CONTRA COSTA COUNTY IN 2050: Demography, Economy, Disease, Scenarios

Demography[1]

The population of Contra Costa County is projected to increase from 1.17 million in 2019 to 1.50 million in 2050. This additional 335,351 in population represents a 29% increase. It will be driven by a larger adult and elderly population (Figure 1). In addition to being older, the 2050 population is projected to have a smaller proportion of White persons and a larger proportion of Asian and Hispanic persons (Table 1, Figure 2).
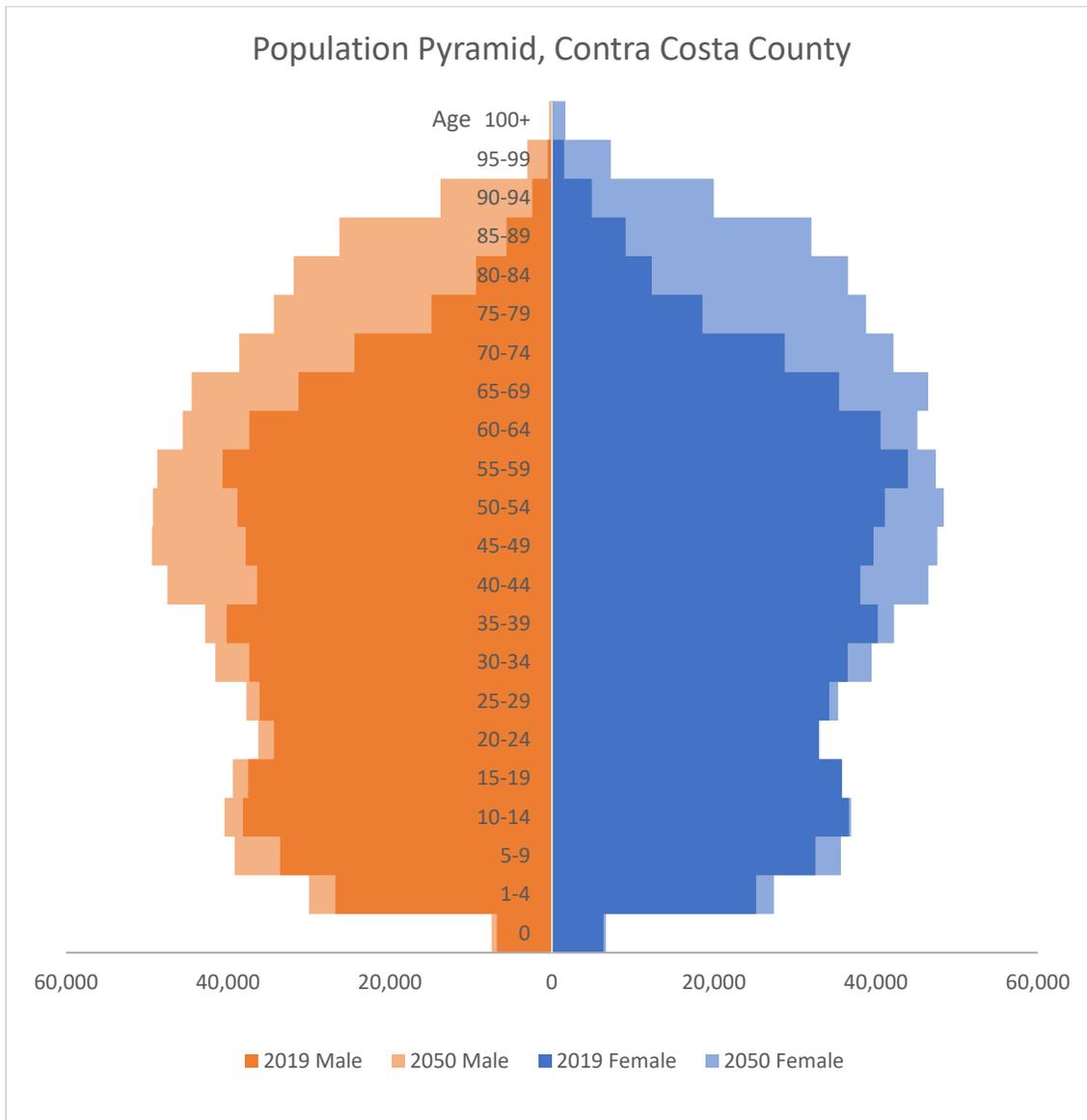

Figure 1: Population Pyramid for Contra Costa County, 2019 and 2050

Table 1: Racial and ethnic composition of Contra Costa County, 2019 and 2050

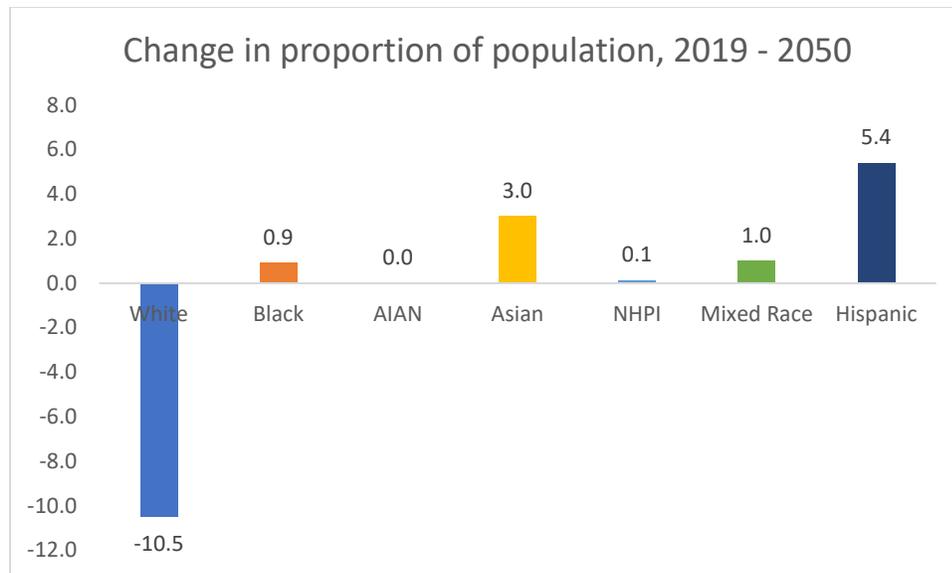|	2019		2050		Change	
	Count	Percent	Count	Percent	Count	Percent
White (Non-Hispanic)	509,111	43.7	498,387	33.2	-10,724	-10.5
Black (Non-Hispanic)	107,258	9.2	151,941	10.1	44,683	0.9
AIAN (Non-Hispanic)	3,361	0.3	4,467	0.3	1,106	0.0
Asian (Non-Hispanic)	185,394	15.9	283,865	18.9	98,471	3.0
NHPI (Non-Hispanic)	5,697	0.5	9,347	0.6	3,650	0.1
MR (Non-Hispanic)	46,556	4.0	75,046	5.0	28,490	1.0
Hispanic (any race)	307,813	26.4	477,488	31.8	169,675	5.4
Total	1,165,190	100.0	1,500,541	100.0	335,351	0.0

Figure 2: Contra Costa County change in proportion of population by race/ethnicity, 2019 – 2050

Economy

The economy in Contra Costa County[2] and the larger Bay Area[3] region is projected to grow. Increases in the construction, healthcare, and professional/managerial sector are projected to drive this growth (Figure 3). Manufacturing and agricultural jobs are projected to decline. Unemployment in Contra Costa County is expected to be at 4% in 2050. However, income inequality in the Bay Area is projected to increase (Figure 4).

	Sector	Job Growth Trend
	Construction	↑
	Health/Education	↑
	Professional/Managerial	↑
	Transportation/Utility	↓
	Agricultural/Natural Resources	↓
	Manufacturing + Wholesale	↓

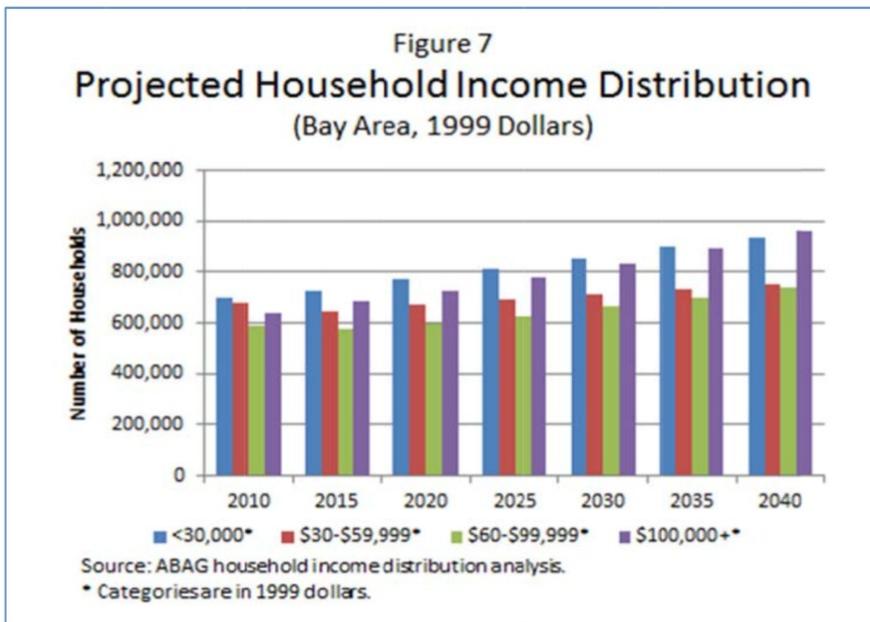Figure 3: Job trends in select Bay Area employment sectors by 2040

Figure 4: Projected Bay Area household income distribution by 2040

Disease

The U.S. Global Change Research Program summarized projections for several chronic health conditions (Table 2). The full report from which this summary was drawn provides an overview of how climate change will likely exacerbate these conditions.[4]

Table 2: Summary of Trends in Chronic Disease from the U.S. Global Change Research Program. See full report for references: https://health2016.globalchange.gov/climate-change-and-human-health#table-189

Health Conditions	Current Estimates	Future Trends	Possible Influences of Climate Change
ALZHEIMER'S DISEASE	Approximately 5 million Americans over 65 had Alzheimer's disease in 2013.	Prevalence of Alzheimer's is expected to triple to 13.8 million by 2050.	Persons with cognitive impairments are vulnerable to extreme weather events that require evacuation or other emergency responses.
ASTHMA	Average asthma prevalence in the U.S. was higher in children (9% in 2014) than in adults (7% in 2013). Since the 1980s, asthma prevalence increased, but rates of asthma deaths and hospital admissions declined.	Stable incidence and increasing prevalence of asthma is projected in the U.S. in coming decades.	Asthma is exacerbated by changes in pollen season and allergenicity and in exposures to air pollutants affected by changes in temperature, humidity, and wind.
CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)	In 2012, approximately 6.3% of adults had COPD. Deaths from chronic lung diseases increased by 50% from 1980 to 2010.	Chronic respiratory diseases are the third leading cause of death and are expected to become some of the most costly illnesses in coming decades.	COPD patients are more sensitive than the general population to changes in ambient air quality associated with climate change.
DIABETES	In 2012, approximately 9% of the total U.S. population had diabetes. Approximately 18,400 people younger than age 20 were newly diagnosed with type 1 diabetes in 2008–2009; an additional 5,000 were diagnosed with type 2.	New diabetes cases are projected to increase from about 8 cases per 1,000 in 2008 to about 15 per 1,000 in 2050. If recent increases continue, prevalence is projected to increase to 33% of Americans by 2050.	Diabetes increases sensitivity to heat stress; medication and dietary needs may increase vulnerability during and after extreme weather events.
CARDIOVASCULAR DISEASE	Cardiovascular disease (CVD) is the leading cause of death in the U.S.	By 2030, approximately 41% of the U.S. population is projected to have some form of CVD.	Cardiovascular disease increases sensitivity to heat stress.
MENTAL ILLNESS	Depression is one of the most common types of mental illness, with approximately 7% of adults reporting a major episode in the past year. Lifetime prevalence is approximately twice as high for women as for men. Lifetime prevalence is more than 15%	By 2050, the total number of U.S. adults with depressive disorder is projected to increase by 35%, from 33.9 million to 45.8 million, with those over age 65 having a 117% increase.	Mental illness may impair responses to extreme events; certain medications increase sensitivity to heat stress.

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[4] Source: https://health2016.globalchange.gov/climate-change-and-human-health

Health Conditions	Current Estimates	Future Trends	Possible Influences of Climate Change
	for anxiety disorders and nearly 4% for bipolar disorder.		
OBESITY	In 2009–2010, approximately 35% of American adults were obese. In 2012, approximately 32% of youth (aged 2–19) were overweight or obese.	By 2030, 51% of the U.S. population is expected to be obese. Projections suggest a 33% increase in obesity and a 130% increase in severe obesity.	Obesity increases sensitivity to high ambient temperatures.
DISABILITY	Approximately 18.7% of the U.S. population has a disability. In 2010, the percent of American adults with a disability was approximately 16.6% for those age 21–64 and 49.8% for persons 65 and older.	The number of older adults with activity limitations is expected to grow from 22 million in 2005 to 38 million in 2030.	Persons with disabilities may find it hard to respond when evacuation is required and when there is no available means of transportation or easy exit from residences.

In the future, it appears that non-communicable disease will continue to contribute most to mortality. A paper from The Institute for Health Metrics and Evaluation (IHME) on forecasted global mortality in 2040 identified the top six health drivers that explain most of the trajectory for premature mortality as high blood pressure, high body mass index, high blood sugar, tobacco use, alcohol use, and air pollution.[5]

Incidence of Infectious diseases seem to have fewer long-range forecasts. Perhaps this is because epidemics are driven in part by complex human interactions. If the world continues to become more interconnected on a global scale, then risk of infectious disease outbreaks will likely increase. Climate change could also contribute to increased risk due to change in habitat for disease vectors. In California, this is expected to result in increased incidence of Human Hantavirus Cardiopulmonary Syndrome (HCPS), Lyme disease, and West Nile virus.[6] Local early warning system for infectious disease outbreaks may be one approach to mitigating the impact of an increased risk.[7] If vaccine refusal continues to rise, then lack of herd immunity may also contribute to increases in infectious diseases.

Antimicrobial Resistance (AMR) could be another major cause of mortality by 2050. A global report estimated that by 2050 in the U.S., 317,000 deaths per 10,000 population could be attributable to AMR.[8] There seems to be some scepticism around these estimates[9] but AMR is nonetheless being treated as a serious global health threat.[10]

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[5] Source: http://www.healthdata.org/news-release/how-healthy-will-we-be-2040
[6] Source: http://www.cehtp.org/faq/climate_change/vectorborne_disease_and_climate_change
[7] Source: https://www.sciencedirect.com/science/article/pii/S0160412015300489
[8] Source: https://amr-review.org/sites/default/files/AMR%20Review%20Paper%20-%20Tackling%20a%20crisis%20for%20the%20health%20and%20wealth%20of%20nations_1.pdf
[9] Source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5127510/
[10] Source: https://www.who.int/antimicrobial-resistance/global-action-plan/en/

Scenarios (and scenario planning)

Regional planning agencies often engage in scenario planning to create a long-range, shared vision (or visions) for the future. This vision (or visions) then serves as the basis for identifying supporting goals, objectives, and strategies. Scenario planning explicitly addresses uncertainty about the future by comparing different futures under different conditions (e.g., what would this place look like with a strong vs. weak economy). There are two such scenario planning processes underway in the Bay Area: (1) the SPUR Regional Strategy and (2) Plan Bay Area 2050.

The scenarios in these plans may be informative for imagining what healthcare in Contra Costa County looks like in 2050. The process of scenario planning may also be useful to Contra Costa County as it attempts to plan for health care delivery in an uncertain future.

The SPUR Regional Strategy is being developed by the San Francisco Bay Area Planning and Urban Research Association (SPUR). Its horizon is 2070. From the planning process, several themes emerged: [11]

How stakeholders view the region today:
- The Bay Area is losing the sense of place that makes it special (erosion of community)
- People are being excluded (extreme inequality)
- Things are really good and really bad all at once (not everyone sharing in opportunities)
- The region is not living up to its own values (lots of talk about social and environmental justice, but not enough action).
- We rely on technology to solve problems instead of focusing on the basics (private solutions to public problems)

What stakeholders want to see:
- A region that welcomes and houses all people
- A region without extreme inequality
- Neighborhoods and cities where genuine connections can be made (analogy of a market: a place with diversity, abundance, and lots of interactions between people)
- A transportation network that works well and promotes good health
- A region where people take care of each other and the environment

In developing scenarios, SPUR identified four uncertainties that the region does have some collective control over (economy, housing, transportation, and physical form) and three external forces (climate change, earthquakes, and the Federal Government). Based on how these uncertainties might unfold, it created four future scenarios: (1) Gated Utopia, (2) Bunker Bay Area, (3) Rust Belt West, and (4) A New Social Compact. A New Social Compact is the preferred scenario.[12]

SPUR's report acknowledges that which scenario plays out depends on the collective choices that Bay Area residents make in the coming years. If "A New Social Compact" is to be realized, residents must reverse course on neighborhood protectionism and allow significant new construction; raise taxes on themselves repeatedly in order to fund social housing, public schools, public transit and other programs that help bring about a high quality of life for people regardless of their income level; and businesses

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[11] Source: https://www.spur.org/news/2018-11-19/spur-community-shares-its-vision-bay-area-2070
[12] Source: https://www.spur.org/sites/default/files/publications_pdfs/SPUR_Future_Scenarios_for_the_SF_Bay_Area.pdf

must work to develop a new employment bargain that protects workers through portable benefits, high investment in training, and high wages.

Plan Bay Area 2050 is an effort of Metropolitan Transportation Commission and the Association of Bay Area Governments. Following stakeholder input, three futures were selected for study. Rather than selecting a "preferred scenario" from this process and identifying strategies to support it, the specific strategies and investments that perform best under all three possible futures will be incorporated into Plan Bay Area 2050. The three proposed futures include:

- Clean and Green: what if… new technologies and a national carbon tax enabled telecommuting and distributed job centers?
- Rising Tides, Falling Fortunes: what if… the federal government cuts spending and reduces regulations, leaving decisions to states and regions?
- Back to the Future: what if… an economic boom and new transportation options spur a new wave of development?

Figure 5 summarizes the uncertain external forces that drive each of these 3 scenarios.

External Forces			Clean and Green	Rising Tides, Falling Fortunes	Back to the Future
Environmental	1	Sea Level Rise	1 Foot	3 Feet	2 Feet
	2	Natural Disasters	2035 Hayward Fault Earthquake (magnitude 7.0)	2035 Hayward Fault Earthquake (magnitude 7.0)	2035 Hayward Fault Earthquake (magnitude 7.0)
Political	3	U.S. Political System	Healthy Democracy	Flawed Democracy	Healthy Democracy
	4	U.S. Standing in the World	Multiple Superpowers	Declining Power	Preeminent Global Power
	5a	U.S. Tax Rates	Higher Tax Rates	Lower Tax Rates	Similar to Today
	5b	U.S. Tax Structure	Carbon Tax	Income Tax (Similar to Today)	Income Tax (Similar to Today)
	6a	U.S. Spending Levels	Higher Expenditures	Lower Expenditures	Similar to Today
	6b	U.S. Spending Distribution	Similar Share to Today	Reduced Share for Metro Areas	Larger Share for Metro Areas
	7	Immigration Policy	80,000 Annual Immigrants (to Bay Area)	20,000 Annual Immigrants (to Bay Area)	240,000 Annual Immigrants (to Bay Area)
	8	Trade Policy	3% Average Tariff Rate	10% Average Tariff Rate	0% Average Tariff Rate
	9	Environmental Policy	Increased Regulations	Reduced Regulations	Similar to Today
Economic	10	U.S. Population Annual Growth Rate	+1.0%	+0.5%	+2.5%
	11	U.S. Jobs Annual Growth Rate	+0.5%	+0.5%	+2.5%
	12	U.S. Jobs Distribution	*currently being refined*	*currently being refined*	*currently being refined*
	13	U.S. Productivity	+4.0%	+2.0%	+2.0%
Land Use	14	Housing Preferences	Greater Preference for Urban Housing	Greater Preference for Urban Housing	Greater Preference for Dispersed Housing
	15	Workplace Preferences	Greater Preference for Dispersed Employment Centers	Similar Preference to Today	Greater Preference for Urban Employment Centers
	16	Telecommute Share	30%	15%	6%
	17	E-Commerce Market Share	50%	20%	50%
	18	Interregional Volumes	Current Growth Rates	Limited Growth Rates	Faster Growth Rates
Transportation	19	Transportation Technologies	High Speed Rail, Autonomous Rail and Buses, Freight Aerial Drones	Autonomous Buses	Hyperloop, Autonomous Rail and Buses, Freight Aerial Drones, Lower-Cost Helicopter Transport
	20	Autonomous Vehicle Market Share	95%	10%	75%
	21	Electric Vehicle Market Share	95%	10%	75%
	22	Sharing Preferences	Greater Preference	Similar Preference to Today	Reduced Preference
	23	Per-Mile Vehicle Operating Cost	$0.50 per Mile	$0.30 per Mile	$0.15 per Mile
	24	Annual Federal Transportation Funding (Bay Area)	$2.5 Billion	$0.5 Billion	$2.5 Billion

Figure 5: Bay Area Plan 2050 forces (rows) contributing to three scenarios (columns). View full size at https://mtc.ca.gov/sites/default/files/Horizon-Futures_Shortlist.pdf (see the last page of the memo).