Energy for Megacities
A Report for WEC

San Francisco Bay Area Case Study

Draft V0
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San Francisco Bay Area: Regional energy challenges, institutions and strategies

Located in Northern California, the San Francisco Bay Area is a 7,000 square mile metropolitan region that surrounds the San Francisco Bay. The Bay Area's nine counties and 101 cities[1] are home to 7.2 million people, making it the fifth most populous metropolitan region in the USA. Approximately 16 percent, or 700,000 acres, of the Bay Area's 4.4 million acres of land are developed for urban use. Sixty-one percent of those urban acres are residential and 42 percent are non-residential employment and retail centers, government buildings, schools, and major infrastructure. San Francisco is the Bay Area's most urbanized county, with 82 percent of its land developed. Napa is the most rural county, having less than four percent of its land area developed. The remaining counties have developed land areas ranging from seven percent to 28 percent.

The San Francisco Bay Area is famous for being one of the most dynamic and innovative economic center of the world. But the dynamics of the Bay Area is also characterized by huge urban challenges of sustainability, which are representatives of many urban situations in the developed world, and therefore, are worth to be analysed.

First, the Bay Area's dynamics are characterized by a very rapid past and future demographic growth. Second, the Bay Area has grown and is growing at relatively low densities, with a highly polycentric pattern. Therefore automobile is often the only viable form of transportation. Moreover, the Bay Area population also is growing older, and as the population ages, there will be greater demand for paratransit and specialized mobility services. Third, the Bay Area continues to be one of the priciest real estate markets in the USA and housing affordability remains a major regional issue by itself, but also a factor of urban sprawl. As development has been pushed to the edges of the region, and into neighboring regions, automobile has become a key element of the functioning of the agglomeration, and transport the first responsible of an alarming level of GHG emissions and local pollutions. The Bay Area emits GHG at three times the world average. Transportation accounts for 50 percent of the region's greenhouse gas emissions. Of this 50 percent, 84 percent is from on-road vehicles, essentially cars. Finally, the Bay Area appears to be particularly vulnerable to effects of climate change, notably to the impacts of a sea level rise on its built-up environment and transportation infrastructure.

In the first section of this paper, I characterize the challenges of sustainability in the San Francisco Bay Area. I show first, that transportation, in its relation with land use pattern, is the key issue related to energy, affordability and climate change adaptation and mitigation, and, second, that this challenge is a regional one. As a result, policies that aim to tackle this major challenge of sustainability have to be analyzed in a regional perspective. Therefore, the

[1] Cities and counties divvy up the power to regulate in a very simple way: cities have jurisdiction over land inside their borders, and counties control what's left – the so-called "unincorporated" territory. Thus, cities have a certain strategic territorial advantage. Any time a city incorporates or annexes more land, it wrests land use power (as well as tax revenue) away from the county.

following sections of this paper focus on the interactions between transportation and land use, and their relations to energy consumption.

In the second section, I analyze the multi-level and multi-actor governance structure and the distribution of power among stakeholders. I show that the current procedural and decentralized governance structure leads to a weak regional authority. Regional authorities act as an interface between local governments and state and federal programs and have no independent authority as such. Therefore, they must convince member local governments that adopting local policies with regional benefits and often local costs is in their self-interest.

In the third section, I describe the urban energy-related policies – with a particular focus on policies dealing with urban transportation and land use - undertaken at the state, local and regional levels. I show that actions on urban energy system taken place at the local level have to be understood as the convergence of three poorly-coordinated forces: a State top-down force that aims to define a roadmap to pave a road to a future sustainable urban energy system; a grass-root local one, based on local authorities themselves and city network, translated into Local Climate Action Plan, which effectiveness is difficult to judge nowadays; and finally, the actions carried on by the regional agencies –mainly MTC and ABAG – which are not directly accountable to voters, but are in charge of caring the regional perspective. Given the governance structure, these regional agencies rely on an incentive-based approach.

1) Challenges of sustainability in the San Francisco Bay Area

1.1) Past and future rapid demographic growth and ageing of the population

The Bay Area's population has increased by two million people since 1980. Communities in Alameda and Contra Costa took on nearly half of this growth. Santa Clara County took on a quarter of growth, half of it in San Jose alone. A tremendous amount of growth also occurred at the Bay Area's fringe[2]. Not only have these places grown at tremendous rates, they also grew at relatively low densities, with single-family homes, jobs, shops and services all built far from one another. Therefore automobile is often the only viable form of transportation.

Like many large urban centers, the Bay Area's population will continue to grow. Over the next 25 years, the nine counties of the region are expected to add about 1.6 million new residents, an average of 64,760 new residents per year. About half of this increase in population is due to natural increase. The other half is due to in-migration into the region. People mostly come to the Bay Area for its job opportunities. San Francisco, the South Bay and the inner East Bay continue to be the region's most populous areas. Santa Clara County is the most populous county in the Bay Area and will experience the greatest amount of growth[3]. San Francisco will see the least amount of growth of the Bay Area's high population counties[4]. Though not as populous as San Francisco, Santa Clara or parts of the East Bay, Solano County is another fast growing county in the region[5].

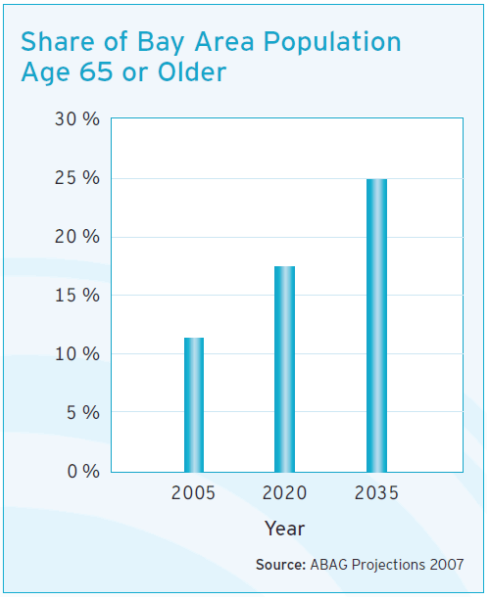
[2] Antioch, Oakley and Brentwood doubled, tripled and quadrupled their populations, respectively. Pleasanton and Livermore nearly doubled in size. The once small town of Vacaville saw its population increase by 184 percent. Even smaller towns, Rio Vista and Suisun City, doubled in size.

[3] Santa Clara is expected to grow by nearly 23 percent over the next 25 years.

[4] San Francisco will grow by 15 percent by 2035, to 956,800 people.

[5] Today, Solano County is home to over 423,800 people. By 2035, Solano will see a 22 percent increase in its population, to 585,800 residents by 2035.

The Bay Area population also is growing older. In 2005, about 11 percent of Bay Area residents were age 65 or older. But by 2035, 25 percent of the population will be 65 or older. Furthermore, the number of people over age 85 will nearly triple by 2035. More members of the older population will be active in the workforce in 2035, and more are likely to be living in urban areas, where services are clustered and public transportation is available. As the population ages, there will be greater demand for paratransit and specialized mobility services.

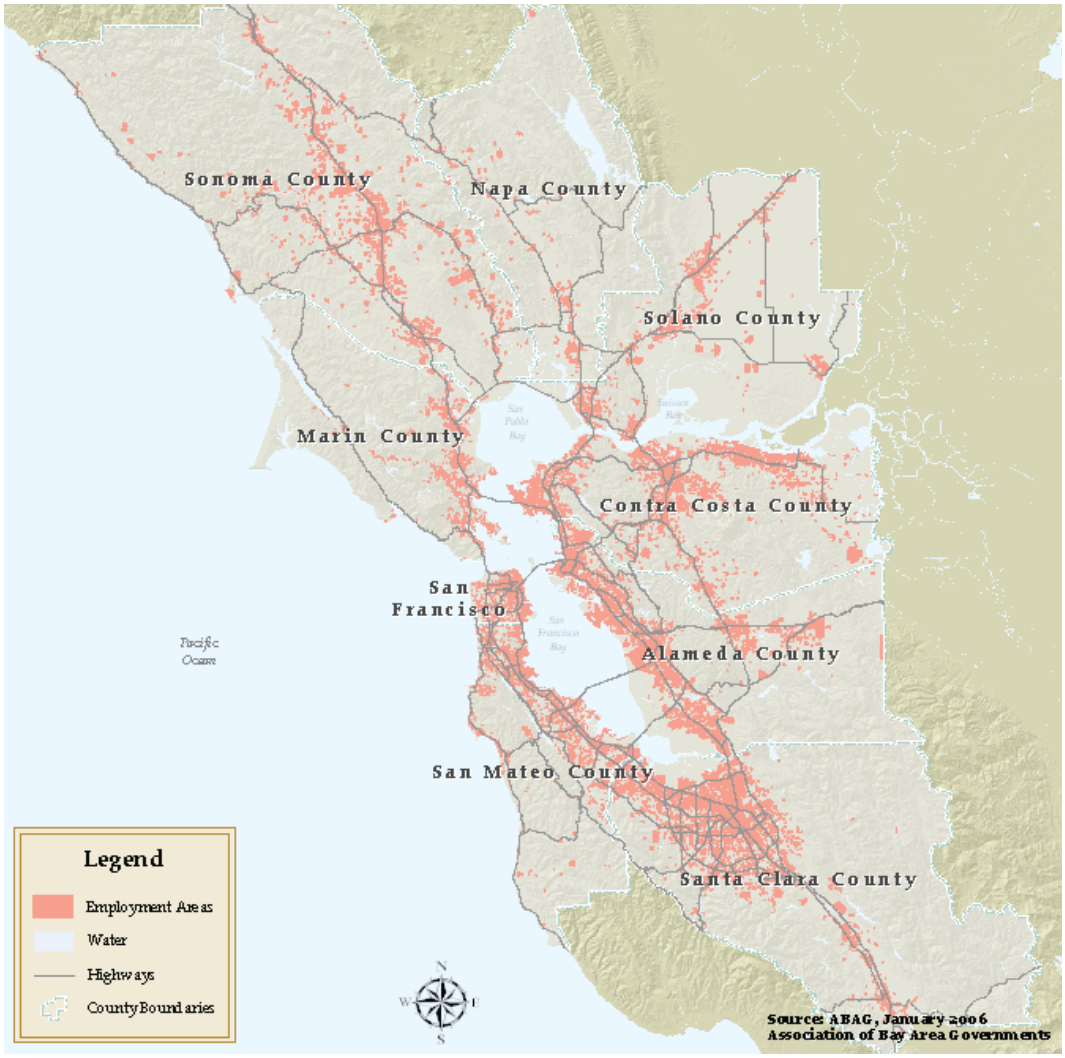


1.2) Rapid job growth

Today, the Bay Area supplies nearly 3.5 million jobs — making the region California's second-largest economic center. Between now and 2035, job growth will increase nearly 1.7 percent a year, outpacing the rate of population growth over the same period. Employment will grow to 5.2 million jobs by 2035, a 50 percent increase from 2006. The Bay Area is famous for high-technology electronics, biotechnology and financial services. These industries are also among the Bay Area's fastest growing and are located primarily in San Francisco and Silicon Valley - San Mateo and Santa Clara Counties. These industries are part of the Information, Finance and Professional Services sectors, which account for nearly 46 percent of all Bay Area jobs.

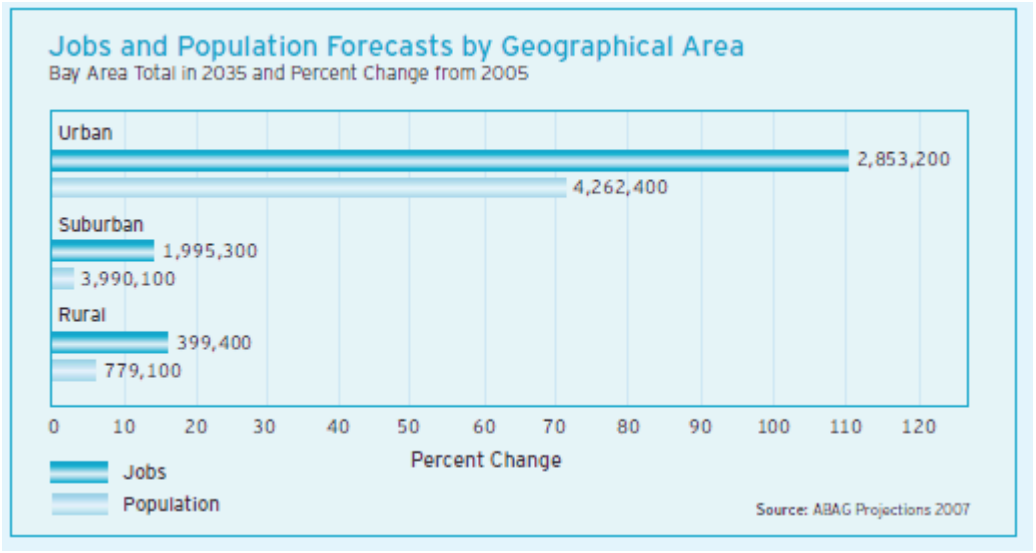
Retail, Arts & Recreational Services, and Transportation and Utilities are the next largest job sectors. Together these jobs sectors comprise 34 percent of all jobs in the Bay Area - or 11, 12 and 11 percent, respectively. These jobs are found throughout the region, rather than being concentrated in few locations

Agriculture is another well known sector in the Bay Area, particularly in the wine growing region of Napa and Sonoma Counties. This sector is projected to see little growth, about 5 percent over the next 25 years. The wine country will see some job growth, but it is anticipated to be in Travel and Tourism.



1.3) Jobs and population location forecast

According to the latest forecast of the Association of Bay Area Governments (ABAG) (*Projections 2007*), areas at rail and ferry terminals and along select transportation corridors are expected to see an increasing proportion of the region's growth, a trend that will start slowly but will build over time.



1.4) Housing production and housing affordability

The Bay Area continues to be one of the priciest real estate markets in the USA. Despite the recent mortgage crisis and soaring number of foreclosures, most Bay Area homes continue to be too expensive for families with average household incomes to afford. In 2007, only about 15 percent of Bay Area households could afford a median priced home[6]. All projections indicate that housing affordability, even with the short-term dip in prices, likely will remain a major regional issue.

Low levels of housing production[7], relative to demand, contribute to this region's high housing costs. On top of the low historical production levels in the region, the mix of available housing types also contributes to higher home prices. In many Bay Area communities, mostly large single family homes are planned for and built. This offers consumers limited choice in housing types, especially relatively more affordable smaller homes, condominiums, town homes, or apartments. Multifamily housing comes in a range of prices, but it can often include more affordable options than single-family homes. Moreover, 75 percent of all the multi-family housing units are located in just twenty-two cities - usually urban or long-established suburban cities. Forty-five percent of the region's multi-family housing is in San Francisco, San José or Oakland.

1.5) Mobility and transportation affordability

Bay Area residents take more than 21 million trips on an average weekday or about three trips per person each day in order to get to work, school, shopping or other activities. More than 84 percent of all trips are by automobile. More than 57 billion miles were logged on the region's freeways, highways, expressways and local streets and roads. As development

[6] This percentage was even lower in some Bay Area counties: 14 percent in Santa Clara, 13 percent in Alameda and Marin Counties, 12 percent in Napa and San Mateo and 10 percent in San Francisco.

[7] The need for housing generated by the Bay Area's annual increase in population was 33,400 units per year during the 1980s. At that time, about 40,000 housing units were added to the supply each year, sufficient to meet new demand. Since the 1990s, production has varied from year to year, but overall it has not kept up with population growth. Compared to the 1980s, annual population increases were slightly lower in the 1990s. Based on this growth, 29,500 housing units were needed in the region. However, housing production during the 1990s declined to about 27,000 units per year. Since 2000, the housing need from population increases is estimated to be 23,700 units per year. Since 2000, an average of 23,336 housing units have been built per year. Last year marked the highest production at 24,396 units. The lowest production year since 2000 was 2001 with 17,459 units.

has been pushed to the edges of the region, and into neighboring regions, the average number of hours per day people spend in traffic has grown from 68,500 in 1995 to 124,190 in 2004 - an increase of 181 percent. In addition, nearly 20 percent of Bay Area workers have a commute of 45 minutes or more.

The Bay Area is the most transit-rich region in California. Two dozen transit operators provide over 188 million vehicle miles of service and carry more than 475 million passengers each year.

Buses provide just under half of all service miles and carry nearly two-thirds of all passengers. BART, commuter rail, light rail, ferries and door-to-door vans and taxis carry the remaining third. Despite this transit richness, the Bay Area's appetite for driving has yet to be curbed; only 6 percent of all trips are by public transit. Walking and biking account for only 10 percent of all trips. As a result, Bay Area congestion is anticipated to increase by 103 percent by 2030.

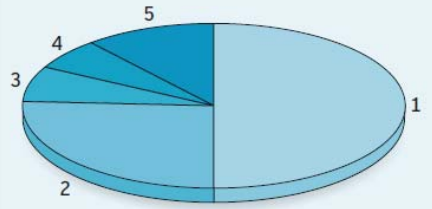
Travel activity as reflected by daily auto trips would increase by 32 percent and the amount of vehicle miles traveled would grow by 33 percent. Both are slightly higher than the rate of population increase, but lower than the expected rate of employment growth. Daily transit trips is expected to grow by 75 percent, reflecting assumptions that new population and employment growth will be more focused in the urban core and along transit corridors

Traveling to and from the Bay Area is projected to grow as well. Inter-regional commuting is anticipated to grow by double and even triple digits - mostly due to surrounding counties building homes for Bay Area workers. Commuting between the Bay Area and the Central Valley is expected to grow by 90 percent. The areas between San Mateo and Santa Cruz counties will see an increase of over 120 percent.

1.6) Local air quality and GHG emissions

The Bay Area emits greenhouse gases (GHGs), principally carbon dioxide, at three times the world average. Transportation accounts for 50 percent of the region's greenhouse gas emissions of the Bay Area. Of this 50 percent, 84 percent is from on-road vehicles, essentially cars.

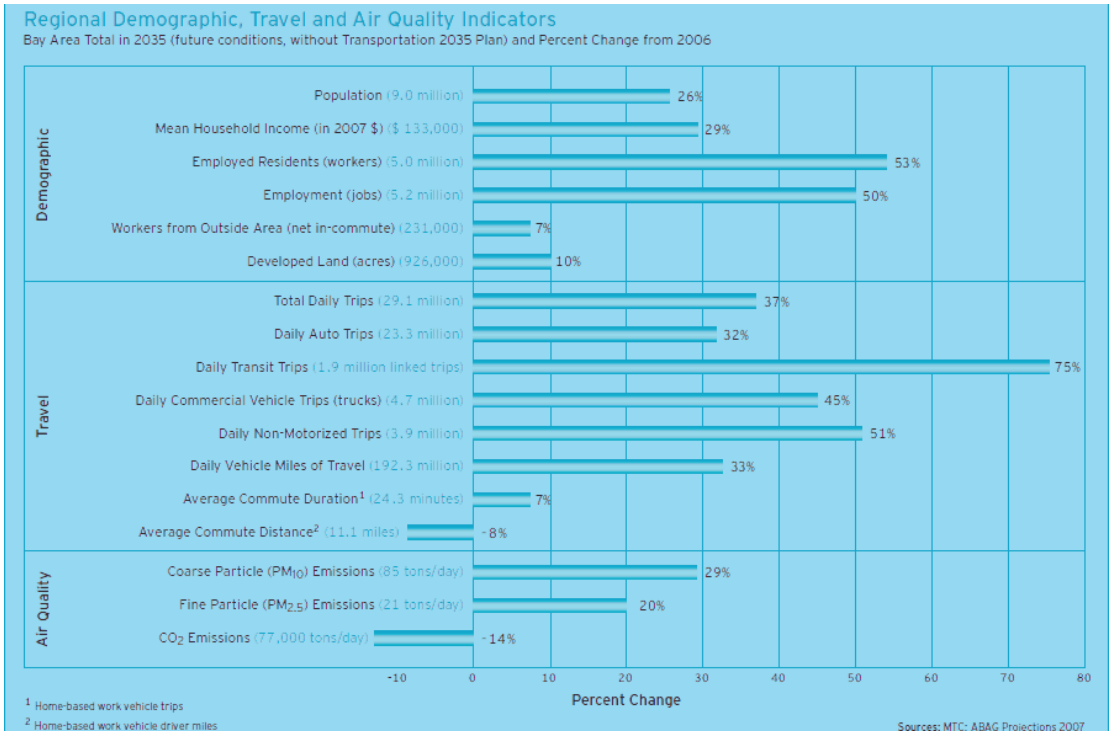
CO_2-Equivalent Emissions in the Bay Area, by Major Categories



	Pollution Source	CO_2-Equivalent	Percent
1	Transportation	43	50%
2	Industrial/Commercial	22	26%
3	Power Plants	6	7%
4	Oil Refining	5	6%
5	Domestic	9	11%
Total		85	100%

Source: BAAQMD, 2006 Source Inventory of Greenhouse Gas Emissions
Emissions in million tons/year; data is for 2002

Motor vehicles are the single largest source of the gases that make ozone and are also a significant source of particulate matter. The Bay Area currently does not meet California air quality standards for several types of particulate matter and ozone. These pollutants are linked to significant health effects, including asthma and cancer, especially in people who live near major transportation corridors and areas with heavy truck use. Partly due to worsened air quality from auto emissions, asthma is now the most common chronic childhood disease, occurring in approximately 54 of every 1,000 children.



1.7) Climate change impacts in the San Francisco Bay Area

Anticipated climate change impacts in the Bay Area include higher air and water temperatures, accelerated sea level rise, an increase in extreme weather events, such as storms and heat waves, severe public health challenges for vulnerable populations, summertime water scarcity and snowpack reductions, increasing risks and cost for agriculture, changing landscapes, moving species, and a rise in sea level which would notably threaten the transportation infrastructure concentrated near the shoreline of the Bay.

According to BCDC (2009), historic records show that sea level in San Francisco Bay has risen nearly eight inches in the past century. The California Climate Action Team projects that sea level will rise in San Francisco Bay of 16 inches (40 cm) by mid-century and 55 inches (1.4 meters) by the end of the century. The Pacific Institute estimated that the economic value of Bay Area shoreline development (buildings and their contents) at risk from a 55-inch rise in sea level is $62 billion-nearly double the estimated value of development vulnerable to sea level rise along California's Pacific Ocean coastline.

Indeed, large commercial and industrial areas are vulnerable to flooding, especially in San Francisco, Silicon Valley, and Oakland. An estimated 270,000 people in the Bay Area will be at risk of flooding. Approximately 72 percent of each of the San Francisco and Oakland Airports is vulnerable to a 16-inch sea level rise and 93 percent is vulnerable to 55 inches of sea level rise, which can disrupt the transport of as much as 30 million passengers and approximately one million metric tons of cargo. Flooding of highway segments in the regional transportation network can disrupt the movement of goods from ports, which handled approximately 25 millions metric tons of cargo in 2007-2008. Other water-related industries would be similarly affected. Flooding of the rail system would be particularly serious, since multiple users share a single line in most locations around the Bay.


San Francisco Bay
Conservation and Development Commission
SHORELINE AREAS VULNERABLE
TO SEA LEVEL RISE
SAN FRANCISCO
BAY AREA
Area vulnerable to an approximate 16-inch sea level rise
Area vulnerable to an approximate 55-inch sea level rise
No Data
0 2 4 8 MILES
NORTH
San Pablo Bay
Pacific Ocean
San Francisco Bay
SOURCE: Inundation data from Knowles, 2006. Additional salt pond elevation data by Siegel and Bachand, 2002. Aerial imagery is NAIP 2005 data.
DISCLAIMER: Inundation data does not account for existing shoreline protection or wave activity. These maps are for informational purposes only. Users, by their use, agree to hold harmless and blameless the State of California and its representatives and its agents for any liability associated with its use in any form. The maps and data shall not be used to assess actual coastal hazards, insurance requirements, or property values or be used in lieu of Flood Insurance Rate Maps issued by the Federal Emergency Management Agency (FEMA).

2) Institutional analysis: distribution of the Capacity To Act among stakeholders

In this second section, I analyze the multi-level and multi-actor governance structure - that I characterize as procedural and decentralized – and the distribution of the capacity to fund and finance urban policies among stakeholders. This analysis highlights how this governance structure determines the way challenges of sustainability are considered, how the regional dimension is taken into account and how relevant policies to foster actions at the regional level are elaborated.

Indeed, local authorities have a key power over land use and transportation policies, even if the nature of that power is shaped by other forces, usually involving higher levels of government. On the contrary, regional authorities act as an interface between local governments and state and federal programs and have no independent authority as such. Therefore, they must convince member local governments that adopting local policies with regional benefits and often local costs is in their self-interest. In relation to land use, regional authorities have no actual authority; they can only influence local policy by providing incentives from their own resources, or through peer pressure or technical assistance.

To tackle these issues, I adopt the widely recognized new institutionalism approach which is effective in dissecting urban governance systems (see for example, Harding, 2000; MacLeod, Goodwin, 1999; Pierre, 1999; Hammer, 2006).

The concept of governance characterizes the end of a public-authority-centered and formal process of decision making and refers to "a new process of governing" (Rhodes, 1996) that involves the "blending and coordinating" of public and private interests (Pierre, 1999). In the past, institutions were seen primarily as official structures, formal rules, and organizations (Lowndes, 2001). In an era of governance, these analytic approaches appear to narrow to address the complexity that no single group dominate decision-making process (Stoker, 1998). Therefore, new institutionalism defines institution as "humanly devised constraints on social action" (Nee, Strang, 1998), and focus on the values and objectives that drive the behaviors of various stakeholders, and the formal and informal rules and organizational arrangements that shape these values and objectives (Newman, Thornley, 1997; Pierre, 1999).

2.1) A procedural and decentralized multi-level governance structure

In general, the California policy approach establishes a decentralized system, which notably apply for all urban sources of energy consumption and GHG emission: transport, building, waste and water. The Californian decentralized system is characterized by four different aspects:

- The state establishes the procedural structure. Most of California's planning-related laws are not prescriptive or substantive in nature. They do not seek to dictate specific policies to local governments. Rather, they lay out a detailed set of procedural requirements that local governments must follow in adopting and implementing their plans[8].

- Local governments are required to address specific issues but are given considerable leeway in determining policy direction. For example, state does not dictate transport, land use or waste planning policies, or building code, but does require a local government to consider a wide range of policy issues when drawing up and implementing its plans. But, with few exceptions, local governments can choose their own policy direction: they can set their own goals and decide how much weight to accord to such potentially competing issues.

[8] This procedural approach stands in contrast to the approach to planning in several other important states. In Oregon, Florida, and New Jersey, for example, the state government plays a more direct role in policy making on building, transport and land use matters, establishing specific policy goals local governments must pursue in land use planning. Maryland uses a different approach – providing financial rewards in the form of state funding for infrastructure and land conservation projects that conform to the state's own policy goals.

- Planning-related laws are generally enforced via citizen enforcement. In most areas of public policy, if the state government asserts control over the field, the states issues regulations, which are enforced by a state administrative agency. Because planning laws are mostly procedural, few state administrative agencies enforce them on local governments (Fulton, Shigley, 2005). According to Fulton and Shigley (2005), this situation is a deliberate political decision on the part of California's voters, its politicians, and its lobbyists. Local governments do not want strong oversight of their planning obligations, and neither voters nor politicians are interested in expanding the state bureaucracy to make sure planning laws and CEQA are carried out in a lawful manner. Because there is no administrative agency to enforce them, the planning-related laws are supposed to be enforced by direct citizen action – or so-called "citizen enforcement". Citizen enforcement means that citizens and citizens groups are supposed to be watch-dogs of the planning process, holding local governments accountable.
- Little formal coordination is required, although certain laws and funding programs encourage cooperation among local, regional, state, and federal agencies.

Thus, building codes, waste management, zoning ordinances and general plans are drawn up at the local level. Building permits and other development approvals are issued at the local level. The local planning commission or city council may have the power over the zone change or the building permit, but the nature of that power is shaped by other forces, usually involving higher levels of government. Judges, the state legislature, various governmental agencies, even congress and the US Supreme Court all play a role in determining how local planning commission or city council is permitted to regulate the use of land.

Regarding land use development, private companies and the private market place also play an important role in determining what the final product of the planning process will be. Developers will not propose building something unless they believe there is a market to buy it, and usually they will not be able to borrow the money to build it unless there is a financial institution willing to invest.

In the San Francisco Bay Area, two regional institutions are responsible for mediating conflicts between local control and regional goals. Metropolitan planning organizations (MPOs) are responsible for preparing and updating a regional transportation plan (RTP) describing how transportation revenues across the region will be spent over the next 25 years (Fulton and Shigley 2005). Councils of governments (COGs) are assemblies of local officials that provide information on regional problems, creates demographic projections and performs other land use planning functions, such as the regional housing needs assessment. In general, in California, COGs also serve as MPOs. The Bay Area, where the Metropolitan Transportation Commission (MTC) serves as the region's MPO, while the COG, the Association of Bay Area Governments (ABAG), is a notable exception.

MTC and ABAG act as an interface between local governments and state and federal programs and have no independent authority as such. They are governed by representatives of local governments and other entities such as transit districts, and are not directly accountable to voters.

This structure maintains broad local government "buy-in" for regional decision-making; ABAG and MTC must devise policies that gain broad support from member local governments. They must convince member local governments that adopting local policies

with regional benefits is in their self-interest. In relation to land use, ABAG and MTC have no actual authority; they can only influence local policy by providing incentives from their own resources, or through peer pressure or technical assistance.

The voluntary, collaborative ABAG/MTC governance structure has long made it difficult to develop plans and programs with a strong regional systems focus. The governing structure can foster a "lowest common denominator" approach to policymaking, steering away from controversial policies that could create winners and losers among local government members.

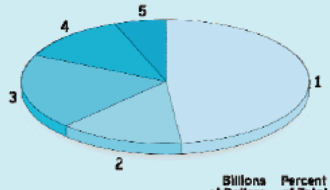
2.2) Distribution of the funding and financing capacity among the stakeholders. Weakness of the regional agencies.

Transportation in the San Francisco Bay Area is funded from a variety of State, local, private, and federal fund sources. State funds consist primarily of the State excise tax on gasoline and diesel fuels (18 cents per gallon) and truck weight fees. Federal funds consist mainly of the federal gasoline and diesel fuel excise taxes. The main sources of local funding for transportation include local sales tax measures for transportation, a one-quarter percent share of the State general sales tax, and local general funds

Over the 25-year time span of this long-range plan, MTC estimates that $226 billion will be spent on transportation in the Bay Area. In addition to the $194 billion committed primarily to maintaining and operating SFBA existing regional transportation system, Transportation 2035 sets change in motion with $32 billion of new investments.

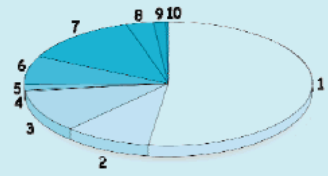
$226 Billion Transportation 2035 Budget

Projected 25-Year Plan Revenues

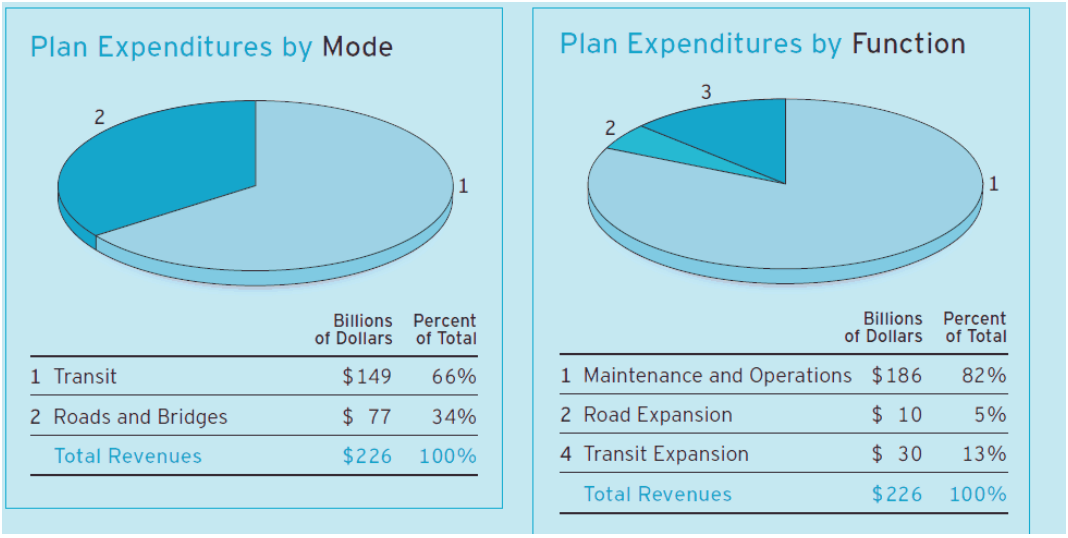


	Billions of Dollars	Percent of Total
1 Local	$110	48%
2 Regional	$ 31	14%
3 State	$ 45	20%
4 Federal	$ 27	12%
5 Anticipated/Unspecified	$ 13	6%
Total Plan Revenues	$226	100%

Transportation 2035 Plan Expenditures



	Billions of Dollars	Percent of Total
Maintenance		
1 Transit	$119	52%
2 Highway	$ 22	10%
3 Local Roads	$ 25	11%
System Efficiency		
4 Transit	$ <1	<1%
5 Highway	$ 3	1%
6 Local Roads	$ 17	8%
Expansion		
7 Transit	$ 29	13%
8 Highway	$ 7	3%
9 Local Roads	$ 3	1%
10 Risk Contingency	$ <1	<1%
Total Expenditures	$226	100%



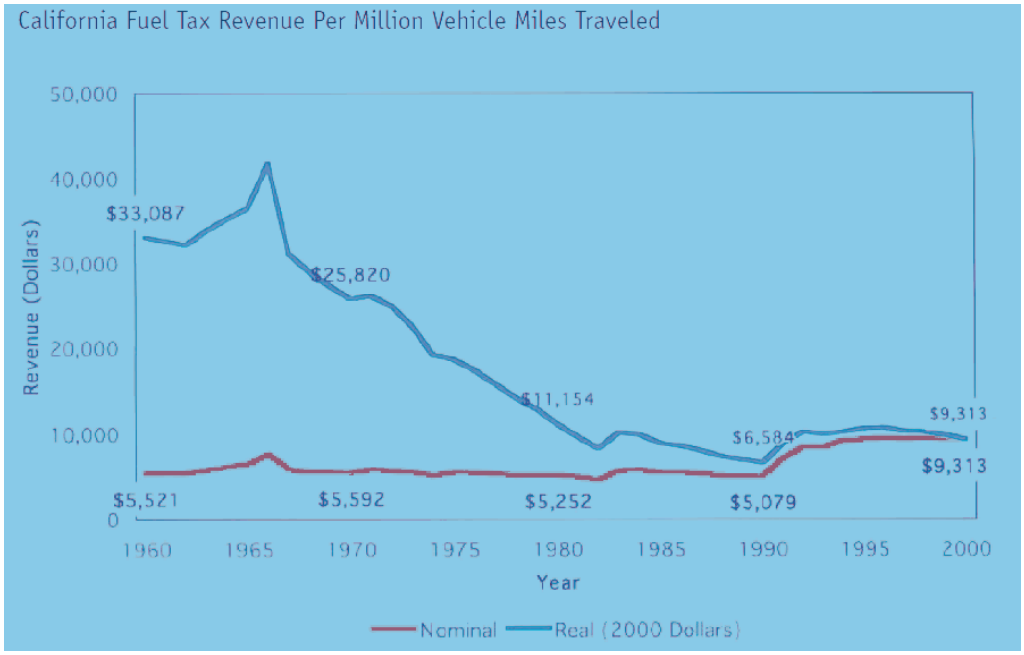
2.2.1) Federal and State funding and financing capacity

The "Gas Tax": A Declining Revenue Source for State transportation funding

The 18 cents per gallon State tax on gasoline and diesel fuel is the primary source of State funding dedicated for transportation. These user-paid taxes generate about $3 billion per year, about 65 percent of which goes to the State Highway Account. The remaining 35 percent is allocated to cities and counties (local subvention) for street and road purposes. In addition, a portion of the funds in the State Highway Account is allocated to Regional Transportation Improvement Programs.

Although gasoline and diesel fuel consumption in California have been growing modestly over time with a predictable trend, future fuel consumption will be impacted by the penetration of alternative fuels and hybrid vehicles, as well as future policy directions. Lower consumption, however good for the environment, makes the gas tax a less effective revenue generator. In the future, increasing fuel efficiency and a switch to alternatively powered vehicles could continue to put downward pressure on gasoline consumption and therefore on gas tax revenues (LAO, 2009a).

Beyond these issues, however, the major concern with the fuel tax is the constant erosion of its purchasing power over time due to general inflation. The current state gas tax rate (18 cents per gallon) has been in place since 1994. While fuel consumption in the State has been growing on average at about one percent per year, the general prices have been going up on average about three percent per year. This results in a two percent yearly decline in the purchasing power of the State and federal fuel tax revenues



About 90 percent (increasing up to 92 percent in 2008) of the federal gasoline tax (18.4 cents per gallon) and diesel fuel tax (24.4 cents per gallon) collected in California are returned back to the State in the form of federal reimbursements, currently estimated at about $2.5 billion per year.

Truck Weight Fees have historically been the second most important source of State funding for transportation, generating between $700 and $800 million annually.

Since the early 1970s, a small amount of the State sales tax on gasoline and the State portion of sales tax on diesel fuel have been used to provide funding for public transit (an average of $200 million per year). This money, deposited in the Public Transportation Account, is equally divided for intercity passenger rail and local/regional transit. This source of funding has been less predictable due to volatile fuel prices and changing economic conditions.

Small share for New Investment and for transit

According to the Legislative Analyst's Office, approximately 80 percent of State transportation expenditures are allocated to maintaining, rehabilitating, operating, and improving the highway system. Mass transportation constitutes about nine percent of total State transportation expenditures, planning and administration six percent, and the balance is directed to the Equipment and the Aeronautics Programs.
About half the highway expenditures are for capital outlay projects and another 15 percent for project design, engineering, and environmental review. Local assistance constitutes about 17 percent of highway expenditures and maintenance 12 percent.

The priority placed by the state on funding roadways over transit does not just reflect expenditures on maintenance of an aging highway system, but also the state's capital expansion choices[9]. In particular, recent transportation bonds have funded highways, streets,

[9] California's ongoing program for transportation capital expansion is called the State Transportation Improvement Program (STIP). The 2006 STIP plan, covering the period from 2006 through 2011, provided

and roads over transit[10]. In 2006, state voters passed Proposition 1B, which provided $19.9 billion in bond funding for transportation programs – one of the most substantial boosts to transportation funding in California in recent years. However, as mentioned above, only 20% of the funds were targeted for transit capital improvements.

2.2.2) Local capacity to fund and finance

Sources of revenue

In the Bay Area, local funds constitute about half of all public funds spent on transportation. Over one-third of local funds for transportation are derived from local sales tax measures dedicated to transportation purposes; the balance is made up from the local transportation funds, local general funds, transit fares, fees, assessments, and other local funds.

Since the early 1970s, a one-quarter percent of the State general sales tax generated in each county is returned to the respective county's local transportation fund. Under the authority of the RTPA, the money (about $1 billion statewide) is allocated for local and regional transit services. The actual level of sales tax revenues is again subject to economic fluctuations and thus cannot be predicted with any degree of certainty.

Article XIII of the State Constitution authorizes cities and counties to impose up to one percent additional local sales taxes if approved by the voters in the local jurisdiction. Currently, there are three Bay Area Rapid Transit District (BART) counties that have authorized permanent transit sales taxes.

Small share of expenditures for transit

Nearly half of local street and road expenditures are spent on street rehabilitation, construction, and lighting projects. Maintenance receives about one-third of the annual expenditures, engineering and administration account for about 11 percent, and storm drain repair, pedestrian, and bicycle facilities receive the remaining 9 percent.

Declining revenue and unpredictability

Since Proposition 13 was passed in 1978, local governments' ability to raise property tax revenue – the traditional mainstay of local government finance – has been limited. In addition to cutting property taxes substantially, Prop 13 also mandated a two-thirds vote in both state legislative houses to approve state tax increases and a two-thirds local popular vote for local special taxes (which were not defined). In 1996, voters passed Proposition 218, which established that majority voter approval is required to impose or increase any local tax for general purposes, and two-thirds voter approval is required for taxes designated for special purposes.

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about $5.9 billion for capital improvements – 65 percent for highways and roads, 29 percent for transit, and 6 percent for transportation enhancements (including roadway beautification and bicycle and pedestrian facilities) (LAO, 2007).

[10] More than half of the bond funds ($11.3 billion, or 56%) was targeted for capital improvements to state highways and local roads to reduce congestion. Another $3.2 billion (16%) was targeted for goods movement improvements to highways, rail, and ports, and related air quality improvements. The remainder ($1.5 billion, or 7%) was targeted for safety and security improvements for bridges, rail, transit, and ports (LAO, 2007).

Compounding the problem of fiscal constraint for localities has been fiscal unpredictability resulting from revenue shifts by the state government undertaken to help address ongoing budget deficits. The state government has diverted a considerable amount of funding to help balance the state's budget. In recent years, the legislature has diverted substantial shares of revenue from the Public Transportation Account (PTA) – the main state funding source for transit – to cover General Fund costs. Funding for the State Transit Assistance (STA) program, which supports ongoing transit operations, was eliminated from the 2009-10 state budget. When combined, budget cuts to the STA with other cuts to public transit funds that normally would have gone towards transit capital projects, the total loss of transit funding statewide during fiscal year 2009-10 amounts to $1 billion (MTC, 2009). According to the California Public Transit Association (CPTA), this year's diversions of transit funding bring the total amount diverted to General Fund purposes by the state legislature over the past decade to more than $5 billion – $3 billion in the last two years alone (CPTA, 2009). In addition to that, this year's state budget agreement, for example, allows for diversion of up to $2.05 billion in redevelopment agency property tax revenues in 2009-10 and 2010-11, and it borrows another $1.94 billion in local government funds that must be repaid by 2013 (California Budget Project, 2009).

Recent funding cuts to cities, counties, transit agencies, and redevelopment districts exacerbate more long-standing fiscal limitations faced by these agencies and local governments. According to the California Legislative Analyst's Office (LAO) – the state's nonpartisan budget "watchdog" agency – the ongoing diversion of transportation funds since 2001– 02 has resulted in instability and unpredictability of funding, which has produced project delays, planning complications, and inefficiencies at Caltrans (LAO, 2009). In particular, the LAO notes that erratic transit funding over recent years has created instability in ongoing programs and for specific projects (LAO, 2009).

"User pays" principle and fiscalization of land uses

Local governments have responded to these fiscal limitations by maximizing revenue sources over which they retain control[11]. Community-wide taxes and services, traditionally derived mainly through property taxes, have declined as a share of city finance[12]. The cost of city services has become increasingly "internalized," based on a "user pays" principle. Such financing may be efficient economically if services can be treated independently. However, as community-wide taxing power declines, community-wide needs such as shared infrastructure become harder to address. This challenge directly affects opportunities for supporting infill development, which often requires rehabilitation of old or heavily burdened public facilities.

Fiscal constraint affects local government choices about land use and development in other ways as well. Fiscally constrained local governments often make land use choices based on the amount of revenue they can obtain. As land use choices became increasingly "fiscalized" (scrutinized with an eye to budget impacts), one consequence is that city governments strongly favour retail development over housing and industry—land uses generally less able to "pay their way" in terms of the cost of services (Lewis and Barbour, 1999; Coleman, 2006). The stress to obtain revenue has led to intense "fiscalization of land

[11] In particular, cities became more aggressive about imposing user charges and fees. Revenue from charges and fees increased by 162 percent in California cities from 1972 to 2002, faster than for California counties and cities in the rest of the nation (Barbour, 2007). Per capita revenue from benefit assessments in California nearly doubled from 1987 to 2002, reaching a level more than twice as high as in the rest of the U.S.

[12] Before Prop 13, most community-wide discretionary revenue came from two sources—property and sales taxes. These sources declined from 39 percent of city revenue in 1972 to 29 percent in 2002 (Barbour, 2007).

use," leading many localities to favour "big box" and other commercial developments which bring in significant sales tax. Cities compete to attract retail development and associated sales tax revenue, which in California is allocated to the jurisdiction in which the sale occurred.

Another land use impact has been to transfer the costs of infrastructure for new development onto the development itself. Local officials can impose fees and exactions on developers and create community facilities districts. These techniques facilitate development in "greenfields" more than "infill" areas, because fees imposed on new development do not require voter approval, and because they are easier to coordinate than in already built-up areas. Moreover, infrastructure needs in developed areas are often more expensive to address than in Greenfield areas.

2.2.3) Regional financial capacity

MTC programs a small part of transportation funding

MTC programs roughly 14 percent of the total transportation revenues in these regions, which is only a quarter of the amount controlled by local governments. This is in part because MTC mostly programs state and federal funding sources, while local governments are more likely to raise their own revenue through developer impact fees and additional sales taxes. Worth to note is that though MTC does not have the authority to create a transportation sales tax, it does administer tolls from the Bay Area bridges.

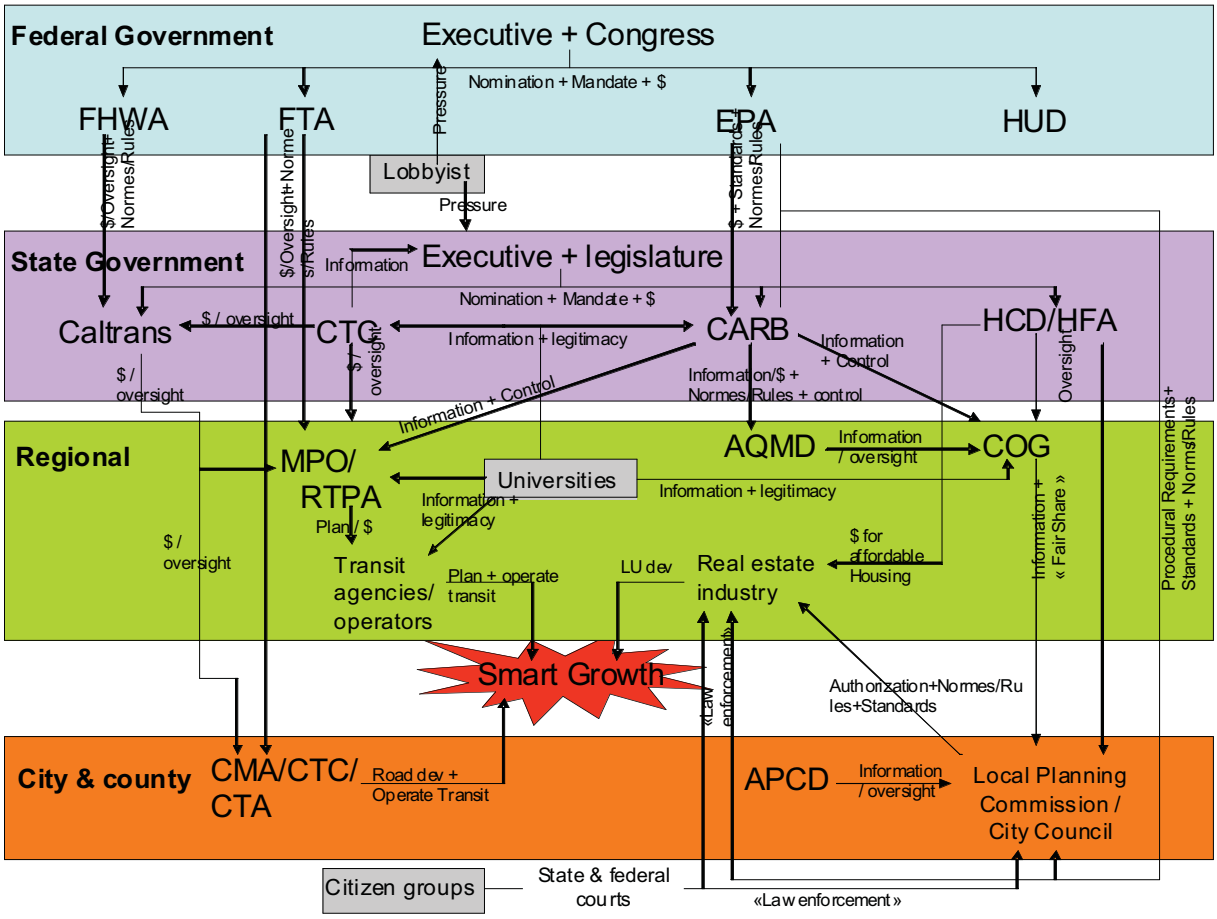
A small share of MTC's money for transportation is flexible

MTC has conducted an analysis to determine what proportion of the revenues that it controls are discretionary revenues not committed to other projects, and it estimates that only $32 billion, which amounts to 14 percent of the revenues projected for its 2035 RTP, are discretionary funds not already committed to projects (Metropolitan Transportation Commission 2008b, 36). Rose 's interviews revealed that this estimate includes $4 million in RTIP funds that are allocated by county transportation agencies; so only $28 million, or 12 percent of RTP revenues, are discretionary sources controlled by the MTC.

In contrast, the analysis of MTC's RTP revenues conducted by Rose (2010), which did not take into account whether revenues were already committed to projects, showed that MTC controls 27 percent of the region's transportation funding (Metropolitan Transportation Commission 2008b). If other MPOs have already committed a similar proportion of their transportation funding, than the overall amount of money that could be conditioned by the first round of SCSs would be closer to six percent.

2.3) Map of Capacity To Act distribution among stakeholders

As presented below, a way to assess and represent the distribution of the "capacity to act" – defined as the formal and informal technical, legal, political and financial power to influence the decision making process - is to map the nature and strength of all stakeholders' influences.



3) Road Maps drawn by state, local and regional policies

In this third section, I describe the urban energy-related policies – with a particular focus on policies dealing with urban transportation and land use - undertaken at the state, local and regional levels.

Indeed, regarding urban energy system, actions taken place at the local level have to be understood as the convergence of three poorly-coordinated forces.

The first one is a top-down force, coming from the Californian state legislature. In recent years, the state of California has taken a central role in the definition of a roadmap that aims to pave a road to a future sustainable urban energy system. This leadership has been translated in a number of bills, whose the Global Warming Solutions Act of 2006 - Assembly Bill 32 (AB32) – serves as the umbrella one. Signed by Governor Schwarzenegger, AB32 sets a goal of reducing emissions to 1990 levels by 2020 and 80 percent below 1990 levels by 2050. Recently signed Senate Bill (SB) 375 charts a process for establishing regional targets for transportation-related emissions.

The second force is a grass-root one, coming from local authorities themselves and/or through city network such as ICLEI, the League of California Cities and the California State Association of Counties. This approach is notably translated into Local Climate Action Plan. However, there are many doubts about the effectiveness of local climate plans in reducing

emissions. But, as there has been little concrete information on what local governments are doing across the San Francisco Bay Area, it is difficult to definitive judgement.

The third force is coming from the regional agencies –mainly MTC and ABAG – which are not directly accountable to voters, but are in charge of caring the regional perspective. Given the governance structure, these regional agencies rely on an incentive-based approach.

3.1) State's actions impacting SFBA's cities

3.1.1) Mitigation strategies

In recent years, the state of California has taken center stage in national and international efforts to fight global warming. In 2001, the California Climate Action Registry (CCAR) was established to track and report greenhouse gas (GHG) emissions. In 2002, legislation was adopted to limit greenhouse gas emissions from new vehicles sold in the state (Assembly Bill (AB) 1493) and to establish a renewable portfolio standard (RPS), with the goal of increasing the share of renewable energy sources in electricity procured in the state (Senate Bill (SB) 1078). In 2006, GHG limits were established on electricity imported from out of state (SB 1368).

These regulations and programs form the cornerstone of more comprehensive economy-wide measures to reduce greenhouse gas emissions. In 2005, Governor Schwarzenegger signed Executive Order S-3-05, setting a goal of reducing emissions to 1990 levels by 2020 and 80 percent below 1990 levels by 2050. A multi-agency Climate Action Team was launched to show how the state could comply with these targets. The 2020 goal was codified into law through the Global Warming Solutions Act of 2006 (AB 32), which placed responsibility for developing an emission reduction plan with the California Air Resources Board (CARB). In October 2008, CARB released the proposed AB 32 scoping plan, which outlines how the state will meet the 2020 emissions target (California Air Resources Board, 2008).

According to this plan, California will need to reduce emissions by 169 million metric tons (or roughly 30%) below projected "business as usual" scenario for 2020. Meeting this target will require emission reductions across all sectors of the economy. Under the California Air Resources Board's proposed scoping (or implementation) plan, released in October 2008, the largest sources of emission reductions are from the transportation sector (through efficiency standards[13] and cleaner fuels[14]), energy efficiency programs[15], and increased use of renewable energy sources[16].

[13] California's automobile emissions standards: The Governor has been pursuing every avenue possible to enforce California's 2002 law, AB 1493 by Assembly member Fran Pavley, which allows California to enact and enforce emissions standards to reduce greenhouse gas emissions from automobiles, including a lawsuit against the U.S. Environmental Protection Agency to overturn its decision denying California's waiver request to enforce these standards.

[14] Low Carbon Fuel Standard (LCFS): California's LCFS requires fuel providers to reduce the carbon intensity of transportation fuels sold in the state, dramatically expanding the market for alternative fuels. To start, the LCFS will reduce carbon content in all passenger vehicle fuels sold in California by at least 10 percent by 2020 and more thereafter.

[15] Million Solar Roofs Initiative: The Governor's $2.9 billion incentive plan for home and building owners who install solar electric systems will lead to one million solar roofs in California by the year 2018, provide 3,000 megawatts of clean energy and reduce greenhouse gas emissions by 3 million tons.

[16] Renewable Portfolio Standard (RPS): the Governor called for an acceleration of the RPS, pushing for 20 percent of California's energy to come from renewable energy sources by 2010 rather than 2017, seven years earlier than statute. This accelerated standard became law in 2006 when the Governor signed SB 107.

Although the proposed AB32 scoping plan does not establish explicit targets for local governments, there has been considerable policy interest in increasing the local government role. A study by the state's Climate Action Team (2006) shows that actions directly under city and county authority, such as land use and building decisions, have the potential to significantly reduce emissions from transportation by lowering vehicle miles traveled (VMT). Since 2007, the Attorney General's office has been pushing cities and counties to address emissions from new development as part of the review process under the California Environmental Quality Act (CEQA), and recently signed Senate Bill (SB) 375 charts a process for establishing regional targets for transportation-related emissions.

SB 375 calls on existing regional planning agencies for implementation, namely Metropolitan Planning Organizations (MPOs), which are currently responsible for developing federally mandated long-range regional transportation investment plans. Under SB 375, the state's eighteen MPOs must devise "Sustainable Communities Strategies" (SCSs) to achieve state-mandated GHG reduction targets. In this effort, SB 375 aligns the MPO planning process more closely with a state-mandated process for coordinating local government plans to accommodate new housing – the Regional Housing Needs Allocation process. In addition, SB 375 eases environmental review requirements under the California Environmental Quality Act (CEQA) for new developments located near transit stations.

Addressing the main source of Californian GHG emissions – transport - with a long term policy goal, SB 375 directs regional and local transportation and land use planning to meet a challenging new performance target, namely to reduce greenhouse gas emissions. Existing regional planning agencies, Metropolitan Planning Organizations (MPOs) specifically, are directed to take responsibility for implementing SB 375. The law requires that regions (through regional planning organizations, in cooperation with local governments) develop "Sustainable Communities Strategies" to achieve more efficient land use and transportation by aligning some planning processes that traditionally had been disconnected. However, SB 375 does not require that local governments comply with the Sustainable Communities Strategies nor does it redirect or create new funding sources to support sustainable planning practices or projects.

Relying on MPOs for planning coordination makes sense because these agencies have been recent innovators in strategic growth planning in California. In particular, SB 375 explicitly recognizes the regional "blueprint" planning innovation, developed – thanks to grants provided by CalTrans - by California MPOs during the past decade, to produce collaborative regional/local plans that achieve preferred scenarios for future regional development. SB 375 retains the governance framework that underlies the blueprint model, so it makes use of the same capacity for innovation and consensus-building.

However, the blueprint governance model also has some inherent weaknesses when it comes to producing plans with a strong regional focus, weaknesses that can be expected to persist under SB 375. Indeed, as we already described in the second part of this paper, as it stands, the authority of MPOs is limited by first, their governance structure, and second, the state funding allocation formulas. MPOs have no independent authority as they act primarily as an interface between local governments and state and federal programs. Moreover, MPOs have no actual authority over local land use decisions. The voluntary, collaborative Council of Government structure, under which MPOs generally operate, has long made it difficult to develop plans and programs with a regional systems focus. The MPO role is further

constrained by state funding formulas that tend to reinforce counties' role in transportation programming and cities' role in land use planning and infrastructure provision.

3.1.2) Adaptation to Climate change

To date, the state's main effort on the adaptation side of the equation has been to generate information on the nature of climate-related risks facing California. State efforts are just beginning to address the implications of these findings for adaptation policy. These efforts have gained in prominence in the past few years with the launching of a biennial statewide assessment of climate impacts. The statewide assessment is coordinated by the California Energy Commission's Public Interest Energy Research (PIER) program. The first biennial assessment, which brought together a large team of scientists from universities, research institutes, and state agencies, was completed in 2006, and a second assessment in early 2009. Much of the attention to date has focused on understanding how conditions may change in California under different emissions scenarios.

The California Ressources Agency has undertaken the task of developing California's first comprehensive Climate Adaptation Strategy (CAS). Following that path, the Resources Agency recently initiated a long-range planning effort for climate change adaptation, and the Climate Action Team is developing a road map for climate change research.

3.2) Local Climate Action Plans

Local governments have recently found themselves in the midst of the state's climate policy debates. In 2007, the Attorney General began filing comments on climate-related issues in the CEQA environmental reviews[17] conducted by local jurisdictions, and sued San Bernardino County for failing to consider GHG emissions in its proposed general plan update. CARB's proposed scoping plan outlines two important roles for local governments. First, the plan encourages them to establish emission reduction targets of 15 percent by 2020 for municipal operations and the surrounding community. Although this action is not included among the plan's quantified measures to meet the AB 32 targets, it highlights the important role that local governments can play in implementing programs included in the scoping plan. The second role for local governments is through the regional transportation planning process, through SB 375 previously presented. Some of these measures have led to debates regarding the extent to which local governments should be held accountable for emissions in a regulatory framework.

Nevertheless, there are also signs of strong local support for California's efforts to reduce GHG emissions. Both the League of California Cities and the California State Association of Counties (CSAC) have begun actively promoting local initiatives to fight global warming. The Institute for Local Government (ILG), the non-profit research arm of the League and CSAC, has launched a California Climate Action Network (CCAN) to provide information and outreach to cities and counties on practical steps for implementing local programs and policies. In addition, according to PPIC (2009), roughly a third of all local governments have joined one or more initiatives that encourage local government action on the climate policy front, including the U.S. Conference of Mayors' Climate Protection

[17] The environmental review process under the California Environmental Quality Act (CEQA), which requires that development permitting agencies conduct environmental review and mitigation, where feasible, of negative impacts of proposed development projects.

Agreement (25% of the state's cities), ICLEI (an international association of local governments and their organizations that have made a commitment to sustainability) (20%of all cities and counties), and the California Climate Action Registry (4%of all cities and counties).

There has been little concrete information on what local governments are doing across the San Francisco Bay Area. Only the Public Policy Institute of California, in association with the Institute for Local Government, conducted a survey of California's cities and counties regarding climate-related actions. The results show that there is already considerable activity on climate change at the local level. Roughly three-quarters of the local governments are working on climate change issues; over half have already completed or have plans to conduct emissions inventories for their own facilities and operations, and many (42%) are also doing this for the community as a whole. Over half have completed or are planning to prepare climate action plans, which lay out steps to reduce emissions. Regular local planning and regulatory tools, such as general plan updates, CEQA reviews, building codes, and zoning requirements, are also being modified to address emissions. Broader community efforts have been facilitated by partnerships and collaborations with other local and regional entities, including business associations and non-profits.

However, as Millard-Ball (2009) described, there are many doubts about the effectiveness of local climate plans in reducing emissions. Studies to date have been sceptical of the causal link between local climate plans and emission reductions. Climate plans tended to repackage existing initiatives and led to little causal reduction in emission. Where specific measures in climate plans have been implemented, they have often been limited to energy efficiency improvements with short paybacks and hence driven by cost-saving rather than environmental goals.

A review of climate Action Plans developed by major municipality in the Bay Area, an analysis of the existing literature and interviews that we carried out with local planning staff and experts, show that, when it comes to implementing specific programs that can reduce emissions local governments are still much more focused on their own facilities and operations than on the community at large. Strikingly, local government action is also much lower in addressing the impacts of climate change – sometimes called "adaptation" - even though scientific projections point to significant impacts.

Moreover, local climate actions are rather limited in tacking the bay area main climate challenges. Because of the extent of their authority and influence, they do not address the main source of GHG emission: transportation.

However, as suggested by Millard-Ball (2009) and confirmed in many interviews I carried out, a broader view of the role of planning suggests that a plan's impacts arise as much through the planning process as through the formal adoption of a plan. Under this "processual pathway" (Millard-Ball, 2009) we might expect emission impacts prior to the adoption of a climate plan. For example, a City Council resolution to join the Cities for Climate Protection campaign might be interpreted by staff as a signal to pursue emission reduction projects (that may subsequently become elements of a climate plan) even prior to the adoption of a formal plan.

If this processual pathway exists, it implies that climate planning efforts have impacts prior to the adoption of a plan. These impacts might arise from public engagement during the planning process, helping to highlight emission reduction possibilities and raise awareness of the dangers of climate change, and/or empowering city staff to implement emission reduction projects in response to a signal regarding the priorities of elected officials. In other words,

policy learning is as important an outcome from the climate planning process as the final climate plan itself.

BOX YY: Three examples of Local Climate Action Plans in the San Francisco Bay Area

City and County of San Francisco

In 2002, under Mayor Willie Brown, the City and County of San Francisco passed a resolution to reduce greenhouse gases 20% below 1990 levels by 2012. The resolution gave a number of reasons for this act, including flood prevention, to show that local actions can pave the way for currently lacking national leadership, because greenhouse gas reductions "contribute substantially to the achievement of many of the City's highest priority goals", to receive anticipated economic and environmental benefits. The passage of the resolution also indicated the strong support of the community, given that "the Board of Supervisors along with a large majority of San Franciscans supported Propositions B and H in November 2001 which will create the largest renewable energy programs in the country," in direct alignment to GHG reduction goals.

The San Francisco's Climate Action Plan was published in 2004, after the city signed on to the US Mayor's Statement on Global Warming in 2003 and completed a baseline inventory of greenhouse gases for 1990 and 2000. In 2005, the city hired an official climate coordinator to work on implementing some of the reduction strategies laid out in the Climate Action Plan.

In 2008, Mayor Gavin Newsom and the City of San Francisco reaffirmed the City's commitment to reducing greenhouse gases by passing an ordinance that included three provisions: 1) require each department in the city to reduce emissions by 5%, 2) infuse the general plan with climate change planning, and 3) examine emissions from proposed development projects. Emission inventory of each departments were submitted in January 2009, according to a guideline/template established by the Department of the Environment. The climate coordinator is now focused on assisting the many departments within the city reach their goal of emission reductions, and identifying the different avenues that are available for department heads to take.

City of Berkeley,

Berkeley was one of the first cities to join ICLEI and actually completed its first Climate Action Plan in 1997. The North American ICLEI office was run by a former Berkeley council person who advocated for Berkeley to join. The City also joined the Chicago Climate Exchange in the 90s, but then the climate action effort lay dormant. The most recent revival in planning for climate change started when city staff discussed how to involve the community in planning decisions. Staff decided to put climate change on the ballot. Measure G asked, "Should the People of the City of Berkeley have a goal of 80% reduction in greenhouse gas emissions by 2050 and advise the Mayor to work with the community to develop a plan for Council adoption in 2007, which sets a ten year emissions reduction target and identifies actions by the City and residents to achieve both the ten year target and the ultimate goal of 80% emissions reduction?". Staff regard the ballot as similar to "buying a free ad," but the ultimate result was that Berkeley received a major mandate to reduce emissions in the city.

City of Palo Alto

Palo Alto's Climate Protection Plan was published at the end of 2007, but the City and staff pride themselves on having been focused on "green" planning issues since the 1990s.

One of the first steps that the city took towards "greening" its own operations was by purchasing as much green power as possible, and implementing aggressive incentive programs for energy efficiency and renewable energy. Those kinds of policies and programs have been in place since before 2000, but then in 2006, the current Mayor set up a "Green Ribbon Task Force" (GRTF). Lead by an environmental leader within the community, and including residents and some staff, the GRTF examined a wide variety of ways that Palo Alto could reduce its environmental footprint.

After meeting for one year, the Task Force came up with 250 recommendations for Palo Alto, including installing LED streetlights to working with other cities to development a comprehensive Bay Area transportation plan. The recommendations were presented to the City Council and community at the end of 2006, and that January, the next Mayor (mayor's are chosen on an annual basis from the City Council), said "let's do something with these great ideas."

Because the city had been working on decreasing its environmental impact for several years, there were staff in different departments who were working on environmental issues, but the mayor decided that one coordinator was needed to harmonize Palo Alto's work. In the end, several different staff members applied for the position as a team, with an environmental specialist, a financial analyst, a solid waste expert and a water quality treatment specialist. The first task that the team developed for themselves was to complete a greenhouse gas inventory.

3.3) Regional incentive-based approach

Because of the governance structure and the budget distribution among stakeholders, SFBA regional focus relies on incentive-based approach carried-out by MTC and ABAG. We will present in more detail and discuss the main existing one[18]: FOCUS.

FOCUS is a regional incentive-based development and conservation strategy that promotes a more compact land use pattern for the Bay Area. FOCUS unites the efforts of four regional agencies— The Association of Bay Area Governments (ABAG), Bay Area Air Quality Management District (BAAQMD), San Francisco Bay Conservation and Development Commission (BCDC), and the Metropolitan Transportation Commission (MTC) — in partnership with congestion management agencies, transit providers, and local governments throughout the Bay Area into a single program that encourages future growth in areas near transit and within the communities that surround the San Francisco Bay. Concentrating housing in these areas aims to offer housing and transportation choices for all residents, while helping to reduce traffic, protect the environment, and enhance existing neighborhoods. FOCUS is partially funded by a Blueprint Grant from the State of California Business, Transportation, and Housing Agency.

[18] Other incentive-based approaches are developed by MTC :
- In July 2005, MTC approved a Transit-Oriented Development Policy that establishes planned housing-unit thresholds that corridors slated for transit expansions or extensions will have to meet in order to qualify for regional discretionary funding.
- MTC's Transportation for Livable Communities (TLC) Capital and Planning Program supports community-based transportation projects that bring new vibrancy to downtown areas, commercial cores, neighborhoods. TLC provides funding for projects that are developed through an inclusive community planning effort, provide for a range of transportation choices, and support connectivity between transportation investments and land uses.

Through FOCUS, regional agencies will support local governments' commitment to smart growth by working to direct existing and future incentives to Priority Development Areas (PDAs) and Priority Conservation Areas (PCAs).

Priority Development Areas (PDAs) are locally-identified, infill development opportunity areas near transit within existing communities. They are generally areas of at least 100 acres where there is local commitment to developing more housing along with amenities and services to meet the day-to-day needs of residents in a pedestrian-friendly environment served by transit. To be eligible to become a PDA, an area had to be within an existing community, near existing or planned fixed transit or served by comparable bus service, and planned for more housing.

Nearly 60 jurisdictions (plus several Congestion Management Agencies) submitted applications for over 100 PDAs. The areas nominated include most of the places in the Bay Area served by fixed transit, major bus corridors, or planned transit. Together, these areas comprise about 115,000 acres of urban and suburban land, less than 5% of the Bay Area's total land area. However, even though this is a small proportion of the region's land area, the proposed PDAs could accommodate over half of the Bay Area's projected housing growth to the year 2035, mostly at relatively moderate densities.

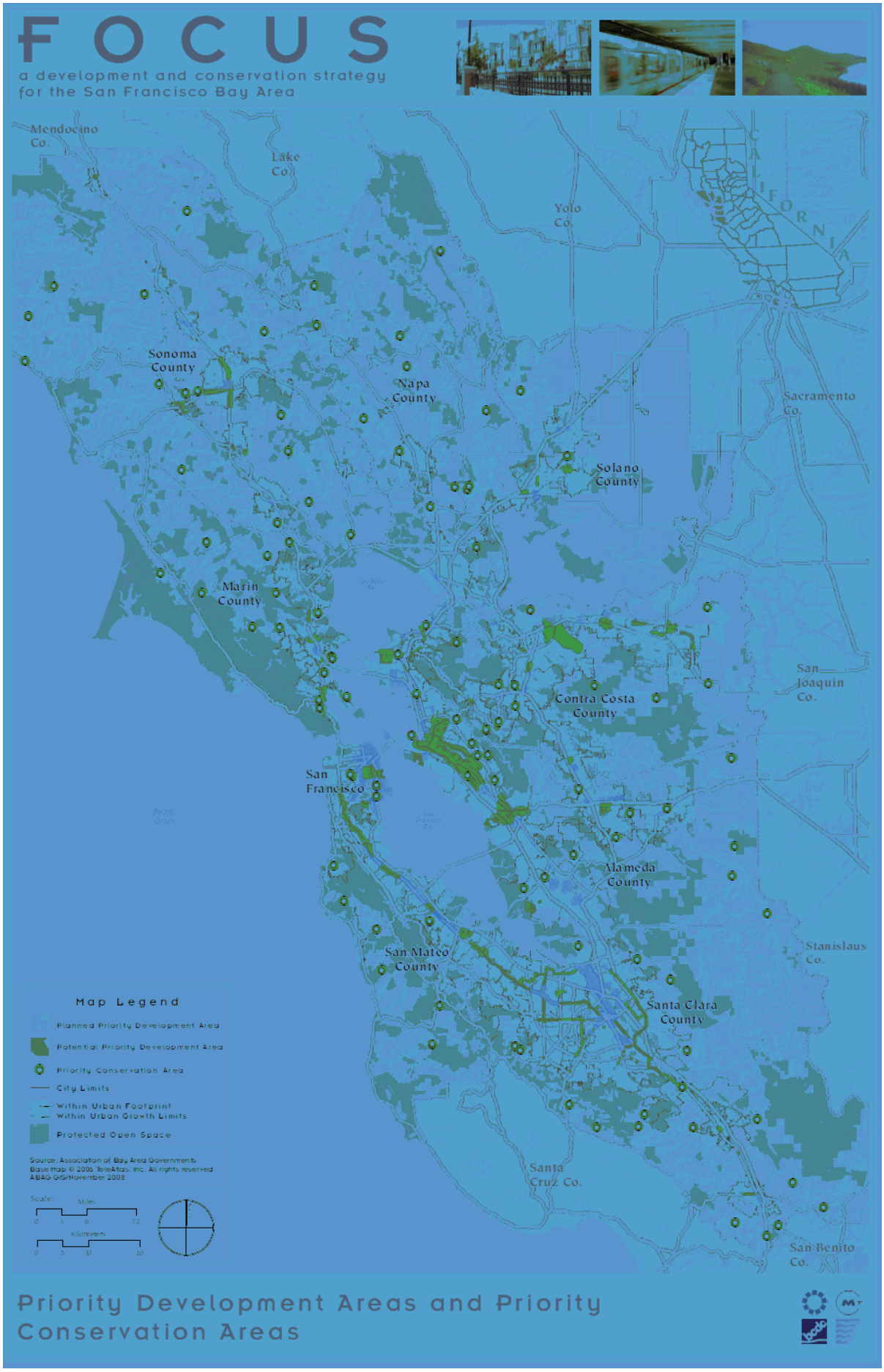
Nominated PDAs were separated into those that are planned and those that are potential. The primary difference between these two designations is that a planned PDA has both an adopted land use plan and a resolution of support from the city council or county board. In general, these categories relate to readiness for funding: Planned PDAs would be eligible for capital infrastructure funds, planning grants, and technical assistance while Potential PDAs would be eligible for planning grants and technical assistance, but not capital infrastructure funds.

Priority Conservation Areas are regionally significant open spaces for which there exists a broad consensus for long-term protection. These areas provide important agricultural, natural resource, historical, scenic, cultural, recreational, and/or ecological values and ecosystem functions.

The purpose of designating priority conservation areas through the FOCUS Program is to accelerate protection of key natural lands in the San Francisco Bay Area through purchase or conservation easements within the next few years. Conservation will be promoted through regional designation by:

- Coordinating conservation efforts within a regional framework of near-term priorities
- Providing a strong platform on which to leverage public and private resources
- Building upon prior and existing land protection efforts and investments
- Providing opportunities for forging new partnerships

In the fall of 2007, local governments, public agencies, and nonprofit organizations nominated over 100 areas for consideration as Priority Conservation Areas. Nominations were reviewed by staff, a review panel, regional committees, and local governments. Recommendations were based on the three nomination criteria: level of consensus, regional significance, and urgency for protection. The ABAG Executive Board adopted a set of Priority Conservation Areas on July 17, 2008.


FOCUS
a development and conservation strategy
for the San Francisco Bay Area
Mendocino Co.
Lake Co.
Yolo Co.
CALIFORNIA
Sonoma County
Napa County
Sacramento Co.
Solano County
Marin County
San Joaquin Co.
Contra Costa County
San Francisco
Alameda County
San Mateo County
Stanislaus Co.
Santa Clara County
Santa Cruz Co.
San Benito Co.
Map Legend
Planned Priority Development Area
Potential Priority Development Area
Priority Conservation Area
City Limits
Within Urban Footprint
Within Urban Growth Limits
Protected Open Space
Source: Association of Bay Area Governments
Base Map © 2006 TeleAtlas, Inc. All rights reserved
ABAG GIS/November 2006
Scale:
Miles
Kilometers
Priority Development Areas and Priority Conservation Areas

Regional agencies have been developing programs for technical assistance, planning grants, and capital infrastructure funding to support Priority Development Areas (PDAs) and Priority Conservation Areas (PCAs).

Technical assistance services are now being offered to local jurisdictions through FOCUS to advance transit-oriented development (TOD) in Planned or Potential Priority Development Areas (PDAs). The objective of this flexible technical assistance program is to support discrete planning projects that will advance implementation of PDA-related plans in support of FOCUS goals. Customized in-kind technical assistance is provided to local jurisdictions seeking to overcome specific policy or planning challenges to the adoption or successful implementation of PDA-related plans.

The FOCUS Program has also worked to help connect PDAs with a variety of funding opportunities. Although these funding programs are still highly competitive, jurisdictions with designated FOCUS PDAs can be more successful in securing financial assistance than other areas. A few examples of funding opportunities made available to PDAs are:

- Capital funding for PDAs is available through the Regional Transportation Plan (RTP), which is managed by MTC. MTC doubled the available funding to $2.2 billion. Moreover, MTC recently approved expanding the program eligibility: eligible program categories now include streetscapes, as well as non-transportation infrastructure improvements, transportation demand management, and density incentives.
- The 2007/2008 Station Area Planning Grant Program expanded eligibility requirements to include PDAs. $7.5 million was made available to PDAs for Station Area Planning grants, and over $10 million in additional grants should be available in coming years.
- Through a California Department of Transportation (Caltrans) Environmental Justice grant, ABAG was able to award $100,000 to PDAs seeking to engage community members on the topic of displacement due to development in their community.
- ABAG has been able to connect PDAs to a recent award for "Green Infill - Clean Stormwater" that was funded by the U.S. Environmental Protection Agency's West Coast Estuaries Initiative.
- The California Housing and Community Development Department allocated grant funds from Proposition 1C for their TOD Housing Program and Infill Infrastructure Grant Program this year. The guidelines for each of these programs awarded points based upon PDA status.
- The Bay Area Air Quality Management District coordinates the Transportation Fund for Clean Air grant program. This Regional Fund now awards points for projects that reduce emissions in regionally approved Priority Development Areas.

Similarly, FOCUS staffs are working with land conservation funding entities to raise awareness of the funding opportunities in these areas. One example of how these near-term conservation opportunities will help inform the spending of conservation dollars in the San Francisco Bay Area is the distribution of Proposition 84 funds. The State Coastal Conservancy's San Francisco Bay Area Program will be spending $108 million from Proposition 84 over the next 4-5 years. FOCUS PCAs will inform the Conservancy, other public agencies, and private organizations of near-term (1-5 year) land conservation opportunities (acquisition or conservation easement) in the region.

Regional staffs that we interviewed are confident that additional financial assistance may arise from a variety of state and federal programs in the coming years as support for regional blueprint planning increases.

Conclusion

The San Francisco Bay Area's challenges of sustainability are representatives of many urban situations in the developed world. Transportation, in its relation with land use pattern, is certainly the key issue related to energy, affordability and climate change adaptation and mitigation. This challenge is a regional one, and therefore, policies that aim to tackle this major challenge of sustainability have to be analyzed in a regional perspective.

In California and in the Bay Area in particular, there is a real political willingness to tackle energy-related challenges, and to bring significant alterations to Californian urban dynamics and urban energy systems. But, given the multi-level and multi-actor governance structure on one hand, and on the other hand the current procedural and decentralized governance structure leading to a weak regional authority, actions taken place at the local level are still poorly coordinated. There are notably many counter-productive policies that will need to be harmonized with the objectives of urban sustainability.

Actions to put urban energy systems on a sustainable path are also facing many vested interests and financial barriers. The current economic crisis is a particularly difficult context to put in place the necessary changes to business-as-usual processes. Indeed, without additional money, the only way to enforce a sustainable transition is to reallocate budgets among priorities.

Worth to note is the evolution of stakeholders' relationship. For instance, to give a role to CARB in the local land-use planning process is a significant step towards a sustainable urban planning framework. As a state institution in charge of air quality issue, CARB bring a new perspective in the balance between local costs and regional interests.

Also worth to note is the use of a broad set of complementary tools: incentives and obligation are used in a "stick and carrot" approach; market instruments such as carbon price are combined and/or completed with regulations when and where it is necessary, incremental and systemic alterations are sought.

Finally, the Californian energy and climate policies can be understood in an "urban trajectory" perspective, which take into account how the short term efficiency of a specific policy can serve – or not - the long term goal. Indeed, the legislature recognized that technical solutions would not be sufficient to achieve the 2050 state's goal: even with much greater fuel efficiency and low-carbon fuels, California will not be able to achieve its climate goals unless it can reduce the rate of growth in vehicle miles travelled. Therefore, the issue was not "if" land use and transportation policy were going to be connected to reducing greenhouse gas emissions but "how" and "when."