SPECIAL ANALYSIS

Strengthening the Bay Area's regional governance

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Much of what makes Silicon Valley and the overall nine-county Bay Area a great place to live and work is the result of regional decisions. Over half a century ago, leaders in the Bay Area looked to the future and made choices involving tradeoffs and sacrifices.

[1] Special thanks to Joshua Karlin-Resnick for research and writing support on this report.

We protected large areas of open space ringing our communities and limited development along the coast. We saved the Bay from being turned into a narrow shipping channel with urban development spreading onto newly reclaimed land. We built BART to connect people in emerging suburbs to the urban core and saved Caltrain when it was threatened with extinction. Imagine the Bay Area today without dedicated open space ringing the Bay, a BART and Caltrain system that may soon carry half a million riders daily, or with a virtually nonexistent Bay, replaced by subdivisions and office parks.

For many of these regional victories we also established a new governance institution to address these issues in perpetuity. The Golden Gate National Recreation Area manages land in three counties. The Bay Conservation and Development Commission (BCDC) manages issues of growth along the Bay shoreline. BART is an agency with an elected board that is responsible for building and maintaining a rail system in four and soon five counties. The Peninsula Joint Powers Board owns and operates Caltrain across three counties.

As we look to the future, there are new and lingering challenges we must address. In fact, some of the biggest threats to the Bay Area's long-term economic competitiveness are challenges best addressed through stronger or more effective regional governance.

- *Overall job growth is constrained by limited housing production, as many individual jurisdictions do not view housing growth in their self-interest.*
- *Highway congestion results because jobs are scattered throughout the region, often far from transit.*
- *Tax receipts are highly unequal between neighboring jurisdictions even though residents in one town work in the next.*
- *For transit riders, navigating a regional system with 27 individual operators and dozens of different fares is difficult. Transformative infrastructure like high-speed rail is stymied by a myriad of local concerns. Thousands ride private shuttles daily to sites throughout Silicon Valley in part because there is no viable transit alternative.*
- *And the growing reality of climate change threatens much of Silicon Valley's economic health through risks from flooding, rising tides and storm surges. Key pieces of regional infrastructure such as airports and ports are also threatened. New York and New Jersey's experience with storm surges from Hurricane Sandy demonstrates both the significant economic consequences of such storms as well as the urgency of developing a regional response.*

While many of the Bay Area's 100-plus local cities and nine counties are trying to respond to these important issues, they are not capable of solving them alone. Quite simply, jobs, housing, transit and climate change are regional challenges. By definition, regional issues require regional solutions.

Failing to address these regional problems means risking the Bay Area's economic standing globally. We face increasing competition. Places like Singapore, Shanghai, Vancouver, and São Paolo are not just cities but city-regions that are acting and working regionally. Within the United States, Portland and Minneapolis have long been held up as models for better regionalism. What can we learn from these places and other metropolitan areas? What are the risks of not working regionally?

This year's Special Analysis asks and explores the following questions: "What major regional issues could threaten our economic success?" and "How is our current system of governance inadequate to respond to these threats?"

Why regions matter

Regions are the scale where we compete globally. The ingredients for successful economic development are found at the scale of a region – access to labor, education, innovation, finance, housing, specialized infrastructure and quality of life. When these inputs are strong, the region's industry clusters thrive and grow.

Successful regions give residents more opportunities. We are living in an era of increasing divergence among regions. Those who live in economically prosperous regions earn significantly higher wages than those who live in struggling regions. Geography in fact matters more than education. A high school graduate in San Jose earns 60 percent more than a college graduate in Flint.[2]

Maintaining a successful region requires smart decisions at all levels. Maintaining a strong region requires coordination of major systems – like transportation and natural resources – that cut across jurisdictional boundaries. Planning and preserving key corridors for highways, rail lines, power lines, water pipes and goods movement requires effective regional planning. So too does planning to maintain and preserve natural systems like shorelines, waterways, habitats and air basins. Resources like food, energy and water are also generated and supplied regionally.

[2] Moretti, Enrico. "The New Geography of Jobs." Presentation at SPUR Urban Center. November 14, 2012.

At a local level and without intention, cities often thwart regional competitiveness. For example, when cities decide to restrict or curtail the growth in housing, prices rise, workers are forced into long commutes and the region suffers with higher prices, more traffic and demands to build new infrastructure to connect workers to their more remote jobs. Over time, high housing costs act as an overall deterrent to job growth and can dim a region's economic prospects.

The Bay Area's fragmented system of governance

Throughout the Bay Area there are 101 incorporated cities and towns,[3] numerous special-purpose agencies, 27 transit operators, nine counties and more than a dozen regional agencies for air, water, open space and other functions.

Each of the regional agencies with a multi-jurisdictional purview has a single or narrow purpose. The Bay Area has no unifying regional government entity whose role is to integrate and balance among sometimes competing values. Instead, our single purpose agencies specialize in specific areas – like improving air quality or limiting coastal development. While born from different moments, these regional agencies were designed to be limited in scope and emphasis and might not have succeeded were they to have begun with a broader focus from their outset.

The following are the key single purpose regional agencies in the Bay Area:

- *The Metropolitan Transportation Commission (MTC) manages and funds regional transportation projects and oversees most of the region's bridges. The 21-person board includes 16 voting members selected by elected officials within each county, two voting members representing BCDC and ABAG respectively and three non-voting members representing specific state and federal agencies.[4] As of January 2013, the board includes representatives selected by the Mayors of Oakland and San Jose, marking MTC's first change in governance in 42 years.*
- *The Association of Bay Area Governments (ABAG) produces a regional and local growth forecast for jobs, population and housing and performs long-range land-use planning. Its 38-member Executive board is appointed locally, with 35 members proportionally reflecting city and county populations.*
- *The Bay Area Air Quality Management District (BAAQMD) regulates air quality and emissions. Started by the legislature in 1955, it was the first regional pollution-control board in the country.[5] Its 22-member board is roughly proportional by County population and selected within each county.*
- *The Bay Conservation and Development Commission (BCDC) issues permits for filling, dredging, and changes in use around and within the San Francisco Bay. Former by legislation passed in 1965, its current jurisdiction extends 100 feet inland of the shoreline. Its 27-member board includes a mix of appointees from the State, counties and ABAG.[6]*
- *The San Francisco Bay Area Regional Water Quality Control Board is a state agency charged with protecting natural water systems and regulates discharges to the water system (like the Bay and ocean). The Governor appoints its board.[7]*
- *The California Coastal Commission works with local cities and counties to help plan and regulates the use of land directly along the Pacific Coast (ranging from several hundred feet to the first public road). State officials appoint its 15-person board (12 voting) and its 12 voting members including six from the general public and six who are locally elected officials.[8]*

The Bay Area regional governance structure has long put locally elected officials in charge of nearly all major regional decisions, in part due to concerns that a regional agency will make decisions against the interests of local governments. MTC, ABAG, BCDC and the Air District consist primarily of locally elected officials – County Supervisors, City Councilmembers and Mayors. While many of the locally elected officials on regional bodies understand the need for regional action, they are often skeptical of giving more authority to the regional agency to respond more forcefully. As a result, our existing regional agencies have limited authority that is often contested.

Individually, all the regional agencies have some authority to say "No," such as denying an additional permit (in the case of BCDC or the Air District) or limiting funding for a particular transportation project (in the case of MTC). But they have limited authority or impact to say, "Yes," or to proactively solve major regional challenges.

When the existing regional agencies were established, many expected that they might be able to move beyond their limited focus to deal with multiple regional challenges.[9] Over the years there have been many proposals and near mergers of some of the regional agencies.[10]

[3] See: http://www.abag.ca.gov/abag/local_gov/city/city.html
[4] See: http://www.mtc.ca.gov/about_mtc/about.htm
[5] See: http://www.baaqmd.gov/The-Air-District.aspx
[6] See: http://www.bcdc.ca.gov/permits/faqs.shtml
[7] See: http://www.waterboards.ca.gov/sanfranciscobay/about_us/board_members.shtml
[8] See: http://www.coastal.ca.gov/roster.html
[9] Bodovitz, Joseph E. Bay Area Regionalism: Can We Get There? September 2003. Available at: http://www.spur.org/publications/library/article/bayarearegionalism09012003
[10] The closest perhaps was Bay Vision 2020 that proposed merging MTC, ABAG and the Air District as an initial step toward a fully comprehensive regional agency. Despite great civic and political leadership (including State Senator Rebecca Morgan who introduced the bill), it died in the final day of the legislative session in 1992, two Senate votes short of final passage.

In the wake of failures in the 1990s for stronger regionalism, members of the boards of MTC, ABAG, BCDC and the Air District began meeting together bimonthly in 2004 at a "Joint Policy Committee" where board members and executive staff from these four regional agencies talk about overlapping issues.[11] But this "Joint Policy Committee" has no authority to prohibit or mandate anything collectively.

Senate Bill 375, passed in 2008, holds promise for better regional planning. By requiring the region's long-range transportation plan to have a land use component and to demonstrate how the region can grow in a way that reduces pollution from driving, it forces greater collaboration between ABAG, MTC and other regional agencies. But, while it implies the need to target transportation funds in ways that best reduce driving, it makes no changes to existing governance of single-purpose regional agencies and includes no requirement that local governments change local zoning to support regional goals.

Ultimately, the Bay Area today lacks an effective way to integrate land use planning, transportation, natural-resource protection, air quality and climate change adaptation. There is no entity that balances these goals, no plan that proposes solutions that cut across these issues and no new powers that trump the single-purpose goals of the existing institutions. The process to produce Plan Bay Area, the Bay Area's combined Sustainable Communities Strategy and Regional Transportation Plan, is an important step towards conceptually integrating these various concerns and posing the key tradeoffs.[12] Achieving a more concentrated development pattern that reduces greenhouse gas emissions may require the creation of a new comprehensive regional entity with new powers and a mandate to integrate land use, transportation, air quality and climate change.

But this long-proposed goal of a single comprehensive regional entity is only one potential solution to the region's governance. Understanding today's big regional challenges in more detail may yield other options that were not considered in prior efforts at regional reform.

What are key regional issues for Silicon Valley as part of the Bay Area region?

Many of the historical challenges of transportation and housing remain as key regional issues. But there are newer and different issues emerging today that were less prominent in prior efforts at regional reform. This analysis highlights five key regional issues that threaten long-term competitiveness and regional performance:

- *Job sprawl;*
- *Limited housing production;*
- *Competition for tax revenues and resulting fiscal inequities and among jurisdictions;*
- *Fragmented regional transit service with limited coordination;*
- *Lack of preparation to respond to inevitable consequences of climate change.*

There are numerous other issues of regional concern, each reflective of an inadequate governance system. These include preparing for a major earthquake and drafting a long-term recovery plan post-event, identifying sufficient supply of drinking water for the region's future needs, or ensuring that the region's three major airports remain fiscally strong and can effectively manage demand among them to reduce crowding and delays.

The five issues we selected are challenges with solutions from other regions that point a possible way forward for the Bay Area. Solving them requires collaboration across jurisdictions or separate institutions. Addressing them will strengthen the region's economic competitiveness; ignoring them will threaten it.

Issue 1: Jobs are sprawling in a decentralized pattern with too few adjacent to reliable transit.

During the post WWII years – when regional planning laid the groundwork for our great regional victories around transportation and open space – *jobs were more heavily concentrated in fewer centers.* San Francisco alone accounted for 30 percent of the Bay Area's jobs in 1960.[13] Today it is about 16 percent.

Increasingly, jobs are spreading out and existing centers and transit areas are not capturing a big share of the growth. While the decades since 1960 coincide with the rise of Silicon Valley and the boom in jobs in Santa Clara County, the pattern of those jobs was a shift from the past. Most new employment took place in emerging office parks and corporate campuses with easy access to freeways and suburban arterials.

[11] See: http://www.abag.ca.gov/jointpolicy/
[12] See: http://onebayarea.org/regional-initiatives/plan-bay-area.html
[13] Terplan, Egon et al. (2009). *The Future of Downtown San Francisco: Bringing work back to the city.* Available at:http://www.spur.org/files/event-attachments/SPUR_The_Future_of_Downtown_San_Francisco.pdf

Today, three quarters of the region's jobs are within half a mile of a freeway off-ramp. Less than a quarter are within half a mile of the region's 88 rail stations (a geography that includes nearly every major downtown in the South and East Bay. Even when including frequent bus service in the analysis, only half of jobs are accessible with transit. Fewer are accessible from transit in leading industries like IT and biotech (35 and 27 percent respectively).[14]

What are the key trends?

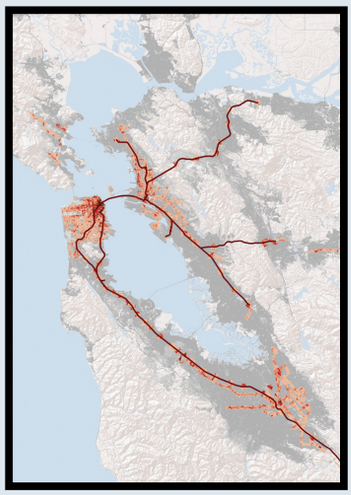
- *Job densities in California are declining, even as residential densities increase.*[15]
- *Downtowns in San Jose, Oakland and San Francisco represent a declining share of regional employment.*[16]
- *The region's transit core in all cities is declining in employment*
- *The region's transit core in all cities is declining in employment share. Priority Development Areas (PDAs), locally identified places that include minimal regional transit nodes, declined from 53 percent of regional jobs in 1990, to 48 percent in 2010.*[17]
- *Less than 50 percent of all jobs are currently even accessible from regional rail or high frequency bus or light rail stations.* (Figure 1)
- *Transit ridership began to decline in 1960 from over 15 percent of commute trips to approximately 9 percent in 1990. Since then it has increased only slightly to less than 11 percent of all commute trips.*[18]
- *While just over one quarter of all office building square footage (28 percent) is within a half-mile of rail, well over 80 percent is within a few miles.* (Figure 2)
- *Many jobs have located adjacent to highways, many of which were built in recent decades with local or regional funds and support. The millions of square feet of office development bordering 101 or in office parks like Bishop Ranch is evidence of this phenomenon.*

Yet face-to-face interaction that can occur naturally in denser work settings is increasingly recognized as important for the process of innovation.[19] And densities are much greater in traditional downtown areas near transit than in newer less transit-oriented job centers and office parks.

As the Bay Area's embraces transit-oriented development (TOD), it is increasingly clear that TOD needs more jobs near transit, not just homes. Studies show that people are most likely to take transit to work if their job is immediately accessible from transit, even if they live further away from transit.[20]

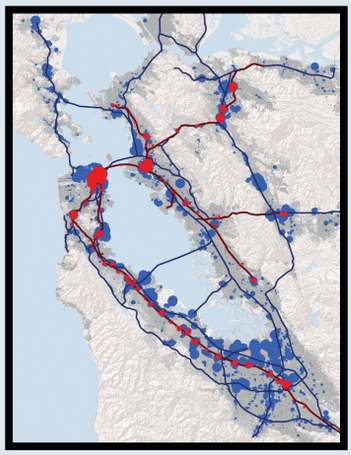
Further, we design our transportation systems to meet the peak demand. The "peak" takes place at the commute period in the morning or afternoon. If jobs are scattered and too few people take transit to work, there is pressure to add additional lanes on highways and arterials to accommodate the increased demand. Adding new roadway capacity and lanes is costly and has proven counterproductive. Numerous studies show that increased road capacity leads to more people initially driving on the new lanes which over time results actually in more congestion on the overall system, not less.[21]

Figure 1 : **Jobs Near Transit**



Less than half of regional jobs are within a half mile of regional transit and a quarter mile of frequent local transit.

Figure 2 : **Office Space Near Transit**



Although only 28% of the region's office space is within a half mile of rail, most jobs are at most a few miles from rail stations.

Maps produced by Mark Shorett for SPUR

Regional governance takeaway: *The location of jobs is a matter of regional concern given its impact on congestion, air quality and the long-term economic vitality. Yet the region has attempted few mechanisms to encourage employers to locate near transit or existing downtowns or to bring new transit to existing dense or densifying job centers. Taking on this issue will require cooperation among cities, transit operators and regional agencies, as well as leadership from public and private employers.*

[14] Reconnecting America, unpublished research as part of "Moving to Work" analysis.
[15] Kolko, Jed. (2011). *Making the Most of Transit: Density, Employment Growth, and Ridership around New Stations.* Available at: http://www.ppic.org/content/pubs/report/R_211JKR.pdf
[16] Terplan, Egon (2009). "Job Sprawl in the Megaregion." *Urbanist.* http://www.spur.org/publications/library/article/job_sprawl_megaregion
[17] See: OneBayArea, "SCS Alternative Land Use Scenarios."
[18] Source: US Census Bureau and Metropolitan Transportation Commission, http://www.mtc.ca.gov/maps_and_data/datamart/census/dp234/Means19602000.htm
[19] See: http://www.spur.org/urbanwork
[20] See: Kolko, Jed. (2011) http://www.ppic.org/content/pubs/report/r_211jkr.pdf and Barnes, Gary. (2005) http://nctr.usf.edu/jpt/pdf/JPT%208-2%20Barnes.pdf
[21] For further research on iinduced demandî, see Todd Litmanís work at the Victoria Transport Policy Institute, including:

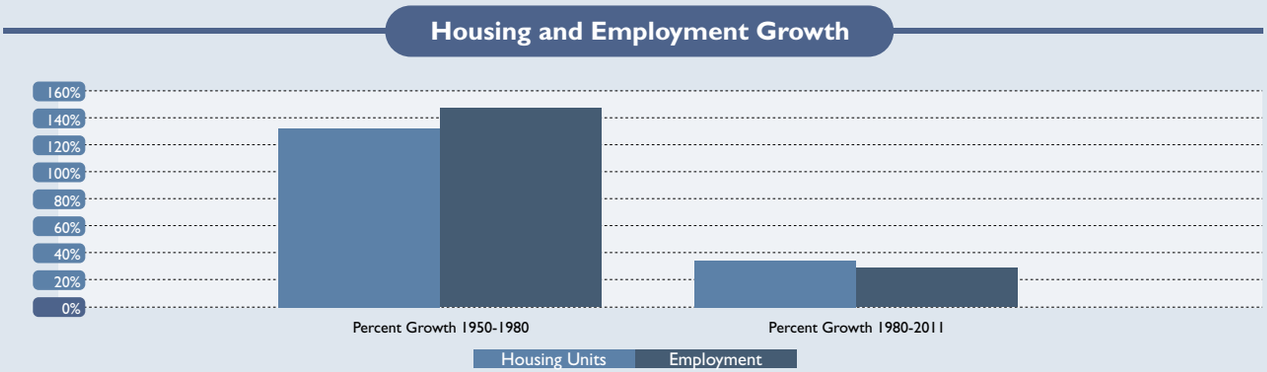
Issue 2: The region needs more overall housing production to remain economically competitive while many jurisdictions choose to limit approval of new housing with little consideration to the regional economic, fiscal and travel consequences.

Over the past several decades housing prices have continued to escalate, making it harder for new people to enter the housing market and putting upward pressure on wages. As such, housing costs act as a drag on overall economic growth as employers must pay higher wages to keep employees, even if their productivity does not match the wage levels. The recent reset of housing prices has not resulted in prices being affordable to the average housing seeker in many places. Just 35 percent of Bay Area residents could afford a house priced at the region's median level at the end of 2012.[22]

This was not always the case in the Bay Area.

From 1950 to 1980, the region added 1.1 million housing units, or about 40,000 per year. Homes were widely available and affordable to the burgeoning middle class. Then, from 1980 to 2010, growth slowed to about 24,000 units per year.

Job growth also slowed after 1980 even as home prices continued to increase dramatically. Prior to 1980, the region added 50,000 jobs per year. Since 1980, that figure dropped in half.



Source: SPUR analysis and mapping, data from ABAG

How does this relate to regional planning and governance?

Quite simply, there is a mismatch between where the homes are built and where the jobs are located. In recent years, housing prices dropped at the region's edges and in communities that are most supportive of new housing (particularly in Eastern Contra Costa and Solano Counties). In contrast, housing prices in San Francisco and the Peninsula are generally even higher today in these strong job market areas where there was little new supply in housing over many years.

So the issue is not only one of the region not adding enough new homes to support a growing economy, but also the fact that too few homes were built where job growth was strongest. The irony is that the places with the strongest job growth are historically least supportive of significant new housing production.

The one system designed to sort out how much housing each jurisdiction should approve (called the "Regional Housing Needs Allocation" process) is often contentious in local politics. Some communities have voted to leave ABAG, the regional agency that administers it.23 At times, jurisdictions are taken to court for failing to fulfill their commitments under RHNA and State Housing Law, including the City of Pleasanton for having a housing cap and Menlo Park for not having updated its housing element in twenty years.24

> **Regional governance takeaway:** *Home rule gives each community the right to say no – or yes. But the lack of effective regional governance around housing means we get too few homes overall or where they are most needed, and homes have little relationship to job centers. We get "drive until you qualify" and megacommutes for those seeking affordably priced homes. And we get boom and bust residential prices that drag down whole communities when the cycle shifts.*

[5] California Board of Equalization

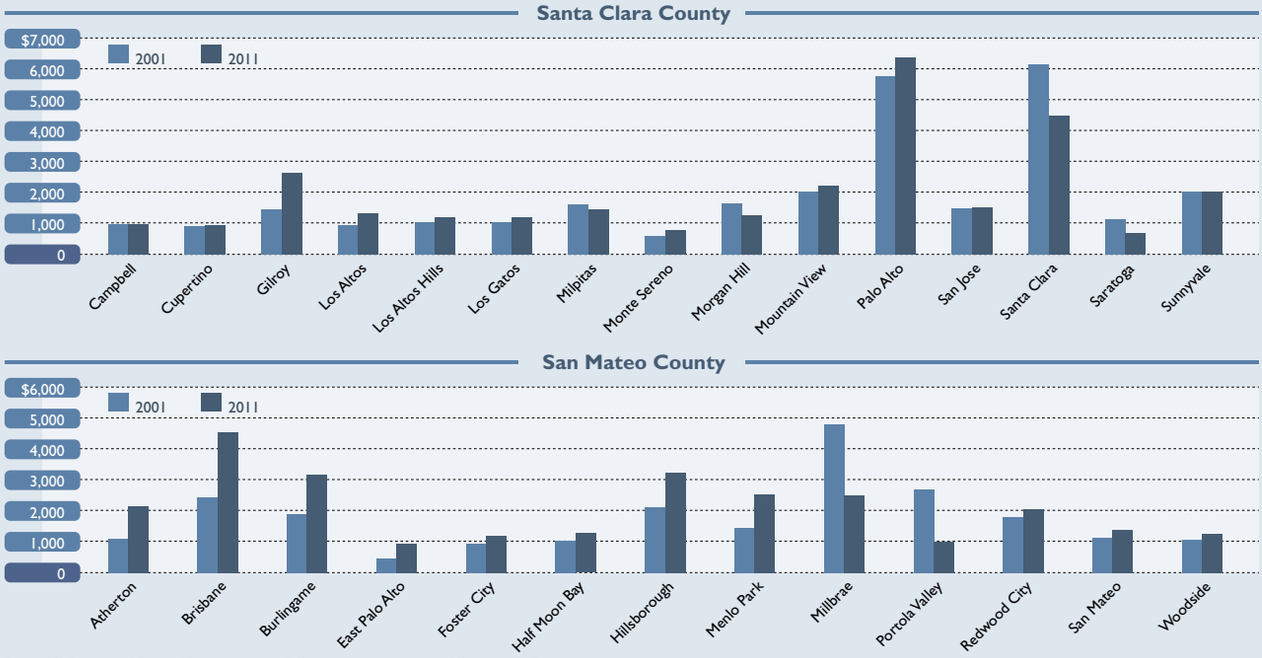
Issue 3: Fiscal inequity among cities results in competition for taxes, primarily from sales and commercial property and disparity in services.

Local government reaps more fiscal benefits from job growth than housing production. Many cities within Silicon Valley promote and attract commercial development and at times do not permit new housing in or near job districts. This restricts the market from providing the housing that is demanded.

When one community in Silicon Valley does not add housing to match nearby job growth, the homes do go somewhere. As noted earlier, often this is further away or in the faster growing cities like San Jose.

But even with evidence that higher density residential development brings in significant revenue,[25] housing does not provide as much in funding to local government as jobs or retail uses and local residents expect more in local services than do workers. As a result, housing-rich cities like San Jose are more cash-strapped than some of their neighbors. For example, Palo Alto has about two and a half jobs per employed resident while San Jose has 0.85 jobs per employed residents. Yet both cities are a part of the same labor market and essentially one housing market. The fiscal outcome of the location of jobs relative to homes is quite stark.

Total Revenues per Capita



Source: SPUR analysis of Board of Equalization and US Census data, data courtesy of Collaborative Economics

Sales taxes also reflect divergence among cities. Sales taxes per capita in 2011 were $25 in Redwood City, $102 in Fremont, $130 in Sunnyvale and $250 in Menlo Park. Cities that successfully pursue increasing amounts of retail development – particularly high-end retail – capture a larger share of retail sales relative to their neighbors. This approach has been long dubbed "the fiscalization of land use" as cities often make land use decisions to maximize revenues (more retail that brings revenues and less housing that has demand for local services). This approach also fails to acknowledge negative externalities such as the traffic and road impacts of a retail development in one city on a neighboring jurisdiction.

Differences among tax revenues also has a particular impact on education funding since the cities that add housing are also the ones with greater demand for schools. Fees stacked on top of new housing development to pay for such services can also make it more difficult to build housing in the new areas, leading to less overall housing production, a key regional issue.

> **Regional governance takeaway:** *The winner-take-all approach to local tax revenues results in fiscal and service disparity among cities. It also undermines regional or subregional cooperation and can lead to inefficient land use outcomes, particularly the oversupply of retail in auto-oriented settings. Fees levied to maintain local services increases housing costs and further harms development opportunities in places where additional development might be most needed.*

[25] Belzer, Dena. Data from Grand Boulevard Initiative. Presentation from November 28, 2012. Available at: http://www.spur.org/files/event-attachments/Grand%20Boulevard.Dena%20Belzer.pdf

Issue 4: The region's 27 different transit agencies are uncoordinated and riders have a difficult time navigating this fragmented system.

The Bay Area has an extensive transit system with 3,200 buses, 1,200 rail cars, and 1,200 miles of rail.[26] Each day, the region's transit operators carry 1.4 million trips, compared with 17 million daily automobile trips in the region.

Yet the Bay Area's transit system is more fragmented than transit systems in similarly sized metropolitan areas around the country. The "system" is really 27 separate and poorly coordinated agencies, leading to inefficient duplication of some services and fragmentation across jurisdictional lines. Of those 27 systems, seven (BART, Muni, Caltrain, SamTrans, AC Transit, Golden Gate and VTA) account for 93 percent of all riders with the largest operator being Muni.

Ridership Fragmentation

Region	Total Ridership (2008)[27]	Total Operators[28]	Largest Name Operator	Largest Operator[29]	Regional Cost per Rider
Bay Area	484,000,000	28	SFMTA	47%	$.95
Philadelphia	358,000,000	5	SEPTA	95%	.58
Washington, DC	476,000,000	12	WMATA	89%	.53
Chicago	628,000,000	15	CTA	84%	.58
New York City	4,077,000,000	37	MTA	82%	.49
Los Angeles	640,000,000	20	LACTA	74%	.64
Seattle	189,000,000	9	King County Metro	65%	1.03

Source: SPUR analysis and mapping, data from MTC

Compared to the transit systems of other metropolitan areas the Bay Area's largest operator carries a far smaller share of passengers. In other regions with similar yearly ridership, the biggest operator carries upwards of 85 percent of users. The costs per rider of the seven biggest Bay Area operators is nearly double that of similar regions.

This will be an increasingly critical issue given the growing fiscal crisis in transit, with agencies across the country facing quickly increasing capital and operating costs. The Bay Area operators are projected to face a combined $17 billion capital deficit and an $8 billion operating deficit by 2035.[30] Some agencies, with sizable and stable sales-tax funding schemes, are better prepared to weather this storm than others, who rely on government transfers or farebox revenues for an outsize portion of their budgets. Every budget cycle, Caltrain in particular is vulnerable to the vagaries of the financial situations of its three voluntarily contributing agencies, which supply about a third of the commuter service's operating funds.[31] The service lacks a dedicated source of revenue such as from sales taxes.

Riders have trouble navigating the region's fragmented system with uncoordinated schedules, distinct fares. Despite a lot of transit, the fragmentation of the Bay Area's system makes it much harder for riders to navigate and results in less ridership.

[26] MTC TSP 2/13/12 Meeting Packet, Slide 34
[27] TSP Findings, April 11, 2012, page 10.
[28] TSP Findings, April 11, 2012, page 10.
[29] NTD Reports, 2008.
[30] See Slide 3: http://apps.mtc.ca.gov/meeting_packet_documents/agenda_1615/3-b_Select_Comm_Feb_Presentation.pdf
[31] This potion of Caltrain funding comes from Santa Clara County's VTA, San Mateo's SamTrans and San Francisco's MTA.

Forty-nine percent of Bay Area commuters cross a county line to get to work,[32] but potential long-distance transit commuters face a number of barriers in the Bay Area:

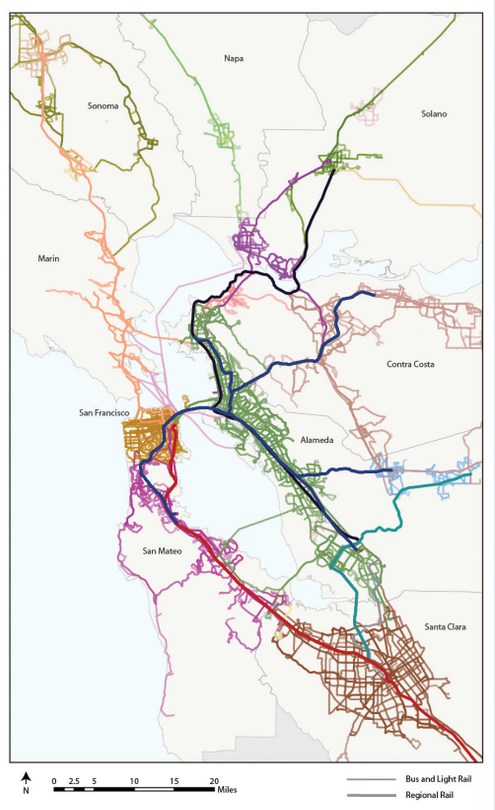
- *Uncoordinated schedules: Arrivals and departures at cross-system transfer stations are not well coordinated, often leading to longer-than-necessary wait times.*
- *Inconsistent fare policies: Rides of similar distances can have dramatically different prices. For example, the 40-mile ride from Fremont to San Francisco on BART costs $5.65. The similar-length ride from Oakland to Palo Alto, on BART and Caltrain, costs $9.80, or almost twice as much.*[33]
- *Disparate information: Though public-sector efforts like 511.org and private-sector technology solutions like Google Maps have made trip planning easier in recent years, riders who want to navigate or find service information for multiple systems often must go to several websites or subscribe to several alerts.*
- *Varied customer experiences: Each system has different route-naming conventions, map and signage styles, and brands.*

A technology worker's theoretical transit commute from San Francisco to the SR-237 corridor, the heart of the Silicon Valley, illustrates how critical these problems can be. The fastest such trip can include transfers between four different transit systems. Given the issues outlined above, it is easy to understand why many workers drive alone to work and why technology companies feel the need to provide private commuter shuttles to try to minimize such behavior.

Additional issues rooted in the system's fragmentation, like the complicated and expensive trip between Caltrain and the San Francisco Airport on BART, add to these issues.

Regional governance takeaway: *The Bay Area is far less easy to navigate as a transit rider than comparable regions nationally. But this is not the result of insufficient transit. It is because the system lacks unified financing, planning, fares or mapping, all changes that are possible with different governance.*

The Bay Area's fragmented transit network



Source: SPUR analysis and mapping, data from MTC

The experience of traversing the Bay Area on transit is limited by the fragmented structure of 27 separate transit operators. Although half of commuters cross a county boundary for work each day, transit fares, schedules and maps are not coordinated across operators. For example, taking a bus between Santa Clara and San Mateo Counties along El Camino Real requires two fares as well as a wait and a transfer in Palo Alto just because of the boundary between two different transit operators.

[32] Bay Area Council Economic Institute. The Bay Area: A Regional Economic Assessment. October 2012. Page 23.
[33] Rockridge to Millbrae plus Millbrae to Palo Alto: $9.80. Fremont to Montgomery Street: $5.65. Fare sources: www.bart.gov (retrieved 11/16/12) and www.caltrain.org (retrieved 11/16/12).

Issue 5: Climate change's most direct impact on the Bay Area will be from flooding and sea level rise.

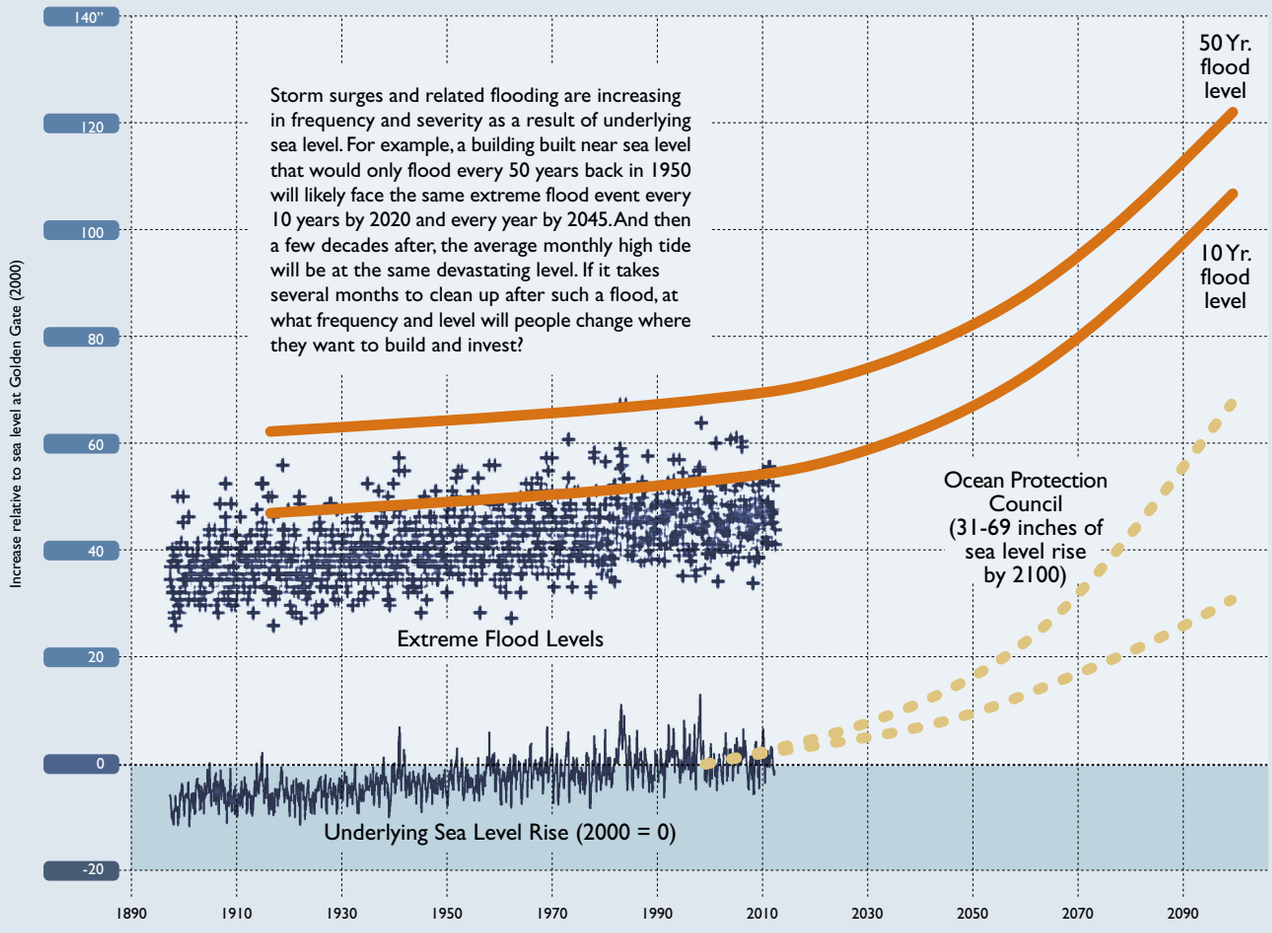
For the Bay Area, climate change will bring rising tides and seas as well as more frequent major storms that will produce significant flooding.

Sea levels are predicted to rise, no matter what we do to curb emissions. Some experts estimate that sea levels will rise 16 inches by 2050 and 55 inches by 2100, while others peg increases at 6 to 9 meters by the end of the century. Measurements from the Golden Gate show that rising waters have already been a trend for 50 to 100 years.

Sea level rise is compounded by a reality of more frequent storms. More frequent storms means additional rains. Given that 40 percent of California's land drains into the San Francisco Bay, storm floods last longer here than in higher elevation places. With a major storm during high tide, the region's natural water armaments will not be enough to hold rushing waters away from thousands of homes and jobs as well as major pieces of critical infrastructure.

In short, the 50-year flood could become a yearly event in 2050.

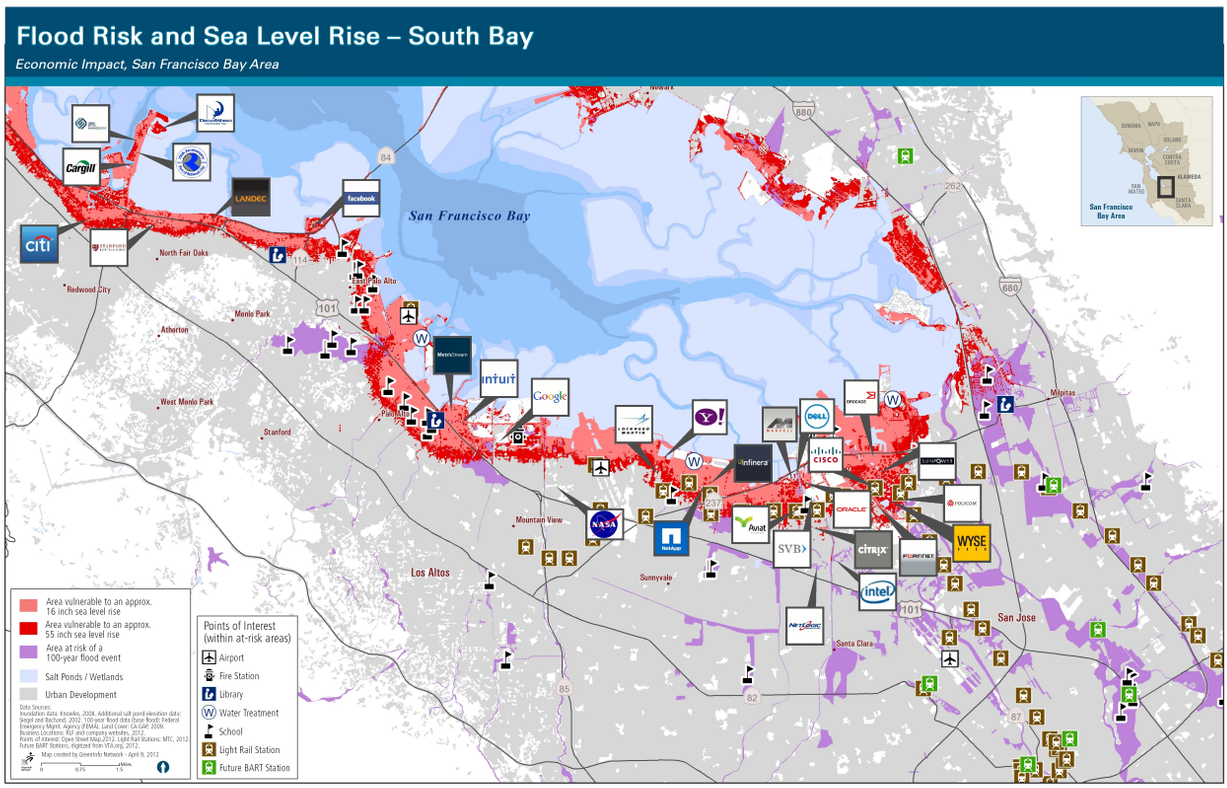
Today's Extreme Flood is Tomorrow's High Tide



Source: Jeremy Lowe, ESA PWA, Environmental Hydrology (2012)

Sea level rise plus flooding will have an outsize impact on the region, given the low-lying and water-adjacent nature of many Bay Area communities. About 330 square miles of land around the Bay is vulnerable to the rates of sea-level rise outlined above over the next half-century. Dozens of leading Silicon Valley firms – from Facebook to Oracle to Cisco are within this area, along with 270,000 residents. Sea-level rise could directly impact as much as $62 billion in development.

Silicon Valley potential inundation zones



Source: Map produced by GreenInfo Network. Accessed at: http://www.mercurynews.com/portlet/article/html/imageDisplay.jsp?contentItemRelationshipId=4347642

It does not even take rising sea levels to put Silicon Valley in danger – some areas are below sea level already. The right kind of earthquake could send a 10-foot water surge across Silicon Valley tomorrow.[34] The formations that currently function as the area's protective levees are simply piles of mud that were designed to separate salt ponds of different salinity levels, not engineered structures designed to provide flood protection. They could all fail in a seismic event, coupling with a tsunami-driven flood of extra water to cause major damage in the area.

Resource-use and development patterns over the last 100 years have made our resilience to natural disasters even more tenuous in many Bay Area communities. Two hundred and forty square miles of landfill rests along the Bay's shore, land that was "reclaimed" to be just above current, not future, sea levels. And development has encroached on the Bay's natural tidal marsh barriers, reducing their effectiveness to keep waters out by absorbing the energy from storm surges.

Current regional bodies – BCDC and the California Coastal Commission – do not have sufficient authority to respond to this issue. The areas affected by rising seas are far larger than the jurisdiction of these agencies.

The two key decisions – about funding and development – require new regional governance. A mechanism for resource pooling and funding for coastal protection and managing sea level rise—whether armoring, barriers, elevated, floating or floodable development, living shorelines or managed retreat—is essential to the region's long-term survival.[35] Additionally, there is the need to make tough decisions about what should be built in inundation zones and how it should be built. While some adaptation to sea level rise can be very localized – impacts will vary property by property, depending on how houses are structured and how high quality their construction – systematic solutions which require analysis and ultimately protection on a broader, regional scale.

> **Regional governance takeaway:** *Climate change-related flooding, storm surges and sea level rise threatens all communities irrespective of jurisdictional boundaries. There is no possible way to prepare, fund or respond to these threats as individual jurisdictions and there is no existing regional entity with authority to help us prepare adequately.*

[34] By comparison, Hurricane Sandy brought 14-foot storm-surges that flooded large areas of New York City and smaller communities up and down the New Jersey Coast. It resulted in flooded subway tunnels and shut down the Hudson River's automobile tunnels as well as major segments of highway throughout the region.

[35] See summary of each of these options in http://www.spur.org/publications/library/report/strategiesformanagingsealevelrise_110109

A possible future

The Bay Area has responded to big threats with new regional governance in the past. We can do so again. In this section of the Special Analysis, we explore a possible regional future, based on creating new governance systems to respond to the challenges of the day. Each idea is grounded in a governance solution found elsewhere. Here is what we might accomplish:

1. We focus employment growth near transit in existing downtowns and employment areas.

We could look to examples in the Washington D.C. region for some inspiration in putting jobs near transit. For example, the Rosslyn/Ballston corridor in Arlington County focused the vast majority of development adjacent to their rail system, with office uses immediately surrounding the rail station. Nearly 40 percent of residents and employees on this suburban corridor take transit to work, higher than residents of San Francisco.[36] At the same time, the upzoning around rail allowed existing single-family residential neighborhoods to remain untouched. Since 1970, this transit corridor grew from 5.5 million to 20.8 million square feet of office space – adding more new office space than exists in downtown Oakland.[37] This concentration continues since from 2000-2010, 70 percent of all growth in Arlington County was in the 1.5 square miles directly adjacent to the rail stations on the corridor.[38] Other parts of the D.C. region also have significant office development around suburban rail stations. The region was aided by the Federal government as an employer and by having a single transit operator with significant land holdings around stations and a financial incentive for major development.[39]

Much of what took place in the DC suburbs did not require new regional governance, but it did require some tradeoffs between more growth near transit and less further from it. One easy solution for the Bay Area transportation agencies (at the city, county and regional levels) to commit to not fund road highway expansions to job centers that are not proximate to existing employment areas or transit.

2. We build sufficient amount of housing in the right places to support housing for the workforce.

By identifying places for growth, the Bay Area's Sustainable Communities Strategy takes a step in the direction of regional land use planning. But the SCS could go further and require communities to rezone and approve the housing goals in accordance with the regional plans. The Portland region in Oregon has been successfully implementing a version of this type of regional planning whereby local jurisdictions must adopt zoning that meets the region's plan. Portland's regional planning is backed by strong state law and an elected regional body that maintains an urban growth boundary and oversees the planning. Done right, this type of regional planning that requires local compliance is a potential solution for both job sprawl and limited housing production.

3. We reduce the fiscal inequities among cities by beginning a sales or property tax sharing program at the County level.

The Bay Area could consider adopting a tax-sharing scheme at the county level, such as within Santa Clara County. Such a system would likely focus on sharing growth in taxes, not redistributing existing taxes. This is a more modest approach than what takes place around Minneapolis and St. Paul. Since 1975, the seven county Twin Cities region has been sharing a portion of its taxes among jurisdictions. 40 percent of the growth in the commercial and industrial tax base across all municipalities across seven counties goes into a regional pool and is then redistributed based on population and the existing tax base. The net result is that nearly two-thirds of households live in areas where they receive more than they put in with some communities like Minneapolis shifting between receiving and contributing.[40] The major benefit though is that the tax sharing reduces competition between jurisdictions for commercial and industrial development as all share in the fiscal benefits of such growth. Ultimately an investment such as a firm expansion happens because of the broader regional economy, not because of some micro-specific local action.

[36] See: http://www.arlingtonva.us/departments/CPHD/planning/powerpoint/rbpresentation/rbpresentation_060107.pdf
[37] See: http://www.cushwake.com/cwmbs4q10/PDF/off_oakland_4q10.pdf
[38] See: http://www.thetransportpolitic.com/2011/02/05/the-interdependence-of-land-use-and-transportation/
[39] Source: Terplan, Egon. Thriving TOD: What can we learn from mass transit in D.C. suburbs? Available at: http://www.spur.org/publications/library/article/thriving_tod

4. We reduce the fragmentation of transit operators by bringing regional transit operators under one roof.

In Seattle, Sound Transit is one example of this potential. Formed as a result of an agreement between the three Seattle-area counties and authorization by the Washington state government, the agency plans and manages all regional rail and bus services while each county still runs its own local bus services.[41] Not only has the organizational structure allowed the agency to more effectively press the case for sales tax funding, but it also makes the region's services more cohesive than they might otherwise be. For example the agency maintains a consistent regional visual identity, coordinated schedules, unified fare structure and customer service operations. The Bay Area might go further and pursue a single regional transit operator like Portland, Toronto or New York by merging BART and Caltrain under one agency along with related regional bus systems across the Dumbarton and Bay Bridges.

5. We prepare for the inevitability of sea level rise and flooding by identifying a way to pay for shoreline infrastructure and by deciding on a land use approach to development in potential inundation areas.

The City of Rotterdam offers a model for an attempt to "climate proof" the city through floatable buildings and floodable parks. In general, the Dutch may be the most prepared nation on Earth for rising seas, their governance solution involves significant Federal investment in coastal protection. Other parts of the United States, such as New York City and Florida, are preparing for sea level rise and adapting to climate change. The Southeast Florida Regional Climate Change Compact is working across four counties on an action plan that would include "Strategies for the coordinated regional preparation for and adaptation to a rapidly changing global environment based upon regional mapping of projected sea-level rise."[42] But sea level rise is perhaps one area where the Bay Area need not find a best practice model to adopt. Instead, we have already begun these conversations ourselves across existing governance institutions and will have to quickly decide on who should have the authority to begin making the tough decisions about development in inundation zones.

[41] Sound Transit has successfully passed two sales tax measures, enabling it to build two light rail lines, two regional rail lines, and 26 express bus lines, with an additional 36 miles of light rail and 65 percent more commuter rail capacity on the way. SoundTransit. "Regional transit history 2008." Retrieved from http://www.soundtransit.org/Projects-and-Plans/System-planning/2008.xml on August 10 2012. And SoundTransit. Sound Transit 2: A Mass Transit Guide. July 2008. Page 27.

[42] See: http://www.broward.org/NaturalResources/ClimateChange/Documents/CompactFinal.pdf

Conclusion

Regionalism in the Bay Area has a long history of partial successes. Too often we see ourselves more as residents of a single communities or as belonging mostly to a subregion (South Bay, East Bay) and not as part of the whole. What is sometimes missing is the sense of interconnectedness or an understanding that what happens in one part of the region matters in a big way to another part.

This may be changing and therein lies the opportunity.

Silicon Valley is arguably no longer a geography that ends at the San Francisco county border. Important parts of the labor force reside in San Francisco and commute south just as growing firms and important parts of the technology sector's value chain take root in buildings near transit in San Francisco and parts of the East Bay traditionally home to other industries. The geographic changes further connect us economically.

At the same time, major events like Hurricane Sandy are a wakeup call to leaders worldwide of the vulnerabilities of all coastal regions. Flooding cuts across city borders and can damage lifeline systems like roads, transit, energy and drinking water.

But if we acknowledge that we are more interconnected and need a different governance system, what are the best options going forward? We identified individual actions above as part of a possible future. Ultimately, strengthening our regional governance is more about degrees of regionalism. As a conclusion, we offer the following three options:

Option 1: Strengthen the governance of existing agencies but maintain them as single purpose institutions. This is the approach of numerous water agencies, which have overcome their respective organizational silos and are now planning to interconnect their systems share water during times of uneven supply.[43] Other examples could be to give MTC more authority to price the region's freeways or provide BCDC with more land use authority related to responding to sea level rise. The pro of this option is it does not result in any new bureaucracies. The con is that it perpetuates a set of institutions whose focus is narrow by design. Giving these institutions more authority will not suddenly result in them having a comprehensive approach to problem solving.

Option 2: Establish one or more new regional entities with new powers to respond to today's pressing problems. This could include establishing a new entity to plan, fund and make choices about development that will be impacted by sea level rise and climate change-related flooding. It could also involve consolidating regional transit operators and establishing a new regionwide system of rail and transbay bus travel. The pro of this approach is that it would result in the design of an agency targeted towards key challenges of today. One con is that it could result in increased fragmentation by creating an additional institution. A second con is that this approach could perpetuate the problem of a single purpose regional entity.

Option 3: Move towards a comprehensive multi-issue regional government entity. This comprehensive approach is what exists in part in Portland and Minneapolis. For example, Portland's Metro is a directly elected regional government that does long-range planning and even manages the region's garbage and recycling program. The Twin Cities tax sharing scheme is a part of a comprehensive regional agency that also operates the region's bus system, collects and treats wastewater, manages regional parks and conducts comprehensive long-range planning. The pro of this approach is its comprehensive approach to challenges. The con is that absent state legislation, the powers of such an entity might be relatively weak and the political opposition strong.

To achieve any of these options will require turning more of our local residents into Bay Area citizens who recognize our shared fate and interests. Regionalism is not all or nothing and can involve incremental changes. But only keeping what we have and assuming it will serve us for the future is no longer a viable option. Our needs are more interconnected now. Our governance should reflect that.

[43] See: http://bairwmp.org/