describes a draft range for the Regional Growth Forecast, as well as the underlying assumptions. At this point, the forecast is still a work in progress, and MTC/ABAG staff expects some changes will occur. For example, the methodology for the income distribution forecast is still being refined, and those results will be shared in future meetings.

Setting the Stage: The Context for Plan Bay Area 2050

Developing a Regional Growth Forecast has long been a key element of drafting the long-range plan for the Bay Area. However, in recent years, it has become apparent that critical issues need to be better understood in the context of developing such a forecast.

¹ The technical advisory committee includes: 6 Bay Area economists, 3 California Department of Finance experts, 3 megaregion representatives (Sacramento Area Council of Governments, San Joaquin Council of Governments, University of the Pacific), and 3 experienced REMI users (from the Atlanta Regional Commission, a Michigan think tank, and a Colorado nonprofit).

The first is related to **regional affordability**. In Plan Bay Area 2040, it was estimated that the average share of lower-income household income spent on housing would rise by approximately 13 percentage points; this was due in part to the fact that regional housing strategies were limited in nature and affects the geographic distribution of forecasted growth rather than the Regional Forecast itself. Policymakers specifically asked “what it would take” to move the needle on affordability, but these affordability gaps were not identified until after the Regional Growth Forecast was finalized. Plan Bay Area 2050 presents an opportunity to integrate new housing strategies specifically designed at increasing supply for all income levels, which in turn may contribute to a more affordable region and a slightly higher Regional Growth Forecast.

The second is related to **uncertainty**. While required by statute, the creation of a single Regional Growth Forecast in prior cycles did not provide the opportunity to explore how different trajectories for regional growth would affect critical environmental, economic, and other goals. To address this gap, MTC/ABAG staff undertook the Horizon initiative in 2018-19, which explored not only how different growth trajectories would affect the region but also how the region could respond to those different trajectories through new strategies. Ultimately, the efficacy of those strategies was explored in summer 2019 and will soon be published in the forthcoming Futures Final Report.

Entering the Plan Bay Area 2050 cycle, staff worked with technical stakeholders to make methodological refinements to incorporate lessons learned from both efforts. The methodology adopted enables the Regional Growth Forecast to incorporate changes in strategies that would affect the level of growth in the region, while also affecting affordability, equity, economic mobility, and other critical outcomes. For this memo, staff will focus on integrating housing strategies that would change the relative price of housing, primarily because it is expected that housing strategies will yield the most significant change to the forecast at the regional level. With the final set of strategies for Plan Bay Area 2050 still under discussion through the Blueprint process, staff has provided both a Base Case Forecast and an Upper Range Forecast. This range compares a “business as usual” policy approach - based on today’s strategies - with a more ambitious policy approach - in which bold strategies yield a significant drop in the relative price of housing between the Bay Area and the nation.

Methodology and Assumptions: Base Case Forecast

The Regional Growth Forecast is primarily developed using the REMI (Regional Economic Modeling Inc.) model version 2.3. The REMI model integrates into one package a dynamic accounting of the core components of the economy: industry structure and competitiveness relative to other regions, propensity to export, and population and labor market structure. The population is explicitly connected to industry growth and demand for labor, with migration increasing in times of strong employment growth. This is an updated version of the REMI model used to calculate the growth forecast for Plan Bay Area 2040, which used REMI version 1.7.8.

The model of demographic and economic growth coordinates with the land use models and transportation models to identify the amounts and locations of growth, and how those changes will impact the transportation system. Once regional growth totals are identified, the Bay Area UrbanSim 2.0 model incorporates infrastructure and development costs and constraints to identify where that growth will take place. The results of Bay Area UrbanSim 2.0 are then

further analyzed using Travel Model 1.5 to understand mobility impacts associated with such growth. Working with the TAC, staff has reviewed REMI data, assumptions and its default results, and made some changes to both national demographic data and regional economic data to get a better baseline picture of the region's future.

Demographic Adjustments

Staff adjusted Hispanic international migration based on numbers from the most recent U.S. Census Bureau projections. Compared to Census projections, REMI 2.3 Default projects 42,000 more Hispanic international migrants in 2020. The difference decreases for the next 30 years, and by 2050, the REMI Default projection is just 1,000 higher than the Census (See Table 1).

Table 1: Hispanic International Migration Census vs REMI 2.3 Default

	2020	2030	2040	2050
Census Hispanic	414,000	412,000	410,000	391,000
REMI Unadjusted Hispanic	456,000	431,000	415,000	392,000
Census Total	1,010,000	1,064,000	1,098,000	1,110,000
REMI Unadjusted Total	1,111,000	1,112,000	1,113,000	1,113,000
Source: REMI 2.3; Census 2017 National Population Projections				

As noted above, staff updated REMI's Hispanic international migration assumptions using Census 2020, 2030, and 2040 numbers and interpolated for the in-between years, as the Census trends more closely align with observed data in recent years. The gender and age distributions from REMI were used to produce detailed Hispanic international migration for all years between 2020 and 2050. Additionally, in conversation with DOF about REMI birth rates, DOF noted that REMI fertility rates are projected to be slightly higher, notably for Hispanic (which could overstate births). REMI 2.3 birth rates are higher than DOF estimates, although somewhat lower than rates found in earlier REMI version. Staff also changed Hispanic birth rates at the national level by 20 percent, consistent with observations from a variety of sources that slowing Hispanic birth rates are being observed throughout the country as well as in Mexico. This adjustment lowers the total national population in 2050 by less than 0.3 percent.

Economic Adjustments

At the national level, staff adjusted the employment growth downward for the data processing sector. Data processing (which includes data processing, hosting, and related services) is projected to grow by 136 percent between 2018 and 2050 in REMI 2.3 for the nation. REMI projects the average annual growth rate for this sector for 2018-2028 to be 2.2 percent, slightly above the BLS 2018-2028 forecast (2.1 percent). However, after 2030, REMI projects an average annual growth rate of roughly three percent for the data processing sector. Staff adjusted data processing employment using the 2020-2030 annual average growth rate from REMI and assuming a constant growth rate after 2030, which lowers the national total employment slightly.

The REMI 2.3 default forecast estimates that the region's share of the US will continue to grow, for both employment and population. The share of US data processing jobs was estimated to

grow from 18.5 percent to 22.5 percent in 2050. However, this contrasts sharply with historic experience. Based on Bureau of Economic Analysis (BEA) data, the Bay Area's share of total U.S. employment, even at peak periods, has never been above 2.9 percent and has not reached that level since the early 1990s. Staff identified sector shares to adjust and their period of adjustment, and created new regional controls that keep the share of some sectors constant after 2025 and after 2040, as shown in Table 2.

Table 2: Sector Share Adjustments Made in REMI 2.3 for a Base Case Regional Growth Forecast

<p>(1) Sectors with share constant after 2025 (basic sectors):</p> <ul style="list-style-type: none">• Oil and gas extraction• Mining (except oil and gas)• Support activities for mining• Beverage and tobacco product manufacturing• Wholesale trade• Data processing, hosting, and related services; Other information services• Broadcasting, except Internet• Telecommunications• Professional, scientific, and technical services• Management of companies and enterprises• Administrative and support services <p>(2) Sectors with share constant after 2040 (local serving):</p> <ul style="list-style-type: none">• Construction• Retail trade• Transit and ground passenger transportation• Monetary authorities - central bank; Credit intermediation and related activities• Securities, commodity contracts, other investments; Funds, trusts, other financial vehicles
Source: ABAG/MTC and Center for Continuing Study of the California Economy

Base Case Relative Housing Price Adjustment

In REMI, relative housing price influences overall population levels by way of factoring into the relative wage levels of the region, net of housing costs. Higher relative prices will make the region less attractive to new workers and labor costs more expensive, all other things equal. REMI does not account for absolute levels for current and future prices but instead provides a measure of relative prices for regions compared to national levels. Staff looked at ACS median prices and Zillow reported prices to determine if the REMI relative housing price index had accurately reflected the relative strength of the Bay Area housing market. Based on a review of ACS and Zillow data, staff determined that the price difference was not fully captured in the REMI index. REMI 2.3 shows Bay Area prices ranging from 1.3 times the national level in Solano to 3.6 times the national level in San Francisco in 2018 - with a weighted average of 2.8. While using Zillow homeowner and the renter indices, the weighted average of this aggregated series is 3.1, 11 percent above the REMI price index. Staff used this higher ratio for 2018 for each county and maintained this proportional higher price through 2050. This relative housing price was utilized for the Base Case Forecast.

*Table 3: Relative Housing Price Comparisons, REMI, ACS and Zillow**

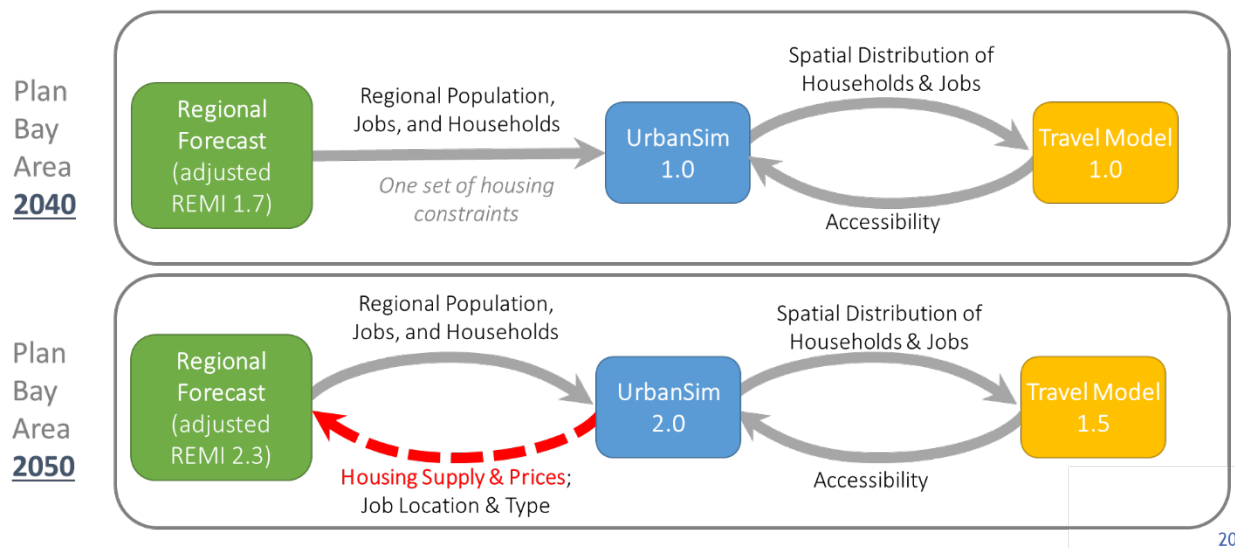
	ACS Relative Home Value	Zillow All Home Index	Zillow Rental Index	Zillow Average All Home and Rental	REMI	Zillow Relative to REMI
Alameda	4.4	3.6	1.9	2.7	2.5	1.1
Contra Costa	3.5	2.5	1.7	2.1	2.1	1.0
Marin	5.5	4.4	2.4	3.4	3.3	1.0
Napa	3.4	3.3	1.8	2.6	2.0	1.3
San Francisco	6.2	7.0	2.7	4.9	3.6	1.4
San Mateo	6.2	5.9	2.3	4.1	3.5	1.2
Santa Clara	5.7	4.7	2.1	3.4	3.1	1.1
Solano	2.3	1.8	1.3	1.5	1.3	1.2
Sonoma	3.4	2.9	1.7	2.3	2.0	1.2
Weighted Average	4.8	4.0	2.2	3.1	2.8	1.1
<p>Source: ABAG/MTC from REMI 2.3, calculations from data from the American Community Survey, and Zillow Home Value Index (2018, Bay Area Counties and US), Zillow Rental Index (2018, Bay Area Counties and US). Weighted average calculated using California Department of Finance housing unit numbers.</p> <p>*Note: Staff used Zillow index only because it includes detailed rental information. ACS data was shown for reference in this table.</p>						

Methodology and Assumptions: Upper Range Forecast

Building upon the methodology for the Base Case Forecast, a consistent Upper Range Forecast was also developed. As described in the adopted Regional Growth Forecast Methodology, when preparing a Regional Growth Forecast for Plan Bay Area 2050, staff intends to consider how UrbanSim 2.0 results could be factored into the modified REMI model. These models appropriately reflect the effects of housing, economic, and other critical strategies in the Draft and Final Blueprint.

Due to the directionality of these data flows, this element of the methodology is referred to as the “backward arrow” as shown in Figure 2. For example, where and how much housing is built could change the cost of housing, as well as the cost and demand for labor. Similarly, a change in housing prices and location overall could further change the number and types of jobs that can be generated in the region as well as the labor force that can live in the region.

Figure 2: Integrating Strategies into the Regional Growth Forecast for Plan Bay Area 2050



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In producing this range for the Draft Regional Growth Forecast, staff focused the effects of housing strategies on the region’s employment and demographics. The “backward arrow” indicates that the Regional Growth Forecast would ultimately use UrbanSim results as an input. Staff kicked off implementation of this conceptual approach, following a literature review process, by first looking at a potential affordability target - bringing home prices relative to the U.S. as a whole back to 2001 levels (approximately a 35 percent decrease from 2018 levels).

Based on Horizon Futures Round 2 analyses of development capacity associated with potential housing strategies, this would be an ambitious but still feasible target for the Bay Area to work towards over time. Future UrbanSim 2.0 modeling of the full suite of revised housing strategies going forward would help to determine if the final set of strategies for Plan Bay Area 2050 would be sufficient to enable this level of supply; this work will proceed once the Draft Blueprint strategies are advanced into the modeling phase this winter.

To produce the Upper Range Forecast while integrating greater housing supply and improved affordability outcomes, staff made several modifications to the Base Forecast. These modifications assume that strategies to increase housing supply at all income levels would be integrated into the Blueprint:

- First, staff modified the relative housing price variable in REMI such that by 2050 the ratio between the housing price of the Bay Area and that of the nation is 35 percent below 2018 levels. As a result of potential strategies to increase housing supply, Bay Area housing prices would then grow at a slower rate than the nation in the next three decades.
- Second, staff added the investment associated with construction of new housing units as an input in REMI to capture additional economic benefits of increasing housing supply in the region. Increases to construction employment and associated economic activity are meaningful co-benefits of additional housing construction.

Future iterations will enable further back-and-forth between UrbanSim 2.0 and REMI, based on the ultimate strategies integrated into the Draft Blueprint.

Draft Range for the Regional Growth Forecast

Table 4 shows the Plan Bay Area 2050 Draft Regional Growth Forecast range. The Base Case forecast shows that between 2015 and 2050, the region's employment is projected to grow by 1.1 million to just over 5.1 million total jobs. Population is forecasted to grow by 2.0 million people to 9.7 million. This population will comprise over 3.6 million households, for an increase of nearly 950,000 households from 2015. The Upper Range forecast, which assumes successful housing policies and strategies would effectively lower the region's relative housing price, shows the region would grow to 5.2 million jobs, and 10.2 million people comprising 4.0 million households. In each case, the number of housing units² plans for no net growth in the in-commute into the region, consistent with state law and MTC/ABAG legal agreements.

Table 4: Plan Bay Area 2050 - Draft Regional Growth Forecast Range

<i>Base Case</i>	2015	2025	2030	2035	2040	2045	2050
<i>Employment</i>	4,007,000	4,453,000	4,522,000	4,654,000	4,825,000	4,952,000	5,087,000
<i>Population</i>	7,630,000	8,294,000	8,512,000	8,750,000	9,059,000	9,372,000	9,692,000
<i>Households</i>	2,701,000	3,035,000	3,155,000	3,274,000	3,404,000	3,529,000	3,648,000
<i>Housing Units</i>	2,862,000	3,211,000	3,341,000	3,471,000	3,614,000	3,749,000	3,880,000
<i>Upper Range</i>							
<i>Employment</i>	4,007,000	4,518,000	4,588,000	4,727,000	4,909,000	5,050,000	5,200,000
<i>Population</i>	7,630,000	8,440,000	8,708,000	9,008,000	9,396,000	9,805,000	10,236,000
<i>Households</i>	2,701,000	3,228,000	3,377,000	3,528,000	3,693,000	3,857,000	4,021,000
<i>Housing Units</i>	2,862,000	3,526,000	3,690,000	3,858,000	4,043,000	4,223,000	4,404,000

Changes Compared to Plan Bay Area 2040

The following table shows the Base Case 2050 forecast in blue, the Plan Bay Area 2040 forecast in black, and the difference between the two through 2040. The Base Case forecast projects approximately 100,000 more jobs, 600,000 fewer people, 23,000 fewer households and 9,000 more housing units in 2040 compared to the Plan Bay Area 2040 forecast.

² Consistent with the legal settlement with the Building Industry Association, this housing unit projection includes housing for all projected households plus the number of units that would be needed to house the increased number of workers estimated to commute into the region. The in-commute change is estimated using REMI output for employment, and "residence adjusted employment". After adjusting for workers per household, an in-commuter household number is added to the base for estimating the regional housing control total. The regional housing control total is the sum of the households estimated for the projected population plus households equivalent to the maximum estimated in-commute number, plus a vacancy factor.

Table 5: Plan Bay Area 2050 Base Case versus Plan Bay Area 2040

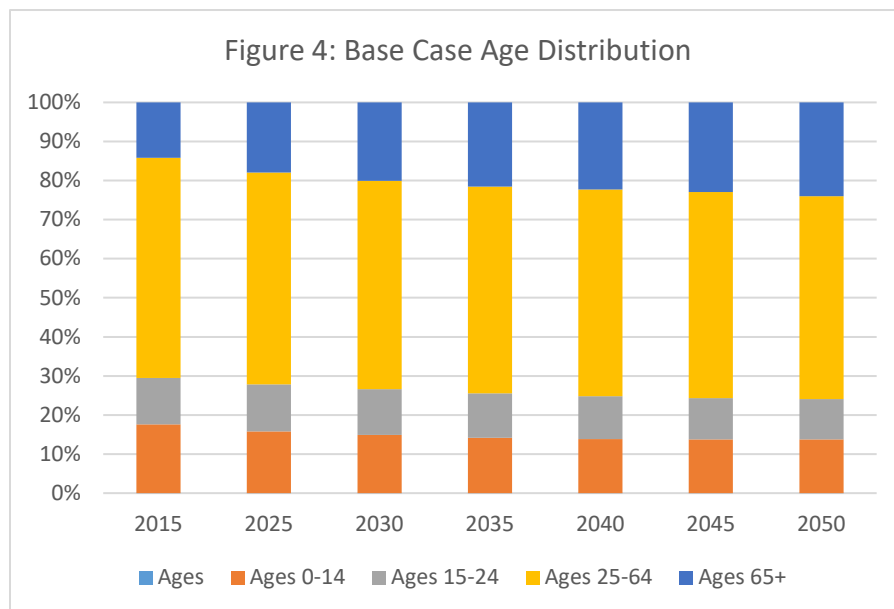
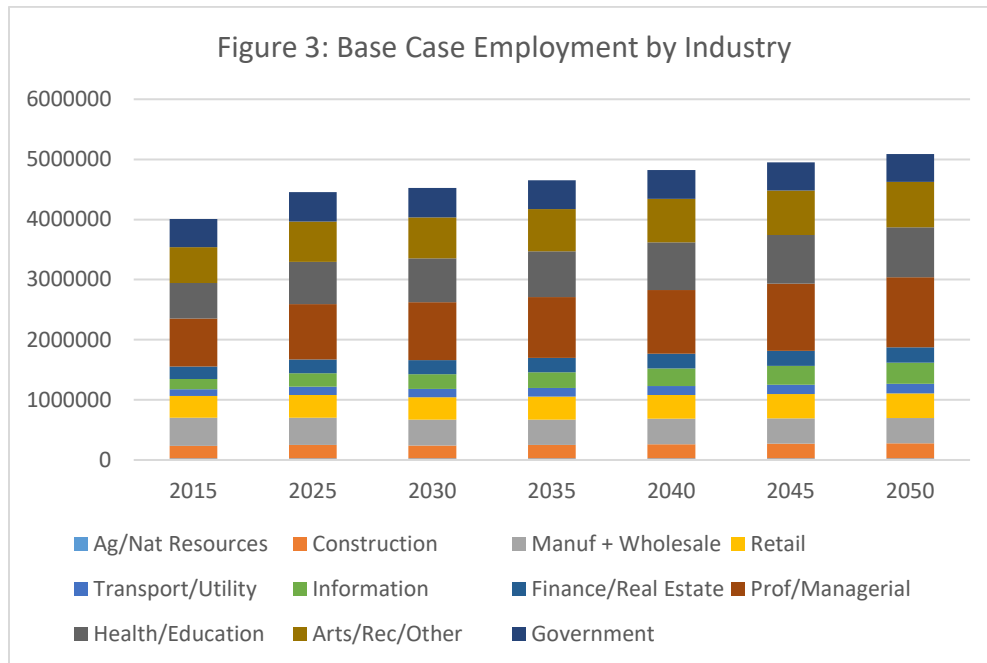
<i>Base Case</i>	2015	2025	2030	2035	2040	2045	2050
<i>Employment</i>	4,007,000	4,453,000	4,522,000	4,654,000	4,825,000	4,952,000	5,087,000
<i>Population</i>	7,630,000	8,294,000	8,512,000	8,750,000	9,059,000	9,372,000	9,692,000
<i>Households</i>	2,701,000	3,035,000	3,155,000	3,274,000	3,404,000	3,529,000	3,648,000
<i>Housing Units</i>	2,862,000	3,211,000	3,341,000	3,471,000	3,614,000	3,749,000	3,880,000
PBA40							
<i>Employment</i>	4,026,000	4,268,000	4,405,000	4,549,000	4,698,000		
<i>Population</i>	7,574,000	8,284,000	8,689,000	9,143,000	9,653,000		
<i>Households</i>	2,679,000	3,009,000	3,142,000	3,281,000	3,427,000		
<i>Housing Units</i>	2,840,000	3,080,000	3,245,000	3,421,000	3,605,000		
Difference between Base Case & PBA40							
<i>Employment</i>	-19,000	185,000	117,000	105,000	127,000		
<i>Population</i>	56,000	10,000	-177,000	-393,000	-594,000		
<i>Households</i>	22,000	26,000	13,000	-7,000	-23,000		
<i>Housing Units</i>	22,000	131,000	96,000	50,000	9,000		

There are several reasons for the difference in the forecasts between Plan Bay Area 2040 and the Base Case for 2050. Differences in population are largely due to the assumption that the recent observed decline in Hispanic international migration and birth rates would continue into the future. Recent strong employment growth has caused us to adjust the early years of the forecast, and as a result the endpoint of the trend is also higher. Finally, comparing the age composition of the population in these two forecasts, the Base Case has higher number older adults, who usually have relatively high headship rates, i.e. forming more households.

Additional Demographic Data from Base Case Forecast

As expected, professional & management and health & education industries are forecasted to continue dominating future employment, as the absolute number of jobs in manufacturing & wholesale as well as transportation & utilities continue to decline. Such trends may be able to be affected slightly with new economic strategies under consideration for the Plan Blueprint. Results are generally consistent with the Upper Range Forecast as well.

Also as expected, the increasing share of the 65+ age group and the declining share of young children are anticipated to continue in the decades ahead. Results are generally consistent with the Upper Range Forecast as well.



Next Steps

This presentation of the Draft Regional Growth Forecast gives staff time to incorporate feedback and address concerns from stakeholders. Upcoming refinements will work to align the Regional Growth Forecast with the specific strategies integrated into the Draft Blueprint for Plan Bay Area 2050. Staff will refine the assumptions and work on improving the methodology with the consultant and the TAC, with a Final Regional Growth Forecast adopted anticipated in spring 2020.