

MTC-ABAG
Plan Bay Area Public Comment 101 8th Street
Oakland, California 94607

May 16th, 2013

re: Public Comment on Draft Bay Area Plan and Draft Bay Area Plan Draft
Environmental Impact Report

The *Bay Area Plan – Strategy for a Sustainable Region* (hereinafter Plan) suggests ways in which the Bay Area can meet mandated emissions targets. Specifically, it asserts that the decentralization of jobs in the region has fostered high levels of traffic congestion and suggests land use and transportation policies that will restrain auto use (“Preferred Scenario”).

But to assess the plausibility of all this, three questions must be addressed. (i) What do we know about modern American cities (actually U.S. metropolitan and urbanized areas; differences noted below)? (ii) How does what we know impact the efforts of Bay Area planners and their affiliates as they address air quality issues? (iii) Are the identified long-term trends durable and likely to continue? I will show that substantial available evidence suggests that the Plan’s efforts to funnel job growth to designated areas within the region are (a) unnecessary; and (b) unlikely to have beneficial effects.

U.S URBAN DEVELOPMENT

Urban growth data are best understood using the Census Bureau’s urbanized areas (UZAs) http://www.census.gov/geo/maps-data/maps/thematic_2010ua.html.

Unlike “metropolitan areas” (Metropolitan Statistical Areas, MSAs) which rely on fixed boundaries (usually clusters of counties), the UZAs define the actual footprint of development in any year. Table 1 shows population density data for the largest UZAs for each decennial census year since 1950. We see that average population densities fall in most places in most years. Suburbanization has been

the dominant trend for many years and is likely to continue. Cities everywhere are auto-oriented developments. The only exceptions are the surviving pre-auto downtowns and the relatively few walking districts scattered through various suburban areas across America. But these are not representative of the urbanized areas surrounding them.

BAY AREA DEVELOPMENT TRENDS

The conventional two-way central city-suburb classification is misleading because there is variability in settlement patterns and residential densities and job availabilities within any major metropolitan area. The nine-county Bay Area is best understood if studied in terms of smaller-than-county geographic units. A useful source is the U.S. Census Public Use Microdata Sample (PUMS http://www.census.gov/acs/www/data_documentation/public_use_microdata_sample/) which reports data for areas designated as PUMAs. The nine-county Bay Area includes 54 PUMAs. Selected data for these PUMAs are in Table 2. In 2009, the Bay Area's PUMAs had an average population of 131,783 (standard deviation 23,403), an average area of 331 square kilometers (standard deviation 634) and average population density of 2,220 (standard deviation 2,468).

The Census chooses area boundaries to keep population counts roughly similar. Coefficients of variation (CV) are normalized standard deviations, e.g., the standard deviation divided by the mean. For example, the CV of Bay Area PUMA population is 0.18 (below 1.0, considered low) while that of areas is 1.92 and population densities is 1.11. Over the 54 areas, an array of densities and neighborhood types is included. But note that average journey-to-work travel time (all modes, one-way) was 27.2 minutes in 2009, with a standard deviation of 3.5 and coefficient of variation of just 0.13. The correlation between PUMA population density and PUMA average trip times was 0.004, zero for all practical purposes. By these measures, commuting durations were remarkably even throughout the Bay Area.

The PUMA data also include local jobs available. We see that the mean value was 71.6 jobs per local resident (aged 16-64 in the previous year), with a minimum value of 59.8 and a maximum of 81.5. It would be hard to label areas "job rich" or

“job poor.” There is substantial jobs-housing “balance.” But we have to dig deeper. Many of us drive past plenty of jobs on our way to work. We don’t stop until we reach the job that (all things considered) is the one that is right for us.

COMMUTING AND DEVELOPMENT

Planners interested in air quality improvements focus on journey-to-work and see it as amenable to policy-based modifications. But when choosing locations, workers as well as employers consider a large number of trade-offs; workers understandably want to avoid costly commutes (mostly assessed in terms of time costs), but they have many other accessibilities and interactions to consider. The quality of local schools is a dominant consideration for families with school-age children, but there are also many other attractions that matter (including shopping, recreation, friends and family, etc.). This is why Professors Genvieve Giuliano and Ken Small (“Is the Journey to Work Explained by Urban Structure?” *Urban Studies*, 30:9, p 1485-1500) wrote “... we conclude that attempts to alter the metropolitan-wide structure of urban land use via policy intervention are likely to have disappointing impact on commuting patterns, even if successful in changing the degree of jobs-housing balance.” One of the reasons for this finding, they argue, is that most people’s commute is not that onerous and also some people prefer some buffer between home and work.

The dominant U.S. urban growth pattern has been one of substantial co-location of employers and employees because it is in the interest of each to avoid great distances between them.¹ Writing about the Bay Area, Robert Cervero (“Jobs-Housing Balance Revisited: Trends and Impacts in the San Francisco Bay Area” *Journal of the American Planning Association*, 62:4, p 492-511) concludes, “Changes in ratios of jobs to employed residents in the Bay Area during the 1980s suggest a general trend toward balance, lending some credibility to the co-location hypothesis. However, this was primarily attributable to jobs moving to labor markets” This pattern has evidently persisted.

¹ The phenomenon has been documented many times. See, for example, Edward L. Glaeser and Matthew E. Kahn, “Decentralized Employment and the Transformation of the American City” (Feb. 2001) National Bureau of Economic Research Working Paper # 8117.

Bumsoo Lee (2007)² examined the 79 largest U.S. metropolitan areas and compared commute times by drive-alone mode with job location in each area. He placed all commuters as either working in the traditional central business district, the various subcenters or outside of either, e.g. “dispersed.” The proportions of each for the largest (3-million or more population) metropolitan areas were 18, 14 and 68 percent, respectively. Plotting commute time vs. metropolitan area population, he found that steepest slope was for the CBD commuters while the least steep slope describes the dispersed workplace commuters; average trip times increase the least for those commuting to the dispersed workplaces. This is the spontaneous co-location tendency which explains the avoidance of the “traffic doomsday” that so many fear (and predict). Attempts to channel job growth to specific areas cannot reach this level of spontaneous worker-job matching. In the cases of establishing “greenbelts”, the experience has been that workers leapfrog the restricted areas in order to find the housing they want. This results in longer commutes.³ People’s preferences usually assert themselves.

But this tendency, when unhampered, has been beneficial. Co-location explains the fact that travel times in the U.S. have been remarkably stable for many years. This also explains the conclusion by Prof Alex Anas (2012) that, “The data on the largest U.S. MSAs show that commute times increase only slightly with city size: the elasticity of the average commute with respect to the number of workers is about 0.1 in 1990 and 2000” (p. 146).⁴

Figure 1 shows the *distribution* of Bay Area commuting durations from the 2009 National Household Travel Survey <http://nhts.ornl.gov/> (solo-auto trips only shown here). This source includes data for individual trips reported and allows the nature of the distribution of trip characteristics to be studied.⁵ The mean trip time (one-way) was 24.9 minutes. The important finding is that most trips were of shorter-than-average duration; the mean is pushed up by the outlier lengthy trips.

² Lee, Bumsoo "Edge" or "edgeless" cities? Urban spatial structure in U.S. metropolitan areas, 1980 to 2000. *Journal of Regional Science* 47 (3):479-515.

³ Vyn, Richard J. (2012) “Examining for Evidence of the Leapfrog Effect in the Context of Strict Agricultural Zoning” *Land Economics*, 88:3. <http://le.uwpress.org/content/88/3/457.abstract>

⁴ Anas, Alex (2012) “Discovering the Efficiency of Urban Sprawl” Ch 6 in Nancy Brooks, et al. *The Oxford Handbook of Urban Economics and Planning*. New York: Oxford University Press.

⁵ Unfortunately, only a three-county area (San Francisco, Oakland and San Jose) was studied.

A recent University of Minnesota study ranks the San Francisco area as #2 in generalized accessibility in the U.S. <http://www.cts.umn.edu/access-study/acrossamerica/>. Unlike the other sources cited, this study employed a weighting scheme; not all accessibilities are equal.⁶ To be sure, there are always pockets of congestion, but these are most likely to occur in the absence of rationing by pricing and/or the inability of planners to keep up via capacity expansion.

POLICIES VS. TRENDS

Coincident with the documented benign unfolding of events have been the dashed hopes that people's housing and commuting preferences could be altered, that shorter commutes, less congestion, less auto-induced air pollution could be achieved from various land use regulations or policies. A recent Brookings Institution study ("From Traditional to Reformed: A Review of Land Use Regulations in the Nation's 50 largest Metropolitan Areas")⁷ itemizes the many types of measures that have been adopted. But an analysis of recent urbanized area settlement trends (for 2000-2010) reveals no connection between policy regimes and outcomes. The last column of our Table 1 indicates thirteen UZAs which experienced increased population densities in the most recent decade, the period during which the policies studied should have had an effect. There is no observable connection between increased population densities and regulatory approach as discovered via the Brookings typology (Table 3 and Appendix table of their study). The 1,800 jurisdictions that were surveyed reported their efforts in six areas of land use regulation (zoning, comprehensive planning, containment, infrastructure regulation, growth control, and affordable housing programs and funding). These were detailed in terms of twelve measures. Factor analysis was then applied to classify metropolitan areas in terms of their dominant regulatory approach, e.g. twelve "clusters" of policies. The authors then arrayed the clusters into four "typologies of land use regulations" ("Traditional," "Exclusion," "Wild West

⁶ "To generate the rankings for this study, Levinson created a weighted average of accessibility, giving a higher weight to closer jobs. Jobs reachable within 10 minutes are weighted most heavily, and jobs are given decreasing weight as travel time increases up to 60 minutes. Based on this measure, the 10 metro areas that provide the greatest average accessibility to jobs are Los Angeles, San Francisco, New York, Chicago, Minneapolis, San Jose, Washington, Dallas, Boston, and Houston."

⁷http://www.brookings.edu/~media/research/files/reports/2006/8/metropolitanpolicy%20pendall/20060802_pendall.pdf

Texas,” “Reform”). There were very few increased average density UZAs and they were scattered *across* these groups.

But there is also an ominous well documented outcome. The intuition that reduced supply (or less responsive, e.g. less elastic supply) pushes up prices has been corroborated many times.⁸ While sensitive areas should be protected, efforts to restrict development to fixed urban “footprints” have had the effect of raising land and housing costs. The extent to which people’s preferences can be altered by restricting choices is dubious. It is much more likely that people will search, settle and travel further to find a bundle of housing characteristics they like.

These results undermine the Plan’s stated interest shorter trips as well as in equity and improved housing affordability. In terms of recent events, the 1996-2006 house price bubble was most severe in the supply-constrained cities. Glaeser and Gyourko (2002) report that, “the price of housing is significantly higher than construction costs only in a limited number of areas, such as California and some eastern cities ... our evidence suggests that zoning and other land use controls ... play the dominant role in making housing expensive.”

<http://www.nber.org/papers/w8835>

CONCLUSIONS

What is it most safe to say about the future of U.S. cities, including the Bay Area?

(i) The cars we drive will continue to get cleaner; more of us will choose hybrids and the like as they continue their technological evolution; (ii) Telecommuting will make inroads on traditional commuting habits.⁹ These are some of the bright spots that will augment policy efforts to safeguard our environment.

The best plans are the ones that are evidence-based. The weight of the evidence with respect to what we know about U.S. metropolitan areas points to various powerful (and benign) trends, including the co-location of workers and jobs, which

⁸ E.J. Glaeser, J. Gyourko, R E Saks (2006) “Urban Growth and Housing Supply” *Journal of Economic Geography* 6:1, <http://joeg.oxfordjournals.org/content/6/1/71.abstract>. Also Theo S. Eicher (2008) “Municipal and Statewide Land Use Regulations and Housing Prices Across 250 Major US Cities.”

http://depts.washington.edu/teclass/landuse/housing_020408.pdf

⁹ Pengyu Zhu (2012) “Are telecommuting and personal travel complements or substitutes?” *Annals of Regional Science* 48:2.

serves to mitigate the traffic effects of growth. Plans that recognize and exploit these trends are the most promising. Plans that do not incorporate what we have learned about cities will fail and will even defeat their stated goals.

Attachments

**Fig. 1: Distribution of commute durations
San Francisco area, 2009**



