

SPUR REPORT
GROWTH



Four Future Scenarios for the San Francisco Bay Area

Planning for the region in the year 2070

MARCH 2021

This report is a component of the SPUR Regional Strategy, a vision for the future of the San Francisco Bay Area

spur.org/regionalstrategy

Acknowledgments

The SPUR Regional Strategy is generously supported by:

- Chan Zuckerberg Initiative
- Clarence E. Heller Charitable Foundation
- Curtis Infrastructure Initiative
- Dignity Health
- Facebook
- Genentech
- John S. and James L. Knight Foundation
- Marin Community Foundation
- George Miller
- Sage Foundation
- Stanford University

Additional funding provided by AECOM, Fund for the Environment and Urban Life, Hellman Foundation, Microsoft and the Seed Fund.

Primary Author:

Gabriel Metcalf

Contributors:

Ratna Amin, Benjamin Grant, Sarah Jo Szambelan, Laura Tam, Egon Terplan, Laura Tolkoff

This paper was developed from ideas generated by the SPUR Board of Directors at the 2017 annual board retreat.

Strategic Advisor:

Peter Schwartz

Thank you to:

Nicole Boyer
Salesforce
Metropolitan Transportation Commission
ConnectSF

Edited by Karen Steen
Designed by Shawn Hazen
Illustrations by Michael Byers
Copy edited by Valerie Sinzdak

Contents

Introduction	2
<hr/>	
1. Critical Uncertainties	4
Economy	7
Housing	12
Transportation	16
Physical Form	20
<hr/>	
2. External Forces	24
Climate Change	25
Earthquakes	26
The Federal Government	28
<hr/>	
3. Future Scenarios	30
Gated Utopia	33
Bunker Bay Area	35
Rust Belt West	37
A New Civic Vision	39
<hr/>	
Conclusion	40

Introduction

The San Francisco Bay Area occupies a special place in the nation's imagination: It's the locus of counterculture and the tech economy; the land of progressive politics and unbelievably high housing costs. Contrasting images of the region — cities set alongside a spectacular bay versus extreme traffic and homelessness — both attract and repel observers from around the country.

While some parts of the United States have struggled to find their footing in the face of deindustrialization, the Bay Area has become an economic superpower. But the region has not been able to add enough new housing or create a functional transportation system in parallel with the economy's expansion. The results have been predictable: the highest housing prices in the country and brutal commutes for many people who live here. Those with the least wealth and power suffer the most, with some pushed into homelessness or out of the region altogether.

We can and should do better. The Bay Area, with all of its assets — wealth and talent, civic institutions and universities, cultural diversity and cosmopolitanism, creativity and openness to experimentation — should be a model for success. We should demonstrate what an economically strong, environmentally sustainable, socially inclusive metropolis can look like.

This report is the first product of the SPUR Regional Strategy. It is an attempt to think through the forces that we in the Bay Area will collectively contend with over the next 50 years, the critical decisions we will face and where they might take us. What happens in the Bay Area tomorrow depends on the choices that all of us who live and work here make today.

The SPUR Regional Strategy

Launched in 2018, the SPUR Regional Strategy (spur.org/regionalstrategy) is a multiyear effort to develop a vision for the San Francisco Bay Area in the year 2070, along with the strategies needed to make this vision a reality. Most of SPUR's Regional Strategy research and recommendations will focus on the traditional nine-county San Francisco Bay Area. However, in cases where systems reach beyond this border — for example housing markets, commute patterns and watersheds — the project will study data and make recommendations for a broader geography including the San Joaquin Valley, the Monterey Bay area and the Sacramento area.

The goal of the SPUR Regional Strategy is to develop a set of strategies that will make the Bay Area more livable, more inclusive, more equitable, more environmentally balanced, more resilient to climate change and earthquakes and more regionally integrated. SPUR aims to produce a body of work that moves from vision to strategy to implementation, providing a road map for the coming decades.

Scenario Planning: Myths of the Future

To begin this exploration, the SPUR Board of Directors engaged in a scenario planning process, a structured way for organizations to think about the future. This approach addresses uncertainty about future conditions at the beginning of the strategic planning process. It brings people together to better understand these uncertainties, to develop plausible stories about possible futures based on the variables that drive change and to create alignment on future goals and actions.



Scenario planning is not predicting the future. It is a way of understanding choices, chains of events, alternatives and possible outcomes to support better decision-making in the face of a future with great uncertainty. The scenarios that result from this process are “myths of the future,” stories that reveal the potential long-term outcomes of the choices made today.

The members of the SPUR board, more than 100 business and civic leaders with deep knowledge of the Bay Area, used their annual retreat to develop a set of scenarios for the Bay Area in 2070. Working in small, facilitated breakout groups, SPUR's board identified the most important forces shaping the future and considered their interplay. This report summarizes that work, presented in three stages:

- Chapter 1 looks at the critical decisions that will shape the region's economy, housing, transportation and physical form.
- Chapter 2 considers a set of external forces the Bay Area will have to contend with in all scenarios.
- Chapter 3 combines the factors to arrive at a set of four possible scenarios for the future.

1. Critical Uncertainties

The scenario planning process starts from the belief that multiple futures are possible. There's no way to predict what will unfold, but there are ways to plan for and shape the possibilities. How our region evolves will be influenced by history and by deep structural forces in our society — but it will also be shaped by the choices we make as a community. Strategic planning work begins with attempting to discern what is within our control and what is not. In considering the future of the Bay Area, the SPUR board and staff identified four critical uncertainties to explore: the economy, housing, transportation and the physical form of the region's urbanized areas.

For each topic, this report asks:

- What should we assume as “given” across all scenarios?
- What uncertainties will shape the way our region evolves but are outside of our control?
- What can be influenced by the decisions that voters, community groups, governments, businesses and civic leaders make?

Economy

The private sector generates the wealth we use for personal and collective purposes: the wages that we earn and spend, as well as the tax dollars that enable public services. Places that struggle economically generally lose population, as people are forced to migrate elsewhere in search of opportunity, while places that grow economically tend to attract immigrants from all over.

Today, the Bay Area stands out for its growing extremes: It's the center of the world's innovation economy, with some of the most successful firms in existence, and at the same time it's a place of deep economic inequality, with many people living in poverty.

This section thinks through two critical uncertainties:

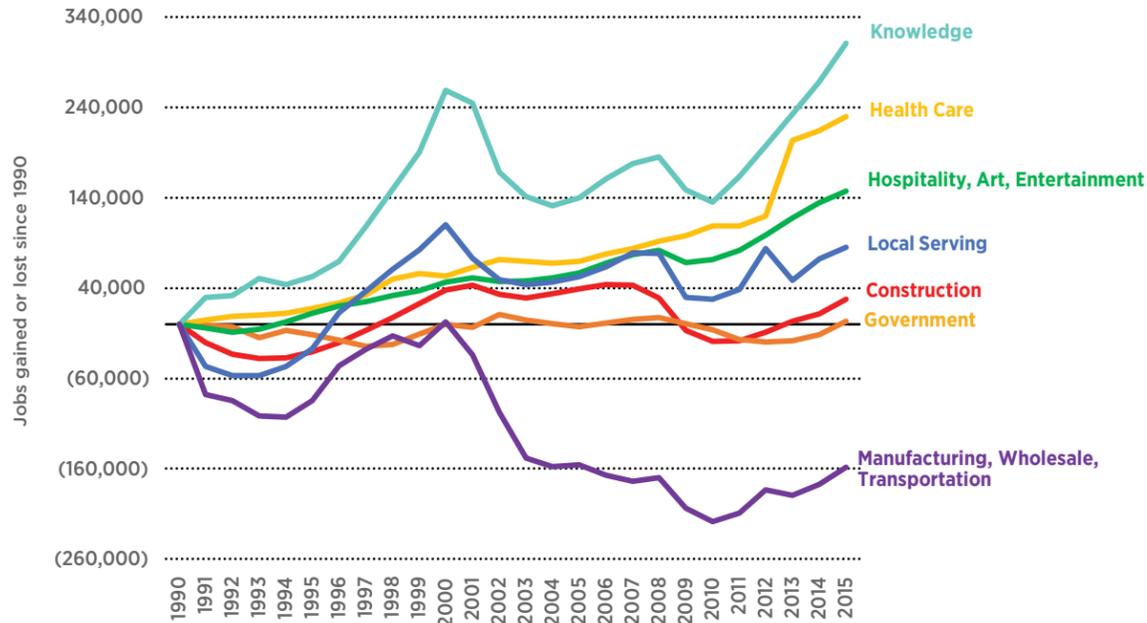
1. What is the long-term fate of our economic base? Will the Bay Area economy continue to grow, or will the region's time as an economic superpower come to an end?
2. Will we address our growing inequality of wealth and income? Will our distribution of resources and opportunity become more unequal, or will this trend reverse?

Long-term economic forecasting is notoriously difficult, and no one can claim to have a crystal ball. What we can do is work to remain aware of the broad range of possibilities, rather than assuming that the way things are now will continue forever.

Will our economy grow or decline?

The base of any economy is the export sector — firms that sell goods and services outside of the region. These companies bring wealth into our region from the rest of the world. Export industries in the Bay Area include tourism, professional services, information, banking, finance and management services. In the knowledge-based technology sector, the Bay Area has one of the greatest concentrations of talent and firms on the planet.

FIGURE 1
For the past 25 years, the knowledge sector has led Bay Area job growth.



In recent decades, Bay Area job growth has been led by the knowledge sector, which attracts highly educated workers and pays higher than average wages. Meanwhile, manufacturing and related sectors, which attract lower-skilled workers and often offer lower wages, have shrunk.

Economic clusters and globally competitive economic regions have heydays of varying length. We might maintain our current economic edge, but it's necessary to think through stories of decline as well. Failure to build enough housing and transportation infrastructure for job growth could prove fatal by making it impossible for local innovators to continue to add jobs or start new companies here.

Macroeconomic policy, international trade, war, immigration and other factors beyond our control also significantly underlie our competitiveness and could lead to economic decline. The current political trend toward closing America's borders to immigrants could have devastating consequences for the Bay Area economy, preventing us from welcoming innovative, motivated people from around the world.

Or perhaps our success will undermine itself if a small set of highly profitable companies drive up costs and grab disproportionate shares of the talent, making it hard for new firms to start here — a version of the story of once-powerful industries in places like Detroit and Pittsburgh.

Meanwhile, we know that other regions all over the world will be doing their best to grow their own economies.

We also face a broad set of future uncertainties affecting the developed world. How will new waves of innovation change the kinds of work that the global market demands? How will we compete in it? How much will these changes affect the specific jobs and industries that make up the Bay Area economy today? As older

Source: SPUR analysis of Bureau of Labor Statistics Quarterly Census of Employment and Wages, <http://www.bls.gov/cew/datatoc.htm>.

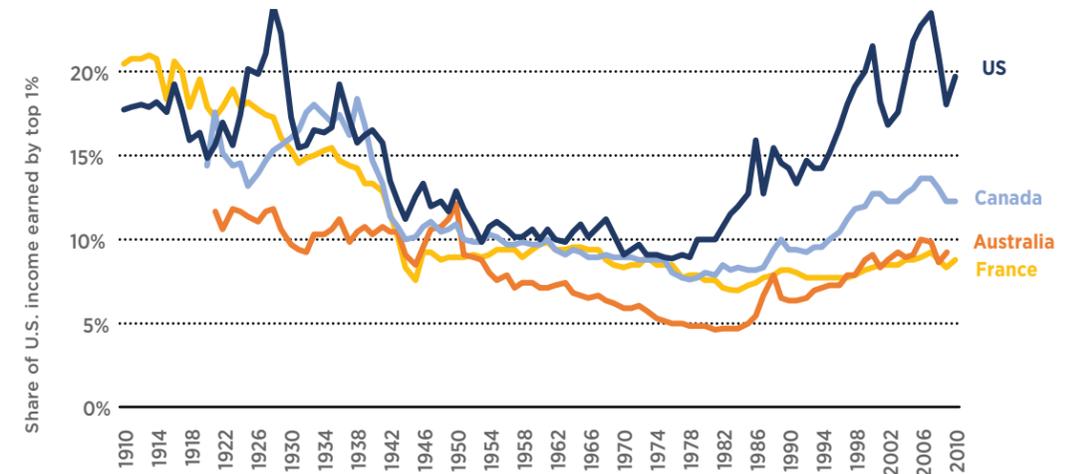


industries go away, will the Bay Area continue to be at the forefront of innovation, or will the locus of activity shift to other locations?

Will inequality increase or decrease?

Economic inequality has been growing in all Bay Area counties since the 1980s — part of a broader trend that has been happening across Western nations since the mid-20th century. Globalization, deindustrialization and job automation through technology all play a part. In the United States, inequality is deeply impacted by systemic racism, with African-Americans and Latinos on average earning lower incomes and encountering multiple barriers to economic progress. This country's low rate of unionization, its underinvestment in education and its reluctance to use government power to restore competition in monopolistic industries all impede efforts to reduce inequality.

FIGURE 2
Income inequality has increased to levels last seen 100 years ago.



As SPUR has examined in research on economic prosperity, middle-wage jobs in the Bay Area, as in the rest of the country, have been declining relative to jobs at the high and low ends of the wage spectrum.¹ On the low end, more and more workers are cobbling together low-paying jobs with no benefits.

At the same time, investments in education are not equitably distributed, and people who lack access to high-quality education receive fewer opportunities to earn a living wage or have a career. While California has some of the nation's best public schools, overall state spending on education has declined; California used to rank among the top states for investment in education, but now it is among the bottom. As a result, too many Bay Area residents lack the educational background to access the top employment opportunities, which instead go to highly educated people who come here from around the world.

We know that inequality is corrosive. Regions with high economic inequality have poorer health outcomes,

¹ SPUR, *Economic Prosperity Strategy*, 2014, <https://www.spur.org/publications/spur-report/2014-10-01/economic-prosperity-strategy>

Source: Data on income and wealth from Capital in the 21st Century, Harvard University Press, 2014, <https://www.quandl.com/data/PIKETTY-Thomas-Piketty?keyword=share%20of%20top%20US>

a lower quality of life, higher crime rates and less stable economies; they're also less resilient to stresses and shocks. High levels of income inequality may also narrow the tax base for public services and weaken the political will to make investments in public systems. Inequality reduces social cohesion as well, making it more difficult to undertake collective action to do big things of any kind.

New challenges are on the horizon. As automation, artificial intelligence and a host of other inventions make certain occupations obsolete, what kind of safety net will be in place for people who lose their economic purpose? What kinds of new work will we invent over time? What types of wages and fulfillment will these jobs offer, and what type of education will equip people for these new jobs?

Assumptions across all scenarios:

- The concentration of universities, talent and firms will continue to make the Bay Area an attractive place to start companies — unless other factors, such as high housing costs and all-day congestion, outweigh those advantages.
- At the same time, successful innovation clusters will continue to develop in other metropolitan areas around the world, providing intense competition with the Bay Area.
- Inequality will persist and worsen if we do nothing to change it.
- As automation eliminates jobs, new forms of work will be invented that replace the jobs lost, although not necessarily for the same people or in the same locations.

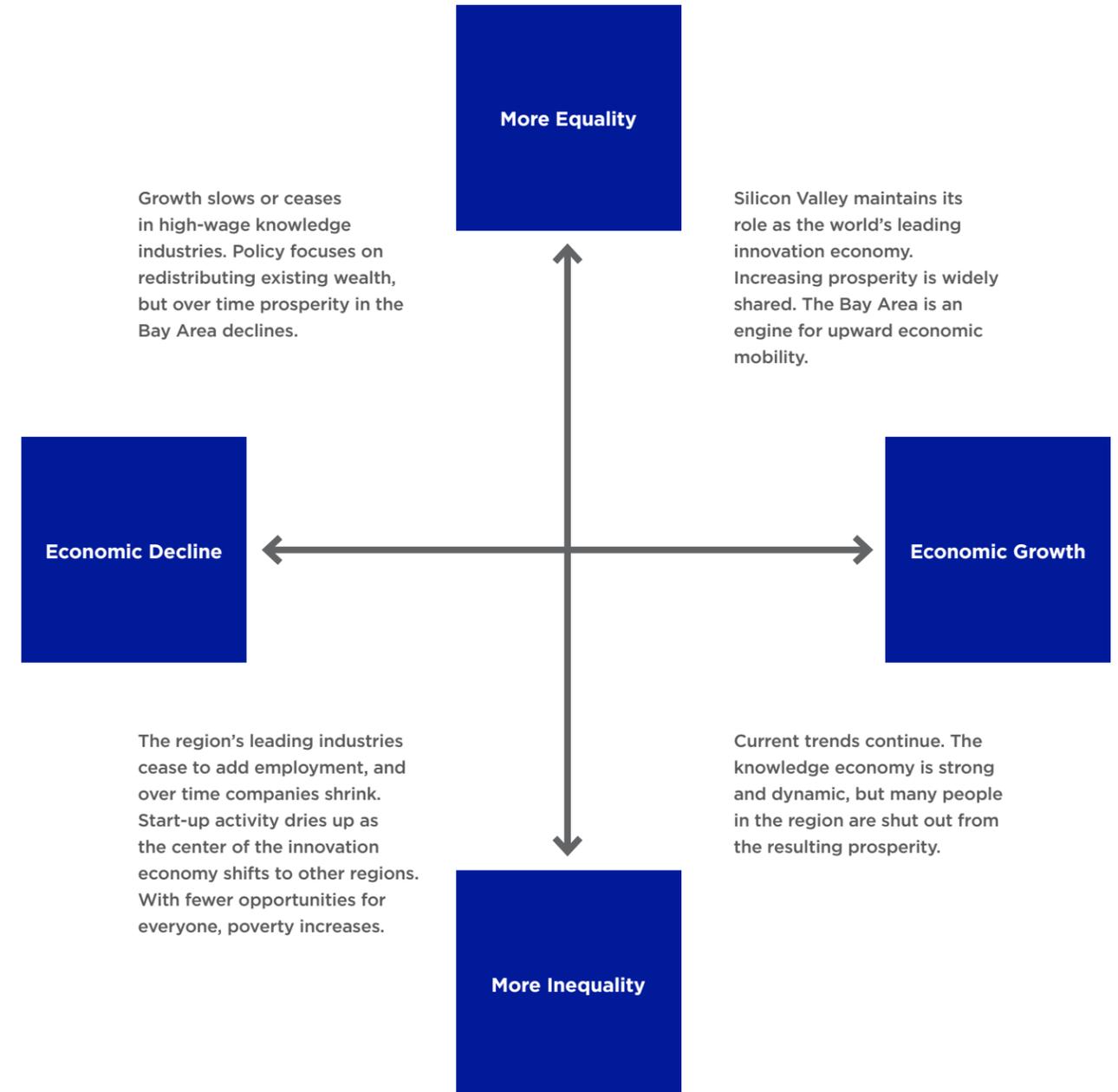
Uncertainties we do not control:

- Will U.S. immigration policies allow global talent to come here?
- Will the United States move in a more protectionist direction, or will our country be open to international trade?
- What type of anti-monopoly policies will be enforced by federal and state governments, and how will those specifically shape the competitive landscape of the tech economy?
- What type of social safety net will our country have, and how well will it help people survive the loss of certain types of jobs?

Outcomes that will be shaped by our choices:

- Will we build enough housing to make it affordable and reasonable for firms to continue adding jobs in the region, based on the wages they have to pay to keep their workers here?
- Will we offer broad enough prosperity to support social cohesion and prevent the unrest that can undermine public investments?
- Will we upgrade the public school system to give more of our kids a chance to enter the knowledge economy?
- Will we enact higher minimum wages and similar interventions to increase earnings at the lowest income levels?
- How much will we invest in public services like transportation, education and health care, which serve all people regardless of their income?
- Will we design policies that offer security to the rising contingent (“gig”) workforce?

Four Possible Scenarios for the Economy



Housing

For the past two decades, the problem of high housing costs has gotten more of SPUR's attention than perhaps any other issue, and it remains one of the gravest threats to the region's economy, quality of life and values.² The challenge is one of supply and demand: We don't have enough housing for all the people who want to live here. The competition for housing drives costs up until people are priced out and must move somewhere else. Those who must move are often the people with the fewest resources. Some end up living on the streets.

The Bay Area cannot be a place of opportunity — a place that welcomes diversity of all kinds, a place that is home to innovation — if it does not take steps to address this critical problem.

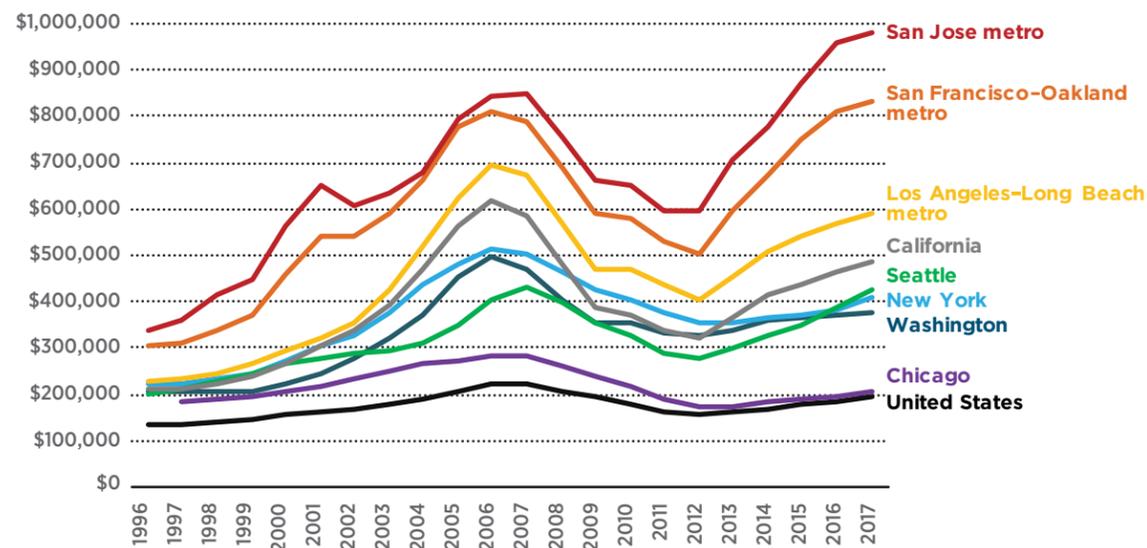
This section asks two key questions that will determine what happens with housing costs in the long run:

1. Will we allow the housing supply to grow enough to meet the demand, thereby bringing down costs?
2. Will we fund enough housing for those who cannot afford to rent or buy at market price?

How much will the supply of housing grow?

The basic reason housing is so expensive in the Bay Area is the extreme imbalance between the demand for housing and the supply of available homes. While relative prices have risen and fallen with booms and busts in the economy, our regional housing shortage has remained a chronic problem, and high costs have been a fact of life for decades.

FIGURE 3
Home values in the Bay Area have grown higher and at a faster rate than anywhere else in the country.
 Median home values in April of every year, by Core-Based Statistical Area (CBSA)



The median home values in the San Jose and San Francisco-Oakland areas have always been some of the highest, but over the last two decades the spread between them and the rest of the country has grown bigger. The San Jose CBSA consists of Santa Clara and San Benito counties. The San Francisco-Oakland CBSA consists of San Francisco, San Mateo, Alameda, Marin and Contra Costa counties.

² See SPUR's housing research at <https://www.spur.org/policy-area/housing>



Starting in the 1970s, a desire to preserve neighborhoods from physical change inspired strong opposition to new housing development. As a result, Bay Area cities have some of the country's most stringent regulations controlling how and where new homes can be built.

Many other factors contribute to the problem. Cities have fiscal incentives to attract commercial development, which brings revenue, rather than housing, which requires additional services that current property taxes cannot cover. The state's environmental regulations make it easy for opponents of housing to stop or delay projects. The boom-bust cycle of the economy makes it hard to sustain a skilled construction labor force during recessions. Many well-intentioned requirements effectively drive up the cost of building housing. And home values have come to be a primary source of wealth for middle-class residents, who are reluctant to allow values to decrease by making housing more affordable.

With different planning decisions, the Bay Area could make housing much more affordable. This would mean accepting a mix of building heights in many locations and giving up the expectation that residents get to control what gets built near them. These may seem like small things to ask, but such changes would be a significant departure from the culture of planning over the past quarter century.

How much will the social housing sector grow?

In cities around the world, most people rent or buy homes on the open real estate market. And yet much of the advanced industrial world has found it necessary and effective to subsidize housing for low- and middle-income people as part of the social safety net. For example, it is common in European countries for a large share of housing to be provided by a "social housing" sector that is permanently price-controlled — owned and operated by a mix of public agencies, co-ops and other entities. In the Netherlands, 33 percent of all housing is provided by the social sector; in France it's 17 percent, in the United Kingdom 18 percent and in Denmark 20 percent.³

In California, the share of subsidized housing units is more like 3 percent; in the nine-county Bay Area, it's about 4 percent.⁴

One of the big questions for housing policy is whether the Bay Area will choose to ramp up investments in subsidized affordable housing as European countries have been able to do.

There is no contradiction between radically increasing the supply of market-rate housing and radically increasing the supply of social housing. Both strategies could be pursued simultaneously. At the same time, we should not be naïve about how difficult this would be. The federal government is not likely to fund social housing at levels anywhere like Western Europe, both for cultural reasons and because most of the United States does not have an affordable housing crisis on the scale of ours. So we are faced with the difficult problem of finding state and local sources of funding for social housing programs.

³ *The State of Housing in the EU 2015*, Housing Europe, 2015, <http://www.housingeurope.eu/resource-468/the-state-of-housing-in-the-eu-2015>
⁴ California Housing Partnership provided counts of subsidized units using their Preservation Database: <https://chpc.net/policy-research/preservation/>

preservation-clearinghouse/. Subsidized units include those with HUD loans, project-based section 8 contracts, Low Income Housing Tax Credits (LIHTC), USDA loans and/or rental assistance. American Community Survey 2016 1-year estimates provided total housing stock estimates.

Source: SPUR analysis of Zillow ZHVI All Homes Time Series for Metros, <https://www.zillow.com/research/data/>

Assumptions across all scenarios:

- The federal government will not embark on a large-scale program of funding affordable housing.
- There will continue to be high demand to live in the cities of the Bay Area.

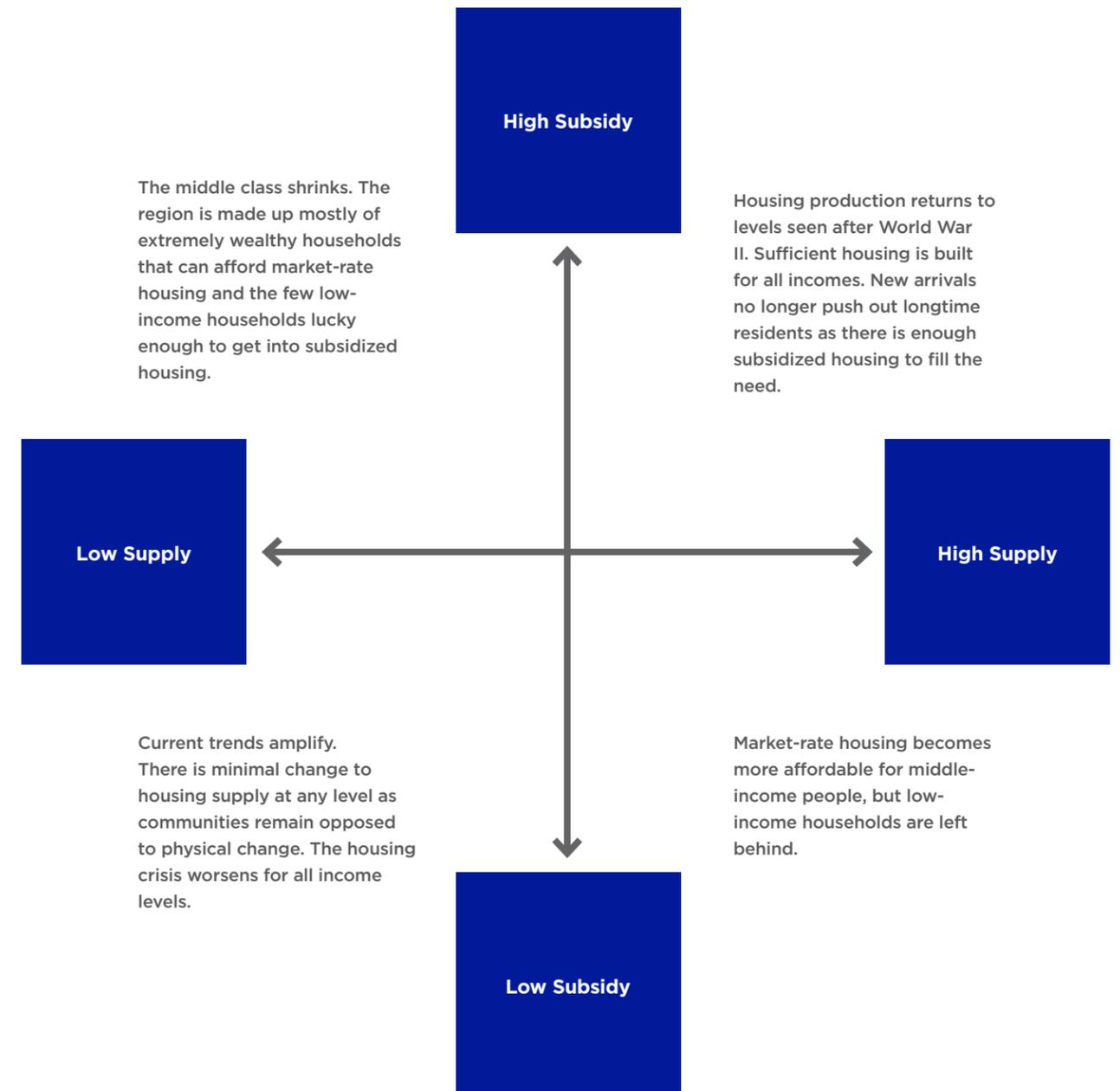
Uncertainties we do not control:

- Will innovations in construction, such as modular housing or mass production, reduce construction costs?
- Will cultural patterns about what kind of spaces we live in change?

Outcomes that will be shaped by our choices:

- Will we change our zoning and planning processes to facilitate large-scale increases to the Bay Area's housing supply?
- Will we be willing to replace single-family homes with multi-unit housing in some parts of the region?
- Will we reform the property tax system so that cities have stronger fiscal incentives to permit housing development?
- What level of funding will we provide for social housing?

Four Possible Scenarios for Housing



Transportation

With the introduction of technology-driven transportation — including autonomous or “driverless” vehicles, personal mobility tools like ebikes and scooters, mobile-device-hailed rides and delivery drones — we are experiencing what may be the biggest changes in urban mobility in more than a century.

New transportation technology holds the potential to decrease collisions and increase the spatial efficiency of cars in cities while making parts of our region more accessible than they were before. But these emerging technologies will raise new questions about the role of public transportation and public infrastructure. Cities may face pressure to cut or eliminate public transit operations as companies vie to replace these services with fleets of privately owned autonomous vehicles (AVs). The result could be a market-driven system that delivers inequitable access.

This section thinks through two critical uncertainties for transportation:

1. Will we design our communities to be walkable and compact, or will we design them to accommodate an ever-increasing number of private vehicles?
2. Will we invest in building public transportation and infrastructure, or will we let what we have atrophy?

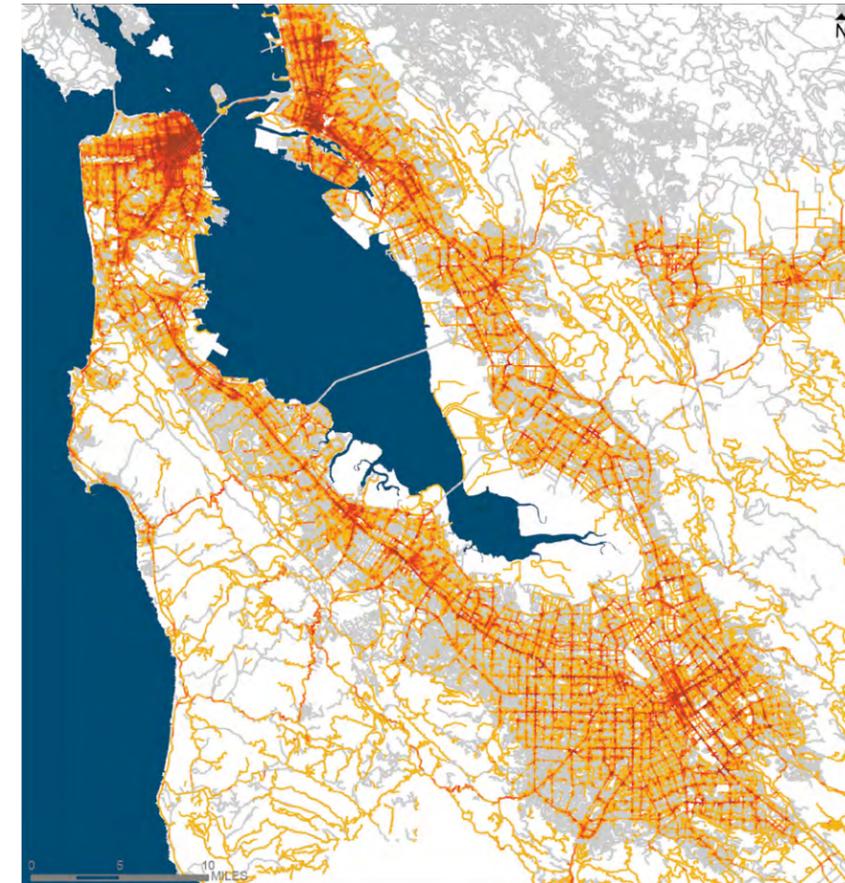
Will we design for public life or for an ever-increasing number of vehicles?

The Bay Area has been through several eras of transportation: ships and ferries, railroads and streetcars, automobiles and buses, and modern transit such as BART and light rail. After decades of focus on private cars and highways, a renewed appreciation for human-scaled urban mobility is taking hold in many cities. While we cannot predict exactly when AV technology will be ready, its eventual deployment appears to be a certainty for freight, transit and personal mobility. The question is whether or not we will use AVs to continue making our communities more livable. If AVs are not owned by individuals but are instead accessed through mobility service providers — much as Uber, Lyft and Chariot operate today — and if we pair them with strong policies, then we have the opportunity to greatly reduce the amount of land in our cities devoted to cars. We could convert traffic lanes to wider sidewalks and bike lanes, repurpose parking garages for new uses and convert curbs from parking lanes to pick-up and drop-off lanes. The search for a parking space could become a thing of the past. Goods could be delivered by AVs as well, possibly reducing truck traffic on streets. In short, we could use the opportunity of AVs to reclaim our cities from the automobile and launch a renaissance in public life.

Or we could do the opposite: We could design our streets to accommodate greater throughput of vehicles, enabling a world where people spend more time in vehicles but experience less frustration because they can work, sleep or relax while traveling. Because AVs can sense each other, they would not need to stop at intersections. The street in this scenario would be repurposed as infrastructure for AVs, and pedestrians would become an anachronism.

The last time we lived through a change like this, when the automobile was widely adopted in the 1920s, we began a process of destroying our urban fabric in order to accommodate vehicles. AVs will not fix this problem or remove it as an issue; on the contrary, the technology will present us with a new version of this same dilemma. The choice here does not depend on how the technology evolves; it depends on how we choose to design our streets and neighborhoods. AVs can fit wherever they are allowed to go. We will decide where that is through our planning choices.

FIGURE 4
Traffic safety persists as a problem in our cities.
 Density of collisions causing death or serious injury across auto, pedestrian and bicycle crashes (2011–2016)



For decades we have prioritized vehicles over people in the way we design, manage, invest in and set policy for our transportation network, creating dangerous street conditions in busy places where modes of transportation mix. The Bay Area's high-injury network (shown in red) makes up just 8 percent of the street network, but it is where roughly 60 percent of collisions that cause death or severe injury occur.

Will we invest in public transit and infrastructure or let them atrophy?

The Bay Area does not have a world-class transit system, nor does it have strong investment in transportation infrastructure such as roads, tunnels, stations and technological systems; after years of neglect, our region has racked up billions of dollars in deferred maintenance.

Bay Area residents make only 70 transit trips per person on average each year, a decline over the past 25 years. Underfunding, the fragmentation of services under multiple operators, bad design choices and — most fundamentally of all — low-density land uses have limited the usefulness of transit for most people. Many believe that technology could eventually replace the need for expensive, government-run transit operators. Employee shuttles already carry tens of thousands of workers each day to suburban campuses that previously would have required everyone to drive their own cars. Uber, Lyft, Chariot and a set of emerging competitors provide point-to-point mobility — and in the near future, when these companies will no longer have drivers to pay, perhaps they could provide that mobility at a similar cost to public transit while serving locations that transit never could.

Source: Map rendered by SPUR based on an original regional database derived by David Wasserman using the High Injury Network of the Bay Area (Years 2011–2016), <https://www.linkedin.com/pulse/vision-zero-analysis-regional-scale-david-wasserman/>

The SPUR Regional Strategy will explore all of these ideas in depth. But there is reason for skepticism: If everyone who currently rides transit were to switch to AVs — even large, multipassenger autonomous vehicles — it is likely that our road network would become even further gridlocked than it is today.

As the region’s population increases, pressure on our transit, highways, roads and bridges is reaching a breaking point. Congestion has significant impacts on our decisions about where to live and work, how to get there and when to travel. It also has a costly impact on the movement of goods and freight between our region and other regions of the world, and between parts of the Bay Area. As SPUR has argued in a number of reports,⁵ in order to remain a functional place where people have access to what they need, we will have to make enormous investments in infrastructure, which includes a statewide rail network and high-speed rail. Absent a generational reinvestment in our transportation systems, the Bay Area’s position in the global economy could erode as other metropolitan regions invest in modern infrastructure and we fall further behind.

Assumptions across all scenarios:

- Sharing, automation and electrification of vehicles will all increase.
- Mobile phone technology and private transportation services will continue to transform urban mobility.
- There will be less need for storing cars inside cities.
- High-volume commuter rail lines will still be the most efficient way to move large numbers of people.

Uncertainties we do not control:

- How soon will AVs replace traditional vehicles for personal mobility, freight and transit?
- Will the private mobility industry be competitive or monopolistic?
- What new transportation technologies, such as the Hyperloop or passenger drones, will come into use?
- Will the federal government preempt state and regional regulation of private mobility providers?

Outcomes that will be shaped by our choices:

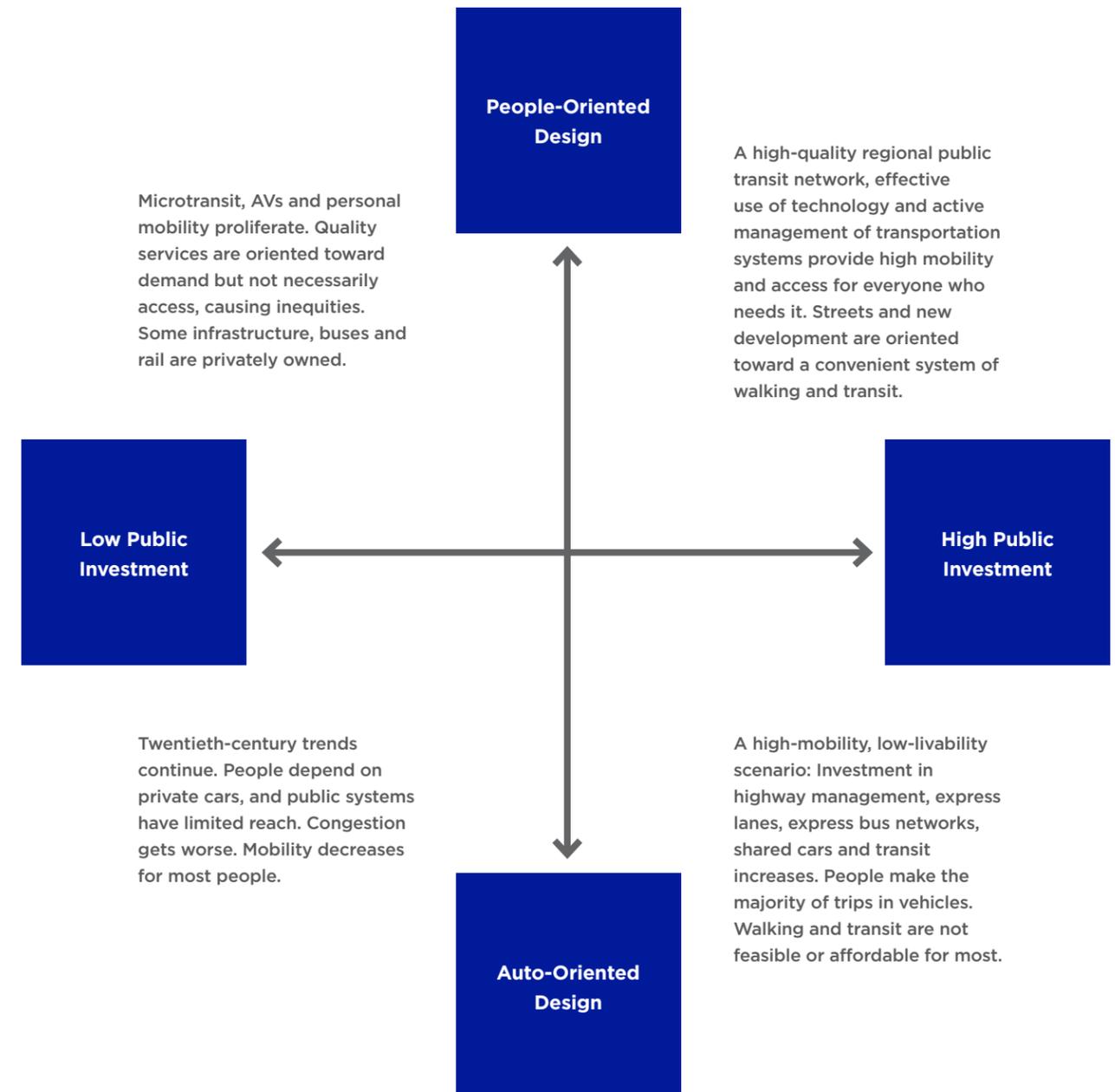
- How will cities design their streets and sidewalks? How much space will they give to pedestrians and how much to vehicles? Will cities expand car-free zones?
- Will cities create safe, ubiquitous bike networks?
- Will we enact road pricing sufficient to end congestion and fund the system we need?
- Will we build new high-capacity transit lines, and will these services operate frequently enough to make transit useful for more people?
- Will we locate more employment and homes near transit and in other places where commuters can access jobs without driving?
- What type of regulations will we create to manage AVs and private mobility providers and provide public benefits?
- Will we be able to reduce the capital costs of infrastructure projects?

⁵ SPUR, *The Caltrain Corridor Vision Plan*, 2017, <https://www.spur.org/publications/spur-report/2017-02-23/caltrain-corridor-vision-plan>; SPUR, *Designing the Bay Area’s Second Transbay Rail Crossing*, 2016, <https://www.spur.org/publications/white-paper/2016-02-10/designing-bay-areas-second-transbay-rail-crossing>; and other SPUR reports available at <https://www.spur.org/policy-area/transportation>

⁵ SPUR, *The Caltrain Corridor Vision Plan*, 2017, <https://www.spur.org/publications/spur-report/2017-02-23/caltrain-corridor-vision-plan>; SPUR, *Designing the Bay Area’s Second Transbay Rail Crossing*, 2016, <https://www.spur.org/publications/white-paper/2016-02-10/designing-bay-areas-second-transbay-rail-crossing>; and other SPUR reports available at <https://www.spur.org/policy-area/transportation>



Four Possible Scenarios for Transportation



Physical Form

The physical form of the Bay Area's cities was largely shaped during two time periods. The first was in the 19th and early 20th centuries, when the extension of privately owned transit lines served as the major catalyst of growth. The resulting towns — linked by rail, streetcars and ferries — were compact and walkable by necessity. The second came after World War II, when federal housing policy, the GI Bill, the interstate highway system and a booming economy pushed suburban development into the farmland south, east and north of the Bay. Housing was physically separated from retail centers and offices. New types of neighborhoods — linked by highways and furnished with ample parking — required a car to get around. So began a shift toward dependence on driving that still defines the Bay Area.

In 1930, when the Bay Area largely stopped producing walkable urban neighborhoods, the region's population was approximately 1.5 million. That number has since grown by more than 6 million people, which means that today the vast majority of residents live in car-oriented areas developed after the war.

Over the decades, the environmental movement has largely succeeded in stopping greenfield development, protecting farms and open spaces and limiting car-oriented suburban sprawl. But at the same time, we have failed to enable new construction within existing cities at anywhere near sufficient scale. The result is a chronic undersupply of housing, which has led to the catastrophe of Bay Area housing costs.

Whatever we do to address the housing shortage will have big impacts on the physical form our built environment takes. Either we will sprawl outward or we will accept significant amounts of new housing in existing communities — or we will do some combination of both.

This section thinks through two critical uncertainties for physical form:

1. How much development will we accommodate in existing neighborhoods?
2. How much sprawl will we allow?

How much development will we accommodate in existing neighborhoods?

Like most older cities in the United States, Oakland and San Francisco experienced a population decline in the 1950s and '60s as the suburbs grew. But by the 1980s, demand for walkable urban neighborhoods began to outstrip their availability in the region, leading to increasingly higher prices in those areas.

Infill development — building on empty or underused sites in existing neighborhoods — is a way to give more people the chance to live in the Bay Area's most desirable neighborhoods. Infill can also add shops and services to neighborhoods that don't have them, making low-density suburbs more compact, walkable and appealing.

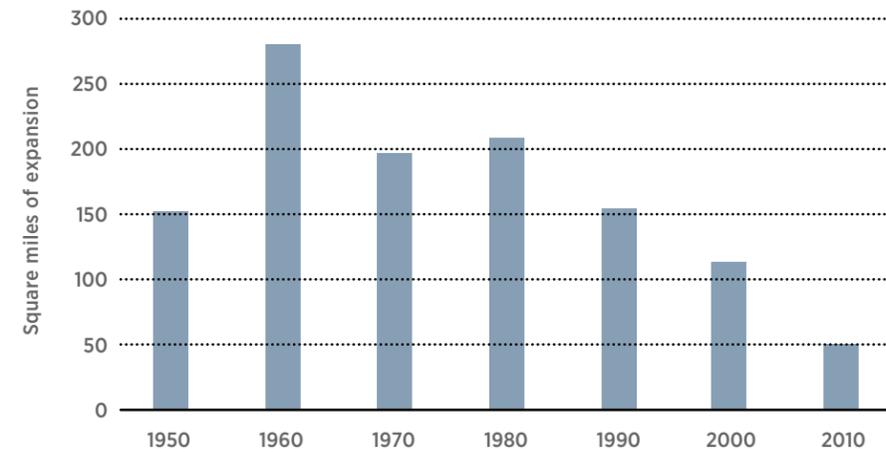
But the Bay Area has a history of preventing this kind of growth. The environmental conservation efforts we are justifiably proud of — saving the Bay, protecting signature landscapes and habitat like Marin's ocean bluffs and San Mateo's redwood forests — were never coupled with a commitment to accommodate growth in the region's core. Oppositions to growth within city boundaries led to changes in zoning and building regulations that now limit the amount of new construction allowed. As a result, housing has become a scarce resource and prices have increased dramatically throughout the region. Desirable urban neighborhoods have become extremely expensive, and even formerly middle-class suburbs like San Leandro, Redwood City and Novato are now out of reach for many. Many working and middle-class people have been pushed to the edges of the Bay Area or have left the region for more affordable places. This has resulted in a major demographic change in cities



like San Francisco, Oakland and Berkeley, with a significant decline in African-American residents.

Changing this cycle of limited growth, high prices and displacement will require dramatic changes to local and state planning laws to make new development easier to build. The policy tools to enable infill development are well-understood: Increase allowable building heights and densities, eliminate minimum parking requirements, enable small-scale buildings to be replaced by higher-density buildings, create straightforward approval processes and conduct careful planning to ensure complete neighborhoods. Making these changes is simply a matter of finding the political will to act.

FIGURE 5
The rate of urban expansion in the Bay Area has dropped significantly.
 Expansion of urbanized land in the San Jose-San Francisco-Oakland Combined Statistical Area (CSA), by decade



In the last few decades, very little new land has been developed within the San Jose-San Francisco-Oakland area. This is an environmental success story — except that very little development has taken place within the existing urbanized footprint either, putting enormous pressure on the cost of housing.

How much sprawl will we allow?

Like most advocates of good planning, SPUR has long argued that new development should be built in infill locations instead of as sprawl. The region's open space network represents one of California's great environmental victories.

But strictly from the perspective of housing costs, adding to the supply of housing would be helpful regardless of where the new housing goes. The Bay Area could choose to enable more greenfield development, either by incrementally expanding urban growth boundaries or by creating entirely new cities and towns, an idea that was once common in the United States.

It's important to remember that a great deal of development is taking place just outside the boundaries of our official nine-county region. The spillover of Bay Area workers who are not able to find homes in the region has resulted in more low-density development in places like Tracy, Stockton and Modesto. We should face this regional pattern honestly as we think about scenarios for the future.

Source: SPUR rendering of data from BuildZoom, <https://www.buildzoom.com/blog/cities-expansion-slowing>.

Assumptions across all scenarios:

- The Bay Area is likely to continue to add population and jobs, although the exact numbers of both are uncertain.
- Many people will continue to want to live in areas that are close to good jobs and have transportation options.

Uncertainties that we do not control:

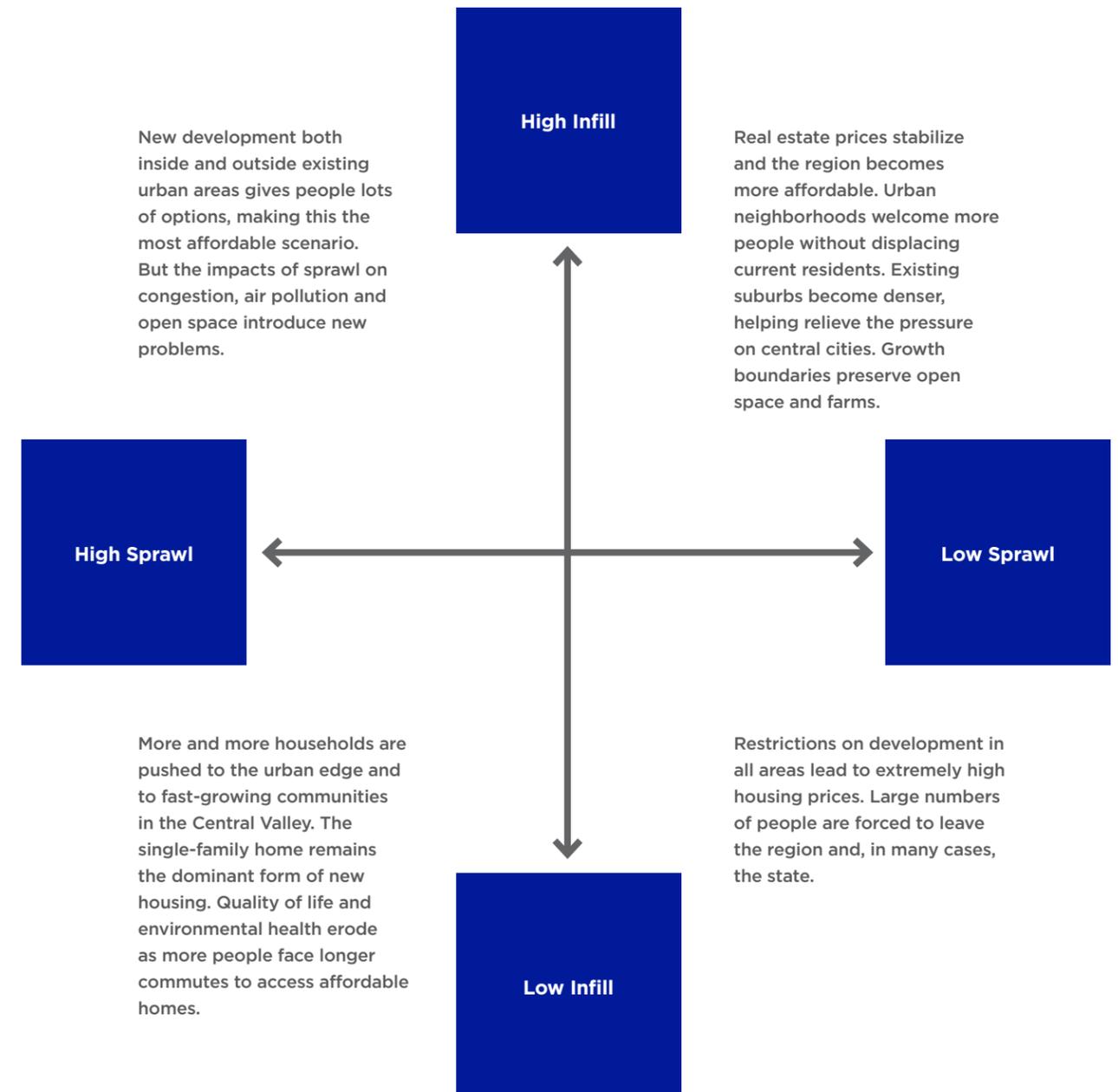
- Will the real estate industry be able to create new neighborhoods or new towns that are walkable and compact?
- How will autonomous vehicles reshape passenger transportation? Will people still own personal vehicles that need to be accommodated in cities? Will AVs encourage people to live further away from the region's core?
- Will shopping malls and other retail spaces remain or go away, creating a new set of opportunities for infill at a large scale?
- Will there be demand to live in downtowns outside of the Bay Area (such as downtown Stockton and Fresno), where the housing market is weaker?

Outcomes that will be shaped by our choices:

- How much population growth will we choose to accommodate?
- Will we allow existing single-family neighborhoods to become denser over time?
- Will we create high-density zones around regional rail stations and add new transit service?
- Will we put in place stronger land protection measures on existing open space and agricultural lands, particularly in the Central Valley?



Four Possible Scenarios for Physical Form



2. External Forces

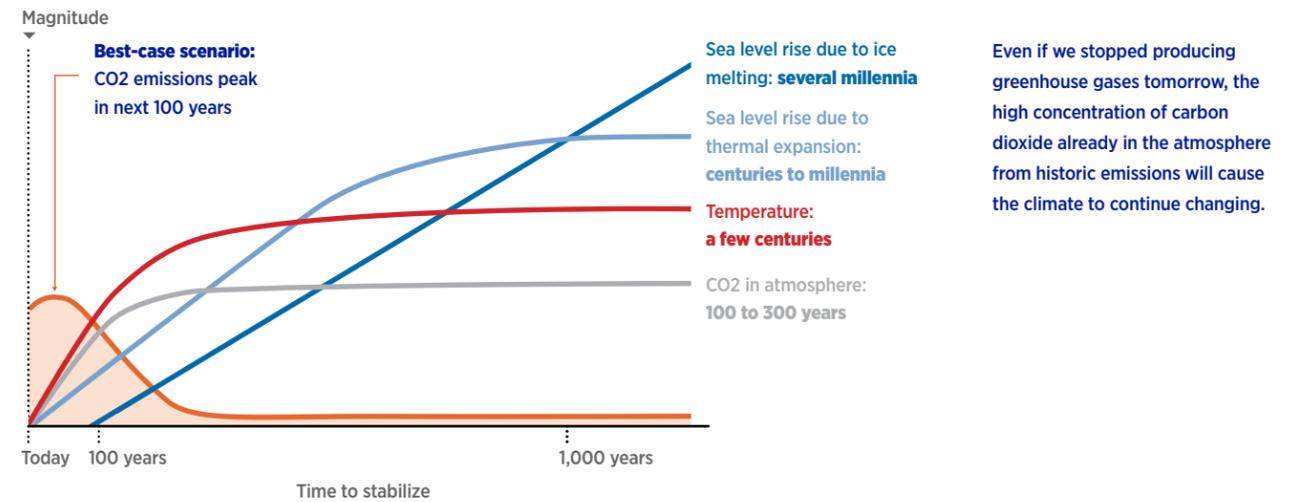


The future of the Bay Area will in part be shaped by environmental and political forces beyond the region's control. These are some of the key forces that SPUR believes will be important.

Climate Change: How severe and how rapid will sea level rise and other impacts be?

All future scenarios have to plan for the impacts of global climate change on the Bay Area. The climate is already changing in measurable ways — including rising sea levels, stronger storms, extreme heat, bigger and more frequent fires, and impacts to water supply — and future escalation of these trends is now unstoppable. Even if we stopped producing greenhouse gases tomorrow, the high concentration of carbon dioxide already in the atmosphere will continue to cause climate change. As a result, we must anticipate its inevitable effects.

FIGURE 6
Climate change is now unstoppable.



Source: SPUR graphic adapted from San Francisco Bay Conservation and Development Commission, *Living with a Rising Bay, 2011*; based on data from Intergovernmental Panel on Climate Change.

While there is great uncertainty about the pace or extent of climate change — largely because it depends on how quickly people stop generating greenhouse gas emissions — we know that the impacts will be severe.

Sea level rise represents a particularly existential threat to coastal cities around the world. Like every urban coastal region on earth, the Bay Area will face choices about where and how we adapt physically. We could build more and higher levees and seawalls, although eventually this will leave us living below sea level, with the potential for catastrophe if levees fail, as in New Orleans.

We could build higher-density development on higher ground, retreating from low-lying land. Today, it seems unlikely that we would ever give up open space in the hills to accommodate housing or be willing to create new development on the water itself — but cultural norms could change.

A scientific consensus holds that we must restore some of the wetlands that once protected land around the Bay from flooding while providing habitat for the region's rich biodiversity. But such an ambitious project has not

been fully funded, and it may not be fully implemented in time to save us and Bay-dependent species from rising sea levels.

The Bay Area's water supply — indeed, most of California's — is dependent on a water conveyance system built a century ago to move Sierra snowmelt to coastal cities.⁷ While investments have been made to shore up its seismic resilience, the system is oversubscribed between farms, the environment and growing cities. It's also subject to drought every year as the state's rainfall and snowpack grow increasingly variable with climate change. The Bay Area has succeeded in conserving water over the last generation, but more must be done to ensure that the population of 2070 has a climate-resilient and sustainable water supply.

How much we prepare for climate change will in large part impact the severity of its effects.

Earthquakes: When and how hard will the “Big One” hit?

There is a 72 percent likelihood of a major quake (6.7 magnitude or greater) on one of the region's faults within the next 25 years. An event this large could cause thousands of injuries and deaths, displace hundreds of thousands of households and trigger losses in the hundreds of billions of dollars.⁸ Many of the lifeline systems that serve the region — such as water, sewer, gas, electricity, internet service, roads and rail networks — are in the process of upgrading their infrastructure for seismic resilience, but in a slow and piecemeal way. Certain types of older housing and mixed-use buildings are disproportionately vulnerable to collapsing in earthquakes and must be retrofitted to ensure occupant safety. But there is no consistent regional policy requiring older buildings and infrastructure systems to become resilient to earthquakes, and there is not much money readily available to make it happen. In any disaster, low-income and marginalized communities are most vulnerable to displacement and the difficulties of recovering from a shock.

The importance of preparing for an earthquake before it happens is not just a matter of preventing damage, injury and loss of life. It is also about putting policies and tools in place now that will help neighborhoods, institutions and businesses recover as quickly as possible after the event. If recovery is not rapid, we risk the kind of population exodus that New Orleans experienced following Hurricane Katrina.

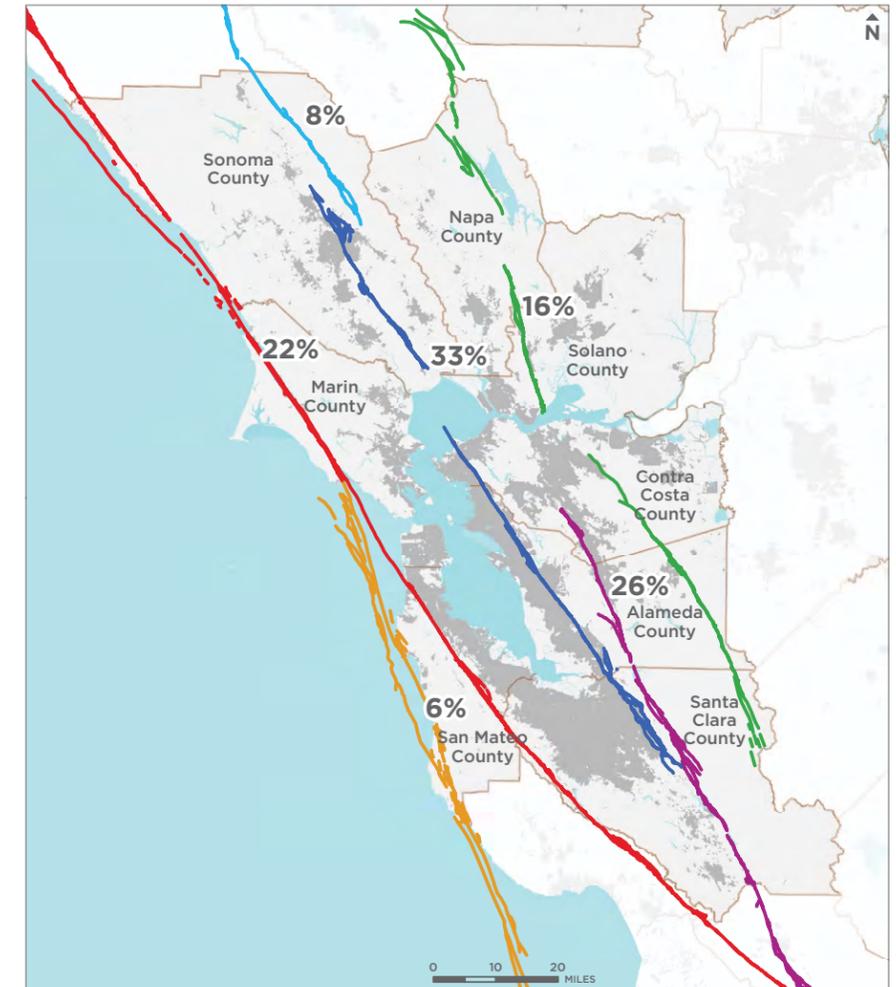
⁷ SPUR, *Future-Proof Water*, 2013, <http://www.spur.org/publications/spur-report/2013-03-18/future-proof-water>

⁸ SPUR, *Defining Resilience*, 2009, <http://www.spur.org/publications/spur-report/2009-02-01/defining-resilience>



FIGURE 7
The Bay Area is likely to experience a major earthquake in the next 25 years.
Probability of an earthquake of 6.7 magnitude or higher on one of the region's major fault lines

There's a 72 percent chance the Bay Area will experience an earthquake with a magnitude of 6.7 or higher by 2043. This probability includes the well-known major plate-boundary faults (shown), lesser-known faults and unknown faults.



Source: SPUR rendering of USGS map for the San Francisco Bay region, <https://pubs.er.usgs.gov/publication/fs20163020>

SPUR has worked over the past decade to define performance standards for different types of buildings and infrastructure, identify how to help residents safely recover from an earthquake and recommend strategies to rebuild transportation systems and plan for land use after the disaster.⁹ Many of these recommendations were developed for San Francisco but can and should be applied to the other cities of the Bay Area. Cities throughout the region must turn their attention to strengthening governance, finding funding, assessing vulnerability and prioritizing seismic retrofits to improve resilience in advance of this foreseeable disaster.

How prepared we are will determine the region's capacity to survive and recover when an earthquake strikes.

⁹ See the series of reports in SPUR's Resilient City initiative, <http://www.spur.org/featured-project/resilient-city>

The Federal Government: Will Washington make decisions that support or weaken the Bay Area?

The role of the federal government is both a constant and a wild card.

Like all U.S. metropolitan regions, the Bay Area has been shaped by policy decisions made at the national level. Racially biased home-lending programs, the construction and expansion of the highway system, subsidized access to affordable flood insurance, the funding of disaster recovery efforts and many other decisions have shaped our physical and social realities. But in the last 30 years, the story of the federal government’s role in urban policy has been largely one of absence. Washington has dramatically reduced funding for affordable housing and transportation across the country and, with a few notable exceptions, has been largely absent from setting policy for adapting to climate change or economic restructuring.

While the federal government’s role in urban policy and physical development has declined, other federal policies still hold enormous influence over many realms of life in the Bay Area — including, immigration, taxation, trade, entitlement programs, fiscal and monetary policy, foreign policy and health care.

The direction the federal government takes is one of the big wild cards affecting the Bay Area between now and 2070. The federal government could become more supportive of cities, either through a revived urban policy (which seems less likely) or through immigration, taxation and trade policies that enable cities to be successful (which seems more possible).

If the federal government continues to withdraw from providing things that cities need, such as infrastructure investment, cities and states will have to self-fund to take care of their own needs. Given the rural bias of the Senate, this challenge could be considerable: If the federal government mainly works to extract wealth from cities to send to rural voting blocs, it will be much harder for urban areas to self-tax to make up for declining federal investment.

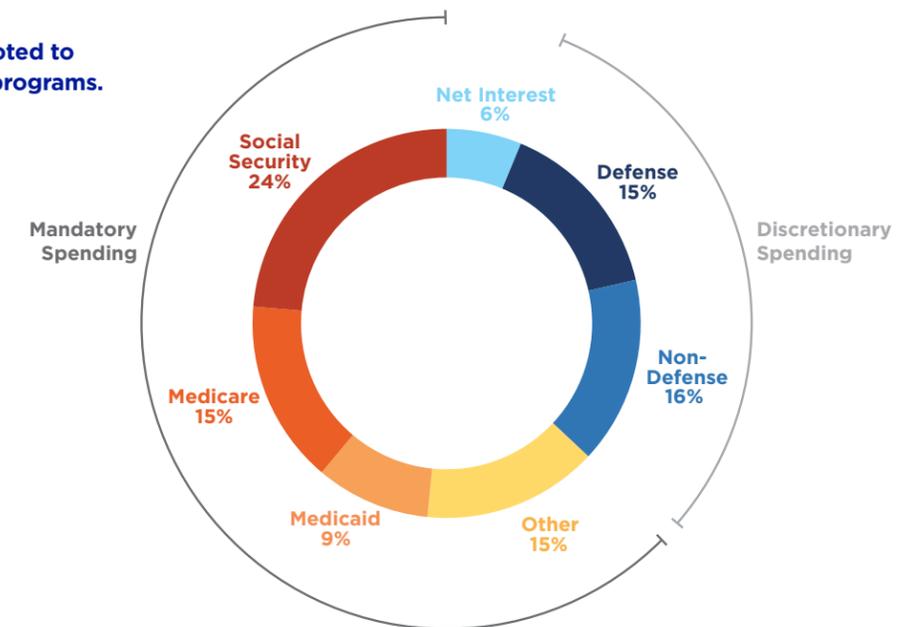
It’s also possible that there could be changes to the federal structure of the United States, perhaps including a “devolution” of responsibility to the states, as some on both the left and the right have advocated. Growing polarization between “Red America” and “Blue America” could lead to increased devolution as a compromise to reduce tensions at the national level.

The Bay Area is not large enough to influence the direction of the federal government, but our options will be greatly affected by its orientation.



FIGURE 8
Most of the federal budget is devoted to mandatory spending on existing programs.
2016 U.S. Federal Budget

Just 16 percent of the federal budget is available for domestic discretionary priorities.



Source: SPUR rendering of Congressional Budget Office's 2016 Budget, <https://www.cbo.gov/sites/default/files/115th-congress-2017-2018/graphic/52408-budgetoverall.pdf>

3. Future Scenarios

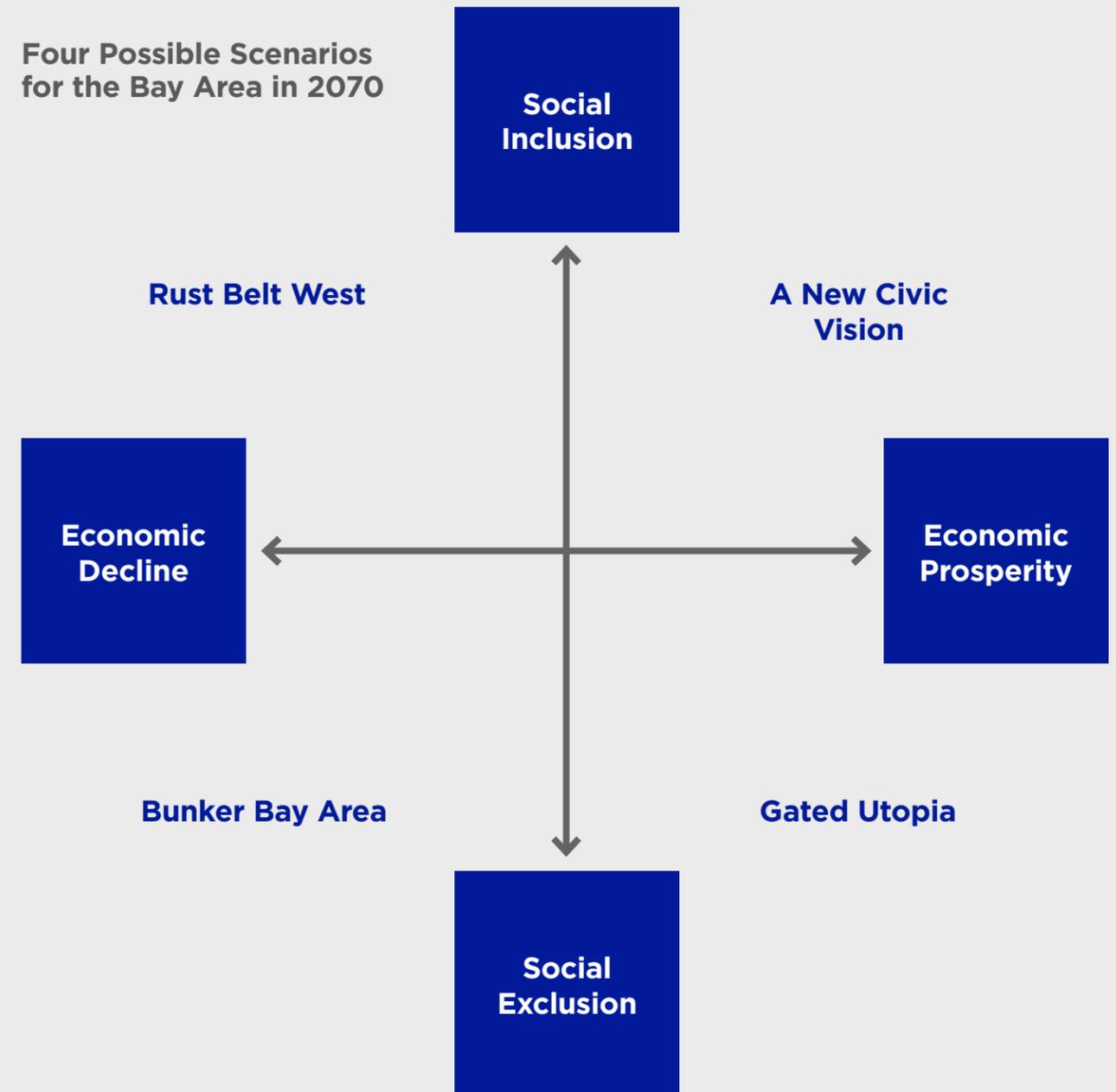


What might life in the Bay Area be like in the year 2070? The following scenarios are “myths of the future” — stories that illustrate how the critical uncertainties explored earlier in this report could interplay with the choices we make as a society. Envisioning a set of different but plausible futures can help us prepare for a wide range of possibilities and show us how the collective choices we make today could play out over time if taken to their logical conclusions.

This chapter organizes the possibilities into two critical questions, resulting in four potential scenarios for the future:

1. Will our era of economic prosperity continue, or will it decline?
2. Will we make the Bay Area more socially inclusive, or will we allow exclusion to grow worse?

Four Possible Scenarios for the Bay Area in 2070





Gated Utopia

Economic Prosperity + Social Exclusion

The Bay Area of 2070 has continued to be an innovation center. A great lifestyle is available — but only for those who can afford it.

In this scenario, life in the Bay Area is good. But our collective choice not to expand the housing supply, nor to make investments in other public forms of social support, has pushed everyone except the wealthy out of the region.

The core of the region is an international metropolis that appeals to the global elite. Many service jobs have been automated, so there are fewer service workers than there once were and most of the working-class population has moved elsewhere to find work.

As a result, the Bay Area has become a racially, economically and culturally homogenous region, having lost its African-American population and most immigrant communities. It is not a place for working- and middle-class families to find housing they can afford.

Public transit is high-quality in urban downtowns, but most residents still take private transit, usually in the form of small autonomous vehicles summoned with an app. Travel is expensive because of permanent congestion pricing, but congestion has largely been solved in the core of the region.

Bay Area schools are good, with the distinction between public and private schools having blurred long ago. Everyone here can get a great education, but everyone who is educated here is already well-off.

Outside the core of the region, it's a different story. Service workers endure long, crowded commutes from a sprawling supercity in the northern San Joaquin Valley that encompasses the formerly separate cities of Tracy, Stockton, Manteca and Modesto. Among its neighborhoods of inexpensive single-family homes, the supercity includes a number of shantytowns and tent cities.

When a severe earthquake hits, the wealthy cities in the core of the region are prepared and rebound, but damage and loss of life hit hard at the urban edge. Core locations are similarly protected from sea level rise, but the impacts of climate change have a long reach: Continually flooded infrastructure at the periphery prevents service workers from accessing jobs, further driving up labor costs in the core.

How We Got Here

The Gated Utopia did not emerge easily. It took great effort to clean up our cities, preserve older buildings and overcome resistance to high taxes in order to finance pristine parks and public spaces. Our civic and business leaders take justifiable pride in the investments we made in public spaces, schools and museums.

The most important decision we made was to allow a minority of people with influence and money to simply take care of themselves. They said, "How can we be expected to solve poverty and inequality when the problems are so great? Our job is to make this place the best it can be for the people like us who live here. We cannot do more than that."

A generation of middle-class people became multimillionaires simply through their luck in having bought houses at the right time. To make sure they hung onto their wealth, they exercised their power to prevent new housing from being built, and they elected leaders who opposed new housing construction.



Bunker Bay Area

Economic Decline + Social Exclusion

The Bay Area of 2070 has balkanized into factions marked by extreme inequality and segregation. Trust between people is low and resources are scarce, making this a high-stress, low-satisfaction way of life for all.

The Bay Area has become a place of declining economic opportunity. Small pockets of wealth in highly manicured, highly protected neighborhoods are surrounded by slums — a pattern of extremes previously seen most often in developing nations.

There is little to no social trust or cohesion. Most people do not know anyone who is of a different class. There are virtually no pathways leading out of poverty. Many low-income people work in the informal economy of illegal products and services.

A large private-security industry protects the wealthy; others must fend for themselves. Underfunded police forces can't keep up with crime and civil unrest. Corruption is common, as are violent crackdowns in restive districts. Teachers are armed.

The dominant architectural form is the gated community. New construction includes fortress-like features by default, and those who live in older neighborhoods retrofit the existing urban fabric with walls, gates and barred windows.

Parks have become shantytowns, and public services are either nonexistent or highly dysfunctional.

An extreme digital divide has created separate transportation systems. Elevated autonomous transit lines that run along converted freeways are carefully protected and expensive to use. Electric passenger drones move constantly overhead, carrying the wealthiest residents. Meanwhile, the poorest residents rely on outdated technologies, including gasoline-powered “ad buses” covered in billboards and video screens, which help fund their operation.

People compare the Bay Area to São Paulo, Mexico City and other major Latin American cities where the poorest and the richest inhabit distinct worlds right on top of one another.

How We Got Here

Our gradual slide into Bunker Bay Area stemmed from a cultural and political shift away from collective problem-solving toward an emphasis on personal liberty. The first signs of this change emerged when our cities were overwhelmed by homelessness. When our systems for providing help failed to keep up with the need, we eventually gave up.

As our focus turned inward, inequality metastasized. More and more of the region's wealth ended up in a small number of hands. The shift was masked for a time by overall economic growth, but eventually there were simply many more people in poverty than not. We began to lose faith that everyone was in it together. Without a sense of shared fate, we abandoned the public realm.

We allowed those with money to control politics, which led to lower taxes and reduced the capacity of the public sector. We didn't retrain people for new jobs or create the social safety net needed to keep up with the pace of economic restructuring.

We came to believe that the pie was not big enough for everyone. We accepted fear as a way of life.



Rust Belt West

Economic Decline + Social Inclusion

Anti-business sentiment has gained ascendency in the Bay Area of 2070, causing companies to leave and the economy to founder. Those who remain fashion an alternative economy but struggle to get their basic needs met.

With the admirable goals of supporting low-income workers and building inclusion, our activist communities took on big business — and won. This significant cultural shift has resulted in a strong sense of social solidarity, but as a result resources have dwindled and quality of life has suffered. Many residents experience an internal conflict: They support the values underlying the new policies but have grown cynical about the realities entailed in living with less.

While the Bay Area actively restricted businesses, other regions were courting them. Silicon Valley firms have moved to Seattle, New York, Austin, Shanghai, Toronto and Berlin. We have high unemployment and little to no new job creation. The Bay Area is no longer where the most highly educated workers choose to make a living; we've become somewhat of an economic backwater. As in Italy, our population grows older as younger people leave to find opportunity elsewhere.

A shrinking tax base has led to continual failures of the pension system and ongoing layoffs. Public-sector labor unions spend most of their time fighting a rearguard action against further job loss. Our scarce public resources are pulled toward an overburdened and politically untouchable social safety net. This means people pay very high taxes but don't get very much in exchange. We are unable to support high levels of investment in transit, education, infrastructure, services and the public realm. Classrooms are overcrowded, BART has stopped running and garbage collection happens every three weeks.

In the absence of capital, we have to get creative. Without new computers and textbooks, teachers have developed hands-on curriculum around urban farming and carpentry. People don't need to travel as far or as often as they used to, so transportation services have become more local: Co-ops run solar-powered jitneys and provide rides on hand-built bikes, scooters and pedicabs. Other needs can't be met as easily. Hospitals are understaffed, and expensive medications are hard to come by. There's a waiting list for non-emergency surgeries.

The physical form of the Bay Area hasn't changed much. There's very little new building, but it's not needed because our jobs and population are not growing. There are a lot of vacant buildings, and even some of our most valuable historic resources are starting to deteriorate.

The desire to prepare for disaster is strong, but funding is never adequate. After an earthquake, even major infrastructure goes unrepaired: Abandoned buildings, freeways and bridges become prominent features of the regional landscape. As sea levels rise and the population declines, chronically flooded areas are abandoned.

How We Got Here

As the home of the American left, the Bay Area became increasingly radicalized. Over time, a series of new regulations made it increasingly difficult for businesses to function. A tax on stock options was so significant that startups had to leave the region before they could go public. Affordable housing requirements became so onerous that developers could no longer raise the investment capital needed to build. As elected leaders competed with each other to show who was the most progressive, important protections for workers were taken too far: Minimum wage eventually grew to \$75 per hour. Local hire laws made it hard to bring in workers from around the world, eventually regulating wages and restricting who could get fired.

The result was a vicious cycle: As companies left, there were no business leaders to contest the policy choices, which over time became more and more extreme.



A New Civic Vision

Economic Prosperity + Social Inclusion

An emphasis on economic growth coupled with a renewed faith in our ability to address collective challenges has driven significant progress toward making the Bay Area of 2070 a place of opportunity for everyone.

In this scenario, the Bay Area has embraced the belief that we can grow the pie *and* divide it more equally. This principle of shared prosperity has led to high levels of investment in social housing, public transit, education and other foundations of an equitable society.

Fast and reliable transit, managed regionwide by a single rail and transit authority, provides the backbone of our transportation system, connecting to the lower-density parts of the region via shared autonomous vehicles, ebikes and new forms of personal transportation. Because we worked to bridge the digital divide, these services are available to everyone.

Our communities are designed to encourage walking and biking. Many neighborhoods have car-free commercial blocks like those found in European cities. Autonomous vehicles and drones deliver some of our goods, but the sidewalks are for people.

We welcome new people and new ideas, which has allowed a dynamic economy to prosper. Over time, some industries have gone away, but new jobs keep emerging as we continue inventing new things.

We have eliminated fossil fuels from our homes, vehicles and industries. Innovation in this area generates a significant export industry; we teach other cities and regions around the world how to build high-performance energy and transportation systems, the same way the Dutch export their water management expertise.

We've embraced infill housing and smaller living spaces, both of which allow more people to afford life in their neighborhoods of choice. We've also pioneered innovations in factory-built housing, making new homes faster and less expensive to build. Housing in new places has avoided the pitfalls of traditional suburban sprawl: Transit has expanded to support well-planned, walkable, bikeable new cities.

The Bay Area is known as a place of upward social mobility and opportunity. There are lots of jobs, and we fill many of them locally through our high-quality public schools and tech training programs. A regionwide minimum wage means people who work in local-serving industries earn enough to live on. Anyone with a full-time job can afford life in the Bay, even if it's not always luxurious.

How We Got Here

The residents of the Bay Area had to make some real sacrifices to bring about this outcome. Realizing that immigration politics were deeply related to housing politics, voters changed course on housing policy, reversing 30 years of neighborhood protectionism and allowing significant new construction.

Residents also voted to raise taxes on themselves repeatedly in order to fund social housing, public schools, public transit and other programs that helped bring about a high quality of life for people regardless of their income level.

People who had become wealthy in business were generous as philanthropists and invested heavily in the region. And businesses worked to develop a new employment bargain that translated the worker protections of the post-World War II era into a modern, flexible form with portable benefits, high investment in training and high wages.

As a result, the Bay Area population is much larger than people ever imagined was possible. It serves as a model of what a sustainable, prosperous, socially just metropolis can look like.

Conclusion

Which future scenario is most likely to play out in the Bay Area? It all depends on the collective choices that those who live and work here make in the coming years.

Our region today has so much going for it: A diverse and open culture that embraces many kinds of innovation. A highly educated population. A network of walkable urban neighborhoods and fine old buildings. Beautiful natural scenery and iconic landmarks that make it famous around the world. And, of course, a powerful economic engine that generates new ideas, new companies and new jobs with seemingly limitless potential.

But the tremendous success of the Bay Area economy has had unintended consequences. We have not grown the region’s physical form — especially housing stock and transportation capacity — at the same pace we have grown our economy. High housing costs are pushing people to the edges of the region and commutes are becoming untenable. Homelessness is overwhelming public life and services. If left unaddressed, these forces could take the region down a path of extreme inequality and, eventually, economic decline.

It’s not too late to correct course, but doing so requires us to think deeply about how we got here — the decisions, chains of events and values that led to our current situation. By exploring several possible futures, we can better understand the outcomes of the decisions we make today and use that foresight to shape a better tomorrow for all of us who call the region home.

As it moves forward, the SPUR Regional Strategy will apply this exploration of future scenarios to researching and developing recommendations that can set the Bay Area on a path to an economically strong, socially just and environmentally sustainable future.



Ideas + action for a better city

SPUR promotes good planning and good government through research, education and advocacy.

We are a member-supported nonprofit organization. Join us.

www.spur.org

SPUR

654 Mission Street
San Francisco, CA 94105
tel. 415.781.8726
info@spur.org

76 South First Street
San Jose, CA 95113
tel. 408.638.0083
infosj@spur.org

1544 Broadway
Oakland CA, 94612
tel. 510.827.1900
infooakland@spur.org

