

DRAFT February 8, 2001

The Sustainability Plan Scenario (SPS)

by Sherman Lewis

The Bay Region has the opportunity to be on the cutting edge of new, systemic ideas that redefine the nature and purposes of human society. The Sustainable Plan Scenario in the Livability Footprint research is a unique opportunity to begin to quantify the benefits of a more coherent and progressive approach.

Background:

The Bay Area Alliance for Sustainable Development (BAA) is composed of business, environmental, equity, and local government interests. It has drafted a Compact for the region to deal with its development, housing, transportation, environmental, social, and related challenges. It has published a list of indicators to better measure the status of the region. It is supporting the Capital for Community Investment Initiative to invest in low income neighborhoods. The BAA, finally, is working on the Regional Livability Footprint Project to study how to accommodate growth on the ground. The research allows different scenarios to be studied. One scenario will certainly be a “Smart Growth” (SG) scenario that will accommodate enough housing development in the region to match all the jobs projected in 2020. This scenario will attempt to increase densities and minimize open space development.

The Regional Agencies (Agencies) of local government, five of them, received funding from EPA for similar research, the SG Strategy, and the BAA is working with them on the SG scenario. While this scenario is well worth studying, many environmentalists feel that it is trying to accommodate too much growth, that it is unlikely to propose development with high enough densities or adequate transit, and in other ways is less than ideal. We propose to study the SPS. The purpose of the SPS is to articulate a much better scenario from all four vantage points—business, environmental, social, and governmental—and to have it studied by the BAA.

An essay on urban sustainability, “From Smart Growth to Sustainability: The Challenge of Multiple Paradigm Change,” provides the rationale for the discussion below, which focuses on the land use and transportation aspects of the SPS, with an illustration for Alameda County. The staff of the Agencies during the spring and summer is conducting workshops and developing a SG scenario for detailed study. The SPS will need definition and support by the end of this period if it is to be studied.

ER and TE

The numbers below often use employed residents (ER) rather than population, in order to see

First Phase: Land Use Projections and Targets

ABAG makes projections of ER and TE, the important ones now being for 2020. The Agencies looked at this data in order to set targets for how much SG to plan for.

The first phase of SG scenario development is assigning ER and TE to geographic areas. ABAG projects the region will grow from **3,538,000** ER in 2000 to **4,438,300** ER by 2020, or

Our approach has other new ideas, like using ethical principles, managing job location externalities, reforming transportation pricing, increasing large scale transit density smart growth, and building some even higher (walking density) smart growth, the Pedestrian Neighborhood. We lack studies the market demand for living in such a neighborhood (see Research below), but we can assume it for scenario testing.

SPS Land Use Targets

Under the SPS the region would grow to **3,988,149** ER by 2020, a growth of 12.7 percent, half the ABAG rate and even less of the Agency rate. The SPS moderates projected regional job growth to have TE equal to ER by 2020. Jobs would grow less, and housing more, in areas with severe job surpluses. Job growth is held down in Silicon Valley and San Francisco while ER increases as projected by ABAG, greatly improving their job-housing balances, commute distances, and transit use. The rationale for this is not just to get a better balance, but to correct for the current costs of job location externalities. It is clear these costs are very great, but research is needed for quantification (see Research below).

Elsewhere, TE is allowed to increase relative to ER growth, also improving job-housing balances, commute distances, and transit use. Some job locations projected by ABAG move within the region and others move to other regions, helping both them and us. All cities get some job growth, and housing catches up to jobs.

Looking at total population, SPS population growth trends toward a stable population. The 1990 population of the Bay Area was about six million; in 2000 it is about seven million. ABAG

Transportation

The second phase (after assigning TE and ER) is seeing how these land uses perform for **transportation** using MTC's land use-transportation model. Transportation planning requires consideration of pricing reforms and infrastructure investment.

The SPS will assume much stronger market **pricing reforms** of auto use and a more cost-effective transit projects than the Agencies. The SPS assumes a Pigovian carbon tax and a balancing tax swap based on locational elasticities (explained elsewhere). Other pricing reforms include congestion charges, cash-out, market parking charges (including BART), neighborhood parking programs on public streets and parking lots, removal of parking requirements from zoning codes, improvement of housing markets for car-free and centrally located households (delinking car and living space costs; LEMs; shared car ownership, improved rentals), and traffic calming (street narrowing, traffic humps, etc.). These pricing incentives combined with SG change the urban system from auto dependency to the new "urbia," the effective form of SG which is an alternative to suburbia.

Concerning **infrastructure investment**, the SPS assumes cost-effective transit (the RAFT plan) and bicycle and pedestrian improvements. Revenue from congestion charges and parking charge is used for transit. SPS assumes improved frequency of transit service, some lower transit fares, "super shuttle"¹ access to transit stations, CalTrain and Fremont-to-San Jose commuter rail upgraded to urban rail, Transbay rebuild, ticketing/route/scheduling coordination, and so on.

Under SPS from 2000 to 2010, due to the combination of land use balance improvements, SG, pricing reforms, and infrastructure investments, the drive-alone mode share should decline very significantly while transit, bike and walk mode shares increase significantly.

Research

Research on the Pedestrian Neighborhood, Job Location Externalities, and ER/TE Balance

The SPS analysis would be strengthened if we had better information on three issues, explained in more detail elsewhere:

- § **The Pedestrian Neighborhood:** Based on a "beyond transit" density, ~100 residents per acre on ~ 100 acres, 3 to 5 stories. 1. Sketch design of floor plans, building and street perspectives, area plan; 2. costing, 3. financing pro formas to establish rent and sale prices, and 4. market research to establish demand for planning purposes.
- § **Job location externality costs** in housing prices, commutes, and pollution for four severe job surplus superdistricts. Are jobs which create commute trips above the freeway congestion tipping point worth the cost?
- § **Defining balance:** A more transparent operational definition of "reasonable commute" and "commute shed" to accommodate cascading commutes and establish size of job surpluses.

Additional phases of planning, which are not currently funded, would look at the cost-effectiveness of infrastructure investments, the equity of their finance, economic efficiency, and income. The **cost-effectiveness** of infrastructure investments is best measured by cost per new

¹Low floor, wide door vehicles, proximity card or barrier-free fare collection, clean powerful motors or trolley bus, raised curb or Curitiba-style stops, improved pavements, reduced car interference/straight pull-through stops, frequent headways, hard-wired meets with rail service, signal preemption or preference, medium length runs through SG neighborhoods to outlying park and ride, central access to office parks, campuses, and industrial areas.

trip, which for transit is cost per new rider. This measure is better than cost per passenger mile, which favors longer trips. Longer trips are inherently less economic and less environmental. The analysis would probably show that new heavy rail in the South Bay is less cost-effective than new service on old rail. It would probably show that I-680 Sunol grade widening is not needed because there is no congestion there with pricing reforms and improved rail service. It would probably show that SG around High Quality Transit supports higher ridership.

The **equity of finance** concerns who pays and who benefits. The Agency process assumes general taxes to pay for infrastructure benefitting a general population and no clear information about redistributive effects, which may go either way. However, transit in moderate to low income areas and denser areas tends to benefit the less affluent, while highways benefit the more affluent. Longer distance transit may have balanced results, but if access is by free parking benefits the affluent.

Economic efficiency concerns how much a good or service is distributed by prices and how much by government. Prices that internalize currently externalized costs give buyers appropriate signals for the cost of their behavior and economize accurately, as well as reducing the imposition on those now bearing the external costs.

Income relates to how well a sustainability plan would improve general income and improves income distribution, as measured by median per capita income, quintile ratios and the Gini coefficient.

Other important topics also fall beyond the scope of study of SPS, the Agencies, or the BAA, but are part of the BAA Compact: 1) Increasing investment in education and training for high tech and other skills shortages to help current residents qualify and compete for jobs; 2) Regional GPI and regional Ecological Footprint for different scenarios; and 3) Fiscal reform to reduce zoning for dollars and to implement local government revenue sharing. There are probably some additional commitments and policies in the BAA Compact that are overlooked. I am not advocating they be studied now, because we don't have the resources to do so, but rather that we keep track of them because they are important.

Sample sustainability worksheet

SUSTAINABILITY FOR ALAMEDA COUNTY

ABAG reports the **current situation** in Alameda County and its five superdistricts:

ABAG 2000				
	Superdistrict	Employed Residents	Total Employment	Difference
15	Livermore/Pleasanton	93,988	117,602	(23,614)
16	Fremont/Union City	167,213	131,152	36,061

ABAG 2020				
	Superdistrict	Employed Residents	Total Employment	Difference
15	Livermore/Pleasanton	147,291	187,629	(40,338)
16	Fremont/Union City	203,746	177,759	25,987
17	Hayward/San Leandro	185,550	194,013	(8,463)
18	Oakland/Alameda	237,725	261,932	(24,207)
19	Berkeley/Albany/Emeryv.	97,597	124,009	(26,412)
Alameda County		871,909	945,342	(73,433)

ABAG predicts a significant growth of employed residents but with so much growth in employment that workers commuting into the county increase to a net 73,433 in 2020. With ABAG 2020, the job-housing balance gets much worse.

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Under SPS, Employed Residents and Total Employment each grow about 9 percent. Under SPS, Alameda County needs to plan for housing 62,200 more employees, as compared to 177,307 according to ABAG.

In SD 15 **Livermore/Pleasanton** the SPS allows for some growth but far less than ABAG. ABAG assumes the job-housing imbalance gets much worse, while the SPS improves it a little.

In SD 16 **Fremont/Union City** the SPS allows for some growth with enough job growth to preserve the present balance.

In SD 17 **Hayward/San Leandro** the SPS allows slightly more growth but holds jobs down a little to keep the present balance, which otherwise gets a little worse.

In these three SDs the growth would be Smart Growth around transit and not in the greenbelt.

In SD 18 **Oakland/Alameda** and SD 19 **Berkeley/Albany/Emeryville**, which are more urban, the SPS has a growth rate lower than ABAG but a little higher than the county average because of the potential for smart growth in the old urban core already served by transit. ABAG assumes the imbalance in SD 18 will get much worse, but the SPS prevents most of that. In SD 19, the imbalance remains steady among all three tables.

The SPS allows all cities to grow in population and jobs, and puts the growth in transit-served smart growth locations. The SPS gives an idea about how a plan could be done. Do you think such a plan should be studied by the Regional Agencies and the Bay Area Alliance?