

2. THE FACTORS IN SPRAWL

Approximately two dozen major factors have been suggested as culprits in the urban land expansion depicted above:

1. One factor is population growth.
2. All the other factors combine to create growth in per capita land consumption.

This study examines the relative importance of those two.

2.1. Population growth

A city's population grows based on personal behavior and on local and national governmental actions.

On the personal behavior level, fertility rates can be the major cause of population growth in a city – as was the case during the 1946-64 Baby Boom in this country. That no longer is true, however, as the nation's fertility rate has been just below replacement level for nearly three decades. In only a few places – with most of California being the one large exception – is the fertility rate contributing to long-term population growth.

An urban area's population growth today is much more likely to be the result of enticing residents from elsewhere. Local and state governments can create many incentives that encourage people to move into a city. These include aggressive campaigns to persuade industries to move their jobs from another location, public subsidies for the infrastructure that supports businesses, new housing developments and new residents, and general public relations that increase the attractiveness of a city to outsiders. Even without trying, a city can attract new residents just by maintaining a high quality of life, especially if the nation's population is growing significantly as continues to be the case today. Most U.S. population growth is now the result of federal actions that over the last four decades have quadrupled annual numbers of residents moving into U.S. cities from other countries.¹⁴ The Census Bureau states that if the government continues these current levels, America's communities will have to expand to accommodate nearly 300 million additional people this century.

2.2. Per capita land consumption

The statistic on per capita land consumption is a useful way to understand the combined power of numerous land-use and consumption choices that lead to urban sprawl. [See Appendix B for the per capita numbers for all 100 Urbanized Areas and Appendix D for how the statistic is calculated.]

When Census Bureau data show that per capita land consumption in Houston is 0.259 acre, that means it takes just about one-quarter of an acre to provide the average Houston resident with space for housing, work, retail, transportation, education, religious and other private assembly, government, recreation and other urban needs.

Table 3 shows the variation of per capita land use among the nation's top 10 sprawlers. The average Los Angeles resident has barely more than a tenth of an acre, while the average Atlanta resident has more than three times that much space, with one-third of an acre.

The increase in per capita land consumption (Per Capita Sprawl) is a major cause of Overall Sprawl of an urban area. Census data on the nation's Urbanized Areas allow us to track the change in per capita land consumption from decade to decade.

The per capita land consumption figure reflects the combined results of all the following choices, and more:

¹⁴ New immigrants and births to immigrants during the 1990s were equal to around two-thirds of all U.S. population growth. The rest of the nation's growth was due to the daughters of the earlier Baby Boom moving through their fertility years. Even though their fertility level is below replacement, there still is short-term growth from their births because there are so many more women in this child-bearing generation than in the previous generation. (The immigrant birth information is based on an analysis of the March 2000 Current Population Survey of the Census Bureau as found in "Immigrants in the United States - 2000: A Snapshot of America's Foreign-born Population," by Steven A. Camarota, Center for Immigration Studies, Washington, D.C., January, 2001, <http://www.cis.org>.)

- development
 - consumer preferences for size of housing and yards
 - developer preferences for constructing housing, offices and retail facilities
 - governmental subsidies that encourage land consumption, and fees and taxes that discourage consumption
 - the quality of urban planning and zoning
 - the level of affluence
- transportation
 - governmental subsidies and programs for highways, streets and mass transit
 - consumer preferences
 - the price of gasoline
- quality of existing communities and ability to hold their residents
 - the quality of schools
 - perceptions about crime and safety
 - ethnic and cultural tensions or harmony
 - the quality of government leadership
 - job opportunities
 - levels of pollution
 - quality of parks and infrastructure
- number of people per household
 - marriage rate and average age for marriage
 - divorce rate
 - recent fertility rate
 - level of independence of young adults
 - level of affluence enabling single people to live separately

Table 3 – Per Capita Land Consumption in the USA's Top Sprawlers (1990)

Urbanized Area	Fraction of Acre Per Resident
1. Atlanta, GA	0.337
2. Houston, TX	0.259
3. New York City, NY-NJ	0.118
4. Washington, DC-MD-VA	0.180
5. Philadelphia, PA-NJ	0.177
6. Los Angeles, CA	0.110
7. Dallas-Fort Worth, TX	0.289
8. Tampa-Saint Petersburg-Clearwater, FL	0.243
9. Phoenix, AZ	0.237
10. Minneapolis-St. Paul, MN	0.327

Source: U.S. Census Bureau data

A nationwide Smart Growth movement has emerged to fight sprawl by going after some of those many causes of Per Capita Sprawl. Because of the number of variables to control, it is very difficult to measure precise effects of trying to change each of the planning, consumption and other behavioral factors mentioned above. But we can know the overall effect of all those factors together by looking at the simple statistic of per capita land consumption.

If that per capita consumption figure goes up markedly in a city, then we know that Smart Growth efforts are failing to achieve their desired result. But if the per capita figure grows only slightly, or remains the same, and especially if it goes down, the above bulleted factors collectively are moving in the direction desired by the anti-sprawl leaders.

2.3. Measuring Overall Sprawl

The word “sprawl” is not a precise term. But we use the term “Overall Sprawl” in a precise way in this study.

Fortunately, it is easy to measure the amount of Overall Sprawl because of a painstaking process conducted by the Census Bureau for a half-century. It uses a rather complicated but consistent set of conditions to measure the spread of cities into surrounding rural land. The Bureau calls the contiguous developed land of the central city and its suburbs an “Urbanized Area.” It is possible to measure sprawl from decade to decade by noting the change in overall acreage of a specific Urbanized Area.

Defining sprawl by the Census standards has some limitations that are discussed in Appendix C (along with a description of the difference between an Urbanized Area and a Metropolitan Statistical Area). But this definition is unequalled as a standard quantitative measure of rural urbanization by cities in all regions of the country. Most organizations that measure sprawl rely heavily on Urbanized Areas data.

2.4. Period of study

This study measures sprawl over the most recent two decades for which comprehensive government data are available (1970-90). Urbanized Area data are calculated only once every 10 years. Thus, our study can assess the march of sprawl only through 1990. The calculations from the 2000 Census will not be available for a couple of years, at which time we will update this report.

Although it may be tempting to try to estimate sprawl for the 1990s, the authors feel the Census Bureau's Urbanized Area data are so superior to all other sources that the use of other sources to estimate sprawl would compromise the reliability of this study.