

Imperiled Sustainability?
A Tale of Planning and Growth in Two Texas Cities

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The Austin/San Antonio Corridor in central Texas is an urbanizing region that displays the fundamental patterns and trends of rapidly changing urban systems in America. Austin and San Antonio offer contrasting planning responses to the pressures of rapid, sprawling growth. Thus, a comparative study of these two urban regions can yield a better understanding of urban planning and growth processes. I analyze each city's planning processes and comprehensive plans adopted in 1979 and 1980 and then conduct a quantitative, spatially-oriented analysis of sustainability measures that illustrates urban change from 1980 to 2000. I then relate growth outcomes to the goals of the comprehensive plans. Investigating these two Texas cities' responses to growth pressures, specifically whether the evolving spatial patterns are sustainable, offers the opportunity to study the effects, if any, that comprehensive planning has had on their development. *Key Words: sprawl, planning, sustainable development, Austin, San Antonio, Texas-central*

Introduction

Since World War II urban growth in America has mostly followed a sprawling, amorphous morphology that is rapidly transforming rural land in the urban fringe into suburban tracts, big-box-retail rooftops and parking lots, and exurban enclaves. Sprawl is an elusive and debatable concept but is generally considered to be auto-dependent, spread out development, where the activities of daily life are separated by long distances linked only by pavement. More specifically it is a land use pattern that "exhibits low levels of some combination of eight distinct dimensions: density, continuity, concentration, clustering, centrality, nuclearity, mixed uses and proximity (Galster et al. 2001, 685). Negative impacts of rapid, sprawling growth include rising traffic congestion, greater air pollution, higher taxes, and loss of open space (Downs 2001).

Many claim this pattern of development is not sustainable – that sprawling cities have become "the entropic black holes of industrial society" (Rees 1995, 356). As with sprawl, the word *sustainable* is loaded with nuance, but there is general consensus among most researchers that sustainable development includes a *balance* among economic, social, and environmental considerations:

Sustainable development is a dynamic process in which communities anticipate and accommodate the needs of the current and future generations in ways that reproduce and balance social, economic, and ecological systems, and link local action to global concerns (Berke and Conroy 2000, 23).

By embracing the sustainability paradigm, urban planners can use comprehensive planning and other planning tools to help their communities grow smarter. “Smart growth” refers to myriad policies but generally includes placing limits on the outward extension of further growth, reducing dependency on private automotive vehicles, redeveloping inner-core areas and developing infill sites, preserving open space, and creating a greater sense of community (Downs 2001). Admittedly, planners have limited powers, especially in Texas, but the sustainability paradigm can enable them to “shift the practice of local participation from dominance by narrow special interests groups to a more holistic and inclusive view” (Berke 2002, 34).

The cities of Austin and San Antonio located in an area of central Texas known as the Austin/San Antonio Corridor (Figure 1) offer an opportunity to test whether planning that espouses sustainable development can actually promote smart growth. Population and housing growth in the Austin/San Antonio Corridor have far outpaced population and housing growth in Texas and the United States (Tables 1 and 2). This rapid growth, beginning after World War II and accelerating in the 1960s and 1970s, gave rise to vigorous growth management efforts that resulted in comprehensive plans completed for both cities in the late 1970s and early 1980s. Comprehensive plans are the mainstay of traditional, or *rational* urban planning in America. Unlike zoning, subdivision regulations, and other reactive planning tools, a comprehensive plan looks into the future; it is an expression of what the community wants, a vision of what it might be. By measuring growth outcomes from 1980 to 2000, the normal twenty year time horizon of most comprehensive plans, I can determine whether growth in either metropolis was moving in a sustainable direction, and if planning made a difference in growth outcomes.

Different Plans?

The 1970s was a decade of intense interest in comprehensive planning in both Austin and San Antonio. Rapid growth, threats to water and air quality, loss of open space, citizens’ concerns for their city’s unique characteristics and sense of place, and the availability of federal funding all coalesced at that time to produce the *Austin Tomorrow Comprehensive Plan* adopted in 1979 and the *San Antonio Master Plan* and *Land Use Plan* adopted in 1980 and 1983 respectively. To evaluate the two sets of plans, I first looked at the history of the two planning processes and then conducted a content analysis of the adopted

plans to measure if and how forcefully each supported sustainable development.

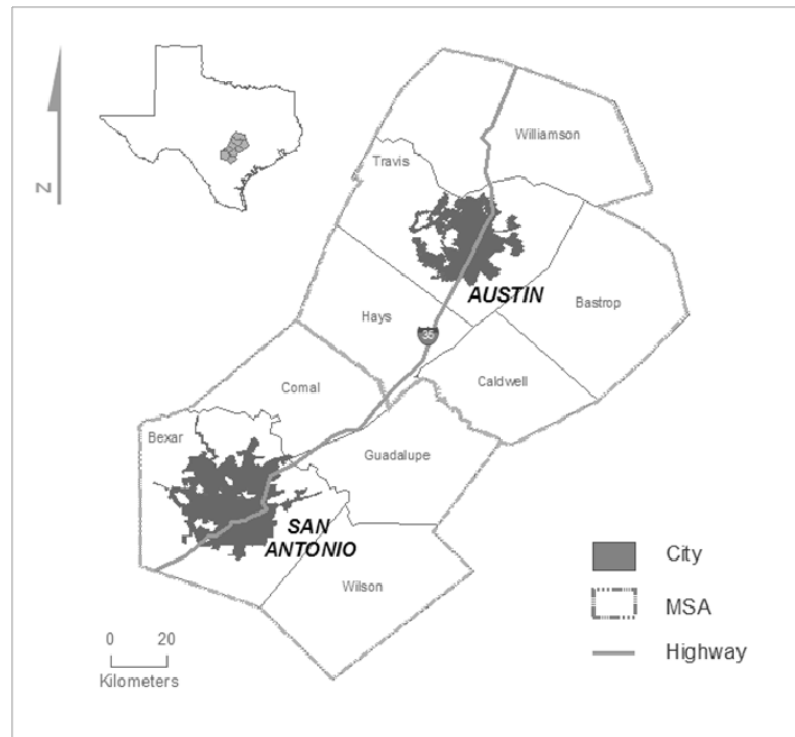


Figure 1. The Austin/San Antonio Corridor.

The planning *processes* in each city were similar. Both began at a time of increasing conflict over land use brought on by rapid growth. Essentially these were battles over the meaning of space: *abstract* space (*a la* VonThunen) is what business people, investors and local governments have in mind when they discuss development size, location, profit, and sales tax revenues. *Social* space (*a la* Tuan) is what individuals who live, work and play in an area think of their environment. For example, municipal officials are working in abstract space when big-box retail comes to town with the promise of increased sales tax revenue, while some locals, living in social space, may see the store's arrival as contributing to the destruction of their sense of place and environmental amenities.

Citizens and planning staff in both cities turned to comprehensive planning to develop alternative growth scenarios challenging the trend toward sprawling development on the urban fringe. They focused on the location of

future growth thinking that a sustainable community is a place that seeks to contain the extent of its ecological footprint and keep to a minimum the

Table 1. Population Growth: 1950 to 2000.

	1950	2000	% Change
USA	151,325,798	281,421,906	86.0
Texas	7,711,194	20,851,820	170.4
Austin/San Antonio Corridor	813,126	2,842,146	249.5
Austin	132,459	656,302	395.5
San Antonio	408,442	1,144,554	180.2

Source: U.S. Census.

Table 2. Housing Unit Growth: 1950 to 2000.

	1950	2000	% Change
USA	46,137,076	116,904,641	151.2
Texas	2,393,828	8,157,575	240.8
Austin/San Antonio Corridor	232,124	1,086,776	368.2
Austin	37,845	276,611	630.9
San Antonio	117,518	433,108	284.9

Source: U.S. Census.

of habitat and the conversion of open land to urban and developed uses. The cliché “location, location, location” has been tossed around in the real estate industry for a long time because realtors understand that location is the single most important factor that determines the (economic) value of a piece of real estate. But the location of urban growth is also the key to sustainable development. The *Austin Tomorrow Plan* called for restricting the location of new development within the environmentally sensitive watershed on the city’s hilly western fringe while directing development towards the Central Business District (CBD) and a “preferred growth corridor” along Interstate 35. Directed growth, environmentalism, and the primacy of social space over abstract space, are aggressively promoted throughout the plan. Austin’s planning process involved intense citizen participation and resulted in a “traditional” comprehensive plan of 176 pages that combined land use policies with a geographically specific vision of desired future locations for physical development.

In contrast, the *San Antonio Master Plan* consisted of the 3 page *Foreward* [sic], the 17 page *Basic Plan*, and the 32 page *Land Use Plan*. During the plan development phase, planning staff had created different *growth sketches*, their version of Austin’s preferred growth corridor. However, their efforts were met with citizen apathy and with opposition from the powerful development and business groups in San Antonio who objected to statements such as “the vol-

ume of growth is less significant than the distribution of growth,” and “distribute growth throughout the planning area.” Most developers owned land on the north and western fringes of the city and did not take kindly to being told where to build. While the growth management element of the *Austin Tomorrow Plan* stayed more or less intact from the plan’s inception to its adoption, such was not the case in San Antonio. The growth management strategies developed by the San Antonio planners were completely eviscerated in their translation from policy recommendations to official policy. The adopted San Antonio plans focused on economic development, streamlining plat approval, and even included a harsh critique of earlier planning efforts by city staff: “traditional land use plans have often been regarded not so much as guides to growth but as obstacles to change” (City of San Antonio 1983, 5).

The content analyses of the two plans’ policies were based on Berke and Conroy’s (2000) plan evaluation protocol which outlines six operational performance principles for sustainability:

- 1) harmony with nature: land development should support ecosystem functions rather than overwhelm them;
- 2) livable built environment: development should promote a sense of place and support community identity and attachment;
- 3) place-based economy: the local economy should not cause a deterioration of the resource base, including air and water quality;
- 4) equity: land use patterns should afford equitable access to social and economic resources in the community;
- 5) polluters pay: interests that cause adverse community impacts should bear the cost of pollution and other harms; and
- 6) responsible regionalism: communities should be responsible for the consequences of their actions

Three out of four of the *Austin Tomorrow Plan*’s 356 policies relate to one or more sustainability principles. Also, almost half of the plan’s policies are required (*must*, *will*, etc.) rather than suggested (*should*, *may*, etc.), evidence of a forceful effort at promoting sustainable development. San Antonio’s *Land Use Plan* stressed the instrumental or consumptive value of the natural landscape, such as “visual sensitivity can promote economic development . . . the preservation of natural resources adds to the value and attractiveness of an area.” Twenty-two of the plan’s fifty-eight policies (38 percent) relate to the sustain-

ability principles, and of these only four policies relate to the *Harmony with Nature* principle. The word *environment* is nowhere to be found in the *Land Use Plan*, and there was no mention of where growth should go.

In summary, the *Austin Tomorrow Plan* prioritized social space, the environment, sense of place, a regional perspective, and equity, and had sustainability as an overarching theme, whereas the San Antonio *Master Plan* and *Land Use Plan* revolved around the abstract spatial perceptions of urban growth coalitions. The Austin plan included maps with lines drawn around areas designated for growth, limited growth, or no growth, whereas the San Antonio plans did not include any maps, undoubtedly due to the fact that conflict comes to a head when lines on a map are given the force of official policy. And, more so in San Antonio than in Austin, these defining lines aroused the passion, emotion and power struggles among those involved in urban development. In Austin the citizens' struggles were supported and accommodated by the City Council in office during the planning process, whereas in San Antonio citizen power was weaker, and the business establishment carried the day. The lines between proponents of rapid, minimally managed growth and advocates of slower, more managed, potentially sustainable growth "seem to have been more clearly drawn in Austin than in San Antonio" (Abbott and Woodruff 1986, 160). San Antonio was, and still is, known in construction and development circles as a "good place to do business" (Palmer 1986, 160) whereas Austin has moved (or tried to move) in a different direction, earning a reputation with many developers as being overly regulated and difficult to deal with.

Different Growth Outcomes?

Have these differences in land use policy translated into different growth outcomes? Did growth in the Austin area reflect the policies of the *Austin Tomorrow Plan*, *i.e.* did growth occur mostly in the preferred growth corridor and not in the environmentally sensitive hills to the west? To answer these questions and determine whether either city was moving toward or away from sustainable development patterns, I extracted and modified sustainability indicators used by communities throughout the country that have sustainable development programs (Krizek and Power 1996). I use three groups of variables – sprawl, energy flows, and socio-economic distance to operationalize sustainability in the study area. To measure sprawl I use the location and density of housing units. The density of housing units is categorized into Theobald's (2001) rural, exurban, suburban, and urban categories (Table 3). To measure energy flows I use commuting time (percentage of commuters in a census tract with one-way commute times greater than forty-five minutes) and traffic congestion (annual delay-per-traveler). To measure socio-economic distance (equity) I use the Coefficient of Variation (COV) of household income and a

map analysis of change in the geographic distribution of mean household income. The COV quantifies scatter, and is defined as a distribution's standard deviation divided by its mean. Generally, the higher the COV, the more inequality there is in the variable being measured.

In this paper I start with the location and density of growth – whether it was sprawling – because of the strong locational component of Austin's plan. Data for map analysis was acquired using the Geolytics Neighborhood Change Database (NCDB) 1970 – 2000 Tract Data CD. The NCDB is a powerful database that normalizes 1970, 1980, 1990 tract boundaries to 2000 tract boundaries, and thus enables accurate spatial quantitative measures over time. The data are also available by tract per census year, but I used the normalized data.

Table 3. Densities for Measuring Sprawl.

	Rural	Exurban	Suburban	Urban
Housing Units/Sq.Km.	< 6.18	6.18 to 25.5	25.5 to 255.0	> 255.0
(Housing Units/Sq.Mile)	(< 16)	(16 to 64)	(64 to 640)	(> 640)

Location and Density of Growth

Are there significant differences in housing growth rates depending on whether the location is rural, exurban, suburban, or urban? The Corridor Region's sprawling growth pattern – one of the primary reasons for Austin and San Antonio's comprehensive planning efforts in the 1970s – continued from 1980 to 2000. The *Austin Tomorrow Plan* had called for growth in a preferred location more or less along Interstate 35. The San Antonio plan did not specify where growth was to go, but rather focused on providing infrastructure to wherever the developers wanted to build, which happened to be on the north and western sides of the city and county, well away from the mostly minority and lower-income tracts to the south and east. Based on 1980 city limits it is obvious from the map analysis that people in both urban regions chose to live at the edge of or outside both cities' limits. The highest growth rates occurred in rural and exurban tracts located in Austin and San Antonio's extra-territorial jurisdictions (ETJs), or in the urban county outside the cities' jurisdictions (Figure 2). In the Austin area, the most rapid growth was in the western and northern parts of Travis County and in the rural/exurban tracts of Hays, Williamson, and Bastrop counties, well outside the *Austin Tomorrow Plan's* preferred growth corridor. Much of this growth was outside Austin's jurisdiction and thus not subject to the Austin plan, but even within Austin's jurisdiction the highest growth rates were not in the preferred growth corridor. It seems that the locational strategy, the sustainability mainstay of Austin's plan, was a

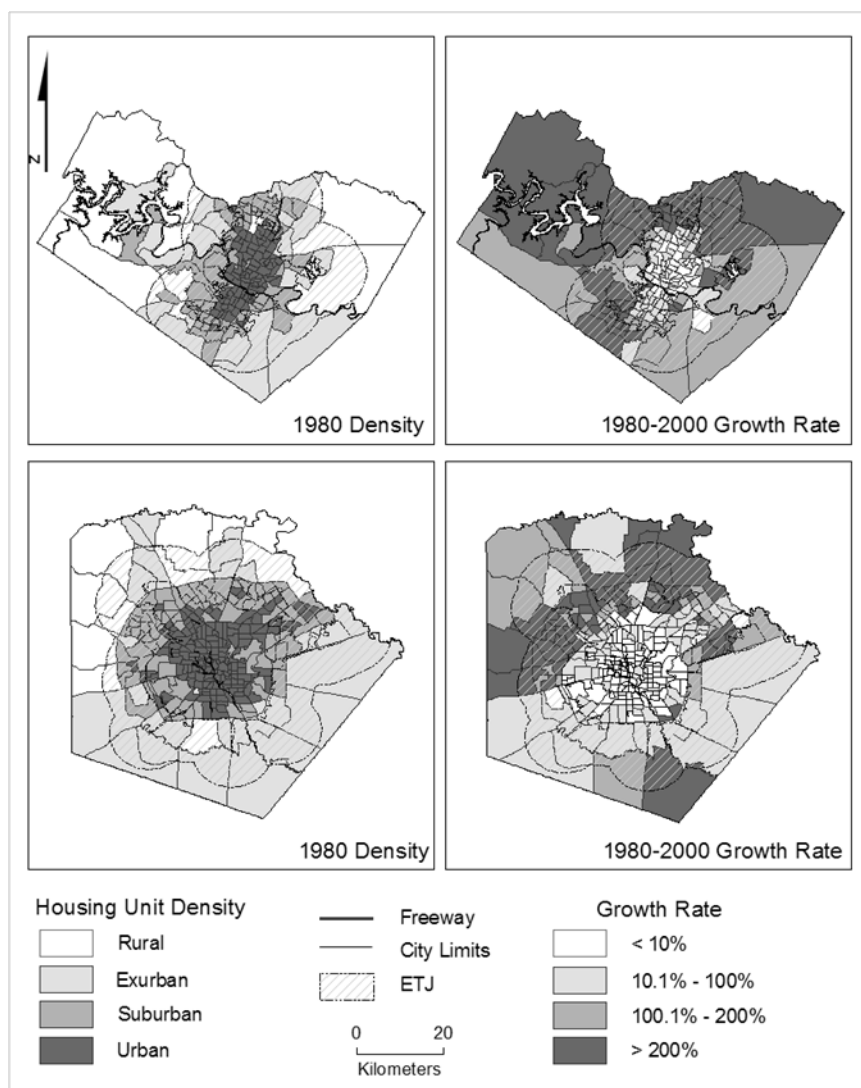


Figure 2. Density Classifications and Growth Rates - Travis (top) & Bexar (bottom) Counties. Maps include ETJ buffer based on 1980 city limits.
Source: Neighborhood Change Database.

failure. As for San Antonio, the most rapid growth occurred on the favored north side, and by 2000 new housing had expanded into formerly rural and exurban tracts in Bexar, Comal, Kendall, Bandera, Medina, and Guadalupe counties. There is little difference between Austin and San Antonio's growth patterns (Table 4).

Table 4. Percentage of Housing Units in City and County: 1980 to 2000 (based on 1980 city limits).

	1980	1990	2000
Austin City Tracts	83.5	75.3	66.7
Rest of Travis County	16.5	24.7	33.3
San Antonio City Tracts	83.9	75.5	69.0
Rest of Bexar County	16.1	24.5	31.0

Other research reinforces my finding of similar growth patterns, at least for a point-in-time, if not for the continuing trend. For instance, Ewing, Pendall, and Chen (2002), in their analysis of eighty-three U.S. metropolitan areas, found that both the Austin and San Antonio urban areas were more or less equally sprawling. Their four-factor sprawl index used not only residential density as a variable, but also neighborhood mix of homes, jobs, and services, strength of activity centers, and accessibility of the street network. A higher index meant a higher sprawl level. Both the Austin and San Antonio urban areas ended up with relatively high indices: fifty-eighth and fifty-third respectively.

Energy Consumption

Lengthy commutes, in both time and distance, not only contribute to loss of community and a lower quality of life as people spend more and more time alone in their vehicles, but also add to fossil fuel consumption and air quality woes. The transportation element of the Austin plan expressed "concern for safe and efficient transit systems and non-motorized travel modes, rather than continued dependency on the automobile as the primary means of travel" (City of Austin 1980, 86). However, if residential growth is occurring in a sprawling pattern, workers will necessarily spend more time commuting above and beyond that caused solely by population growth. Given the pattern of growth in the Corridor Region, workers with one-way commute times of more than forty-five minutes increased at a rate almost two and a half times the increase in the number of workers: 216.5 percent to 91.6 percent. Notably, in spite of the Austin plan's transportation policy, the increase in the number of workers in Austin with time-consuming commutes was almost three times the increase for workers in San Antonio (228.0 percent to 76.5 percent).

Commute time is exacerbated by traffic congestion. The Annual Delay-per-Traveler Index measures extra travel time for annual peak-period travel divided by the number of travelers who begin a trip during the peak period. Research by the Texas Transportation Institute indicates that the Austin-area index increased from 11 hours in 1982 to 51 hours in 2003, and the San Antonio-area index increased from 7 hours in 1982 to 33 hours in 2003 (Schrunk and Lomax 2005). Generally traffic congestion is positively related to an urban area's size – bigger equals more congestion – but congestion is considerably *worse* in Austin than in San Antonio. Extra time spent on Austin-area roads has increased so much that it now surpasses the national average (Figure 3). Austin's higher rate of population growth undoubtedly exacerbated its traffic woes. Over the twenty year study period Austin's population increased by 90.0 percent (from 345,496 to 656,562) while San Antonio's population increased by 50.8 percent (from 758,800 to 1,144,646). But the regulatory elements of the Austin plan may have also exacerbated traffic woes by pushing some development beyond its jurisdiction and inadvertently increasing sprawl. Regardless, contrary to the goals of the plan, drivers in Austin continued to be dependent upon the automobile as the "primary means of travel."

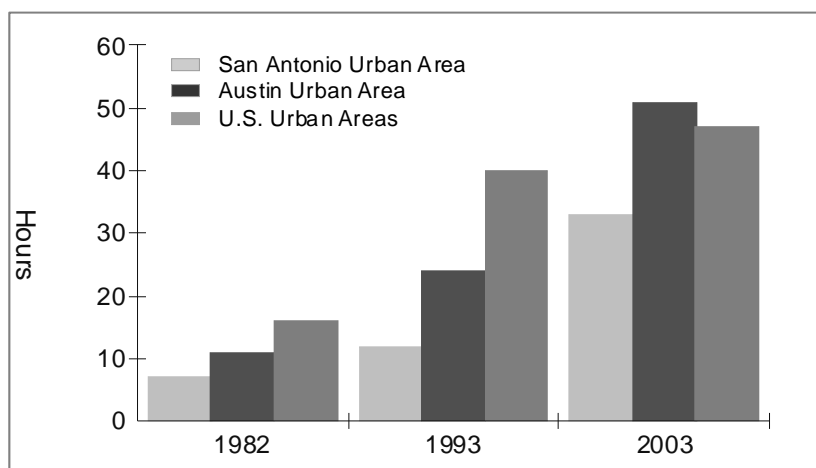


Figure 3. Annual Delay-per-Traveler.

Source: Texas Transportation Institute - 2005 Urban Mobility Report.

Income Distribution

In a letter of transmittal to the Austin City Manager urging adoption of the *Austin Tomorrow Plan*, Miguel Guerrero, the Chairman of the Planning Commission at the time, stated that if the plan were implemented, that by 1995 economically and ethnically segregated neighborhoods would tend to diminish..." To investigate whether there was progress toward economic equity, I used the Coefficient of Variation (COV) which measures the distribution of wealth. As stated earlier, the higher the COV the more inequality there is in the variable being measured. The COVs for household incomes in the Corridor Region have increased over time, following national trends of increasing differentiation between high and low income households (U.S. Census 2005). When focusing on Austin and San Antonio the difference is more pronounced. Austin's COV has increased steadily since 1970 and by 2000 exceeded San Antonio's. San Antonio's COV has remained relatively stable, albeit high as a result of its more numerous low-income census tracts (Figure 4).

The geographic distribution of income in the two cities reflects the movement of higher income households west and northwest toward the region's hillier (and more exclusive) terrain (Figure 5). By 2000 practically all census tracts with household incomes more than 0.5 standard deviation above the mean were located west of Interstate 35 in what were rural and exurban areas at the beginning of the study.

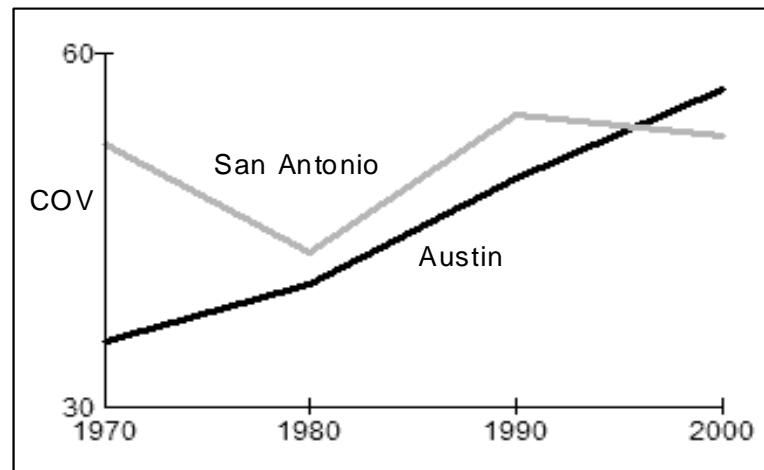


Figure 4. COVs for Household Income: Austin and San Antonio.

Source: Neighborhood Change Database.

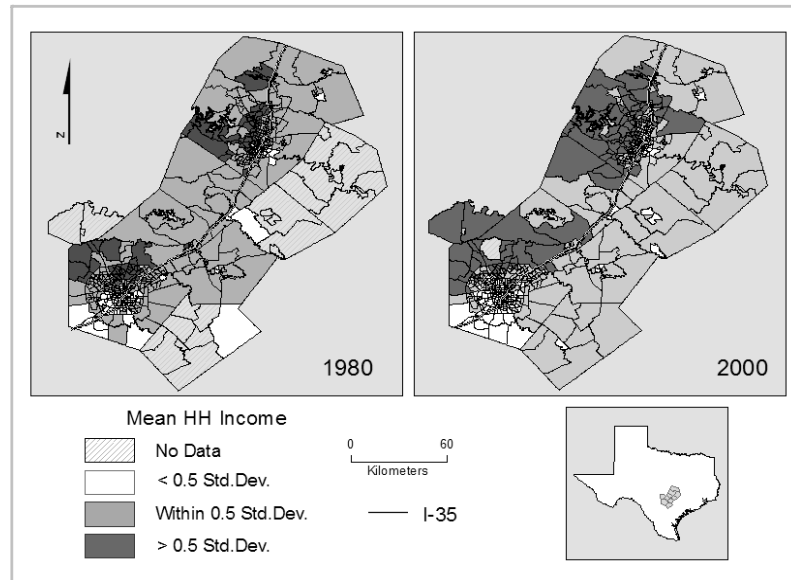


Figure 5. Austin/San Antonio Corridor Mean Household Income–1980 and 2000. *Source:* Neighborhood Change Database.

Overwhelming Forces: the Power of Growth

The Austin plan supported sustainable development to a much higher degree than the San Antonio plans, but growth outcomes in the two urban areas were similar, that is neither growth outcome followed a trend in a sustainable direction. Over the study period Austin's population growth rate was higher than San Antonio's, and thus arguably, due to its more rapid growth, things could have been worse in Austin if not for the *Austin Tomorrow Plan*. The region's morphology reflects the desire to spread out and away from the central city, regardless of the best efforts at directing growth to the most suitable areas. Granted, growth pressures were greater in Austin than they were in San Antonio but Austin neither exhibits a more sustainable growth pattern than San Antonio, nor does Austin seem to be achieving the sustainability goals of its comprehensive plan.

The *Austin Tomorrow Plan* failed to direct growth away from areas less suitable for urban development and thus did not achieve its sustainability goals because the city was overwhelmed by some of the most intense growth pressures in urban America. As it turned out, development interests, with the help of the Texas Legislature and a change in city council makeup, were able to

sidestep Austin's growth management efforts. With the plan's adoption, the Austin planning director had expected that the extension of municipal water and wastewater service (*infrastructure*) would be limited to priority growth areas, and the amount of additional urban development in environmentally sensitive areas would diminish. However, in the 1980s growth accelerated on the fringe, in the higher amenity western edge of the city farthest from black and Hispanic minority neighborhoods and closest to the region's prime scenic and recreational resources (Butler 1987). The key to implementing the *Austin Tomorrow Plan* was supposed to be the provision of infrastructure in the preferred growth area, but municipal bonds to provide the aforesaid infrastructure were rejected by the voters. At the same time as the bond election failure, the legislature created Municipal Utility Districts (MUDs), and developers soon discovered how useful they were at avoiding the city's supposed control over the provision of infrastructure, especially water (Watson 1990). Developers were able to establish MUDs and purchase water directly from the Lower Colorado River Authority (LCRA). Thus the LCRA and MUDs had a stronger influence than citizens and city planners on shaping the area's development trends. The city's most essential growth management tool was lost (Butler and Myers 1984).

By design, San Antonio really did not have a plan that could fail. City leadership seemed to embrace the urban growth coalitions. Radical planners and conflict theorists would view planning in San Antonio as working only to facilitate economic activity and growth, but while politics contributed to the San Antonio plans' lack of substance, it also contributed to the Austin plan's lack of implementation. City leadership alternated between "sensible" growth proponents and "pro-growth" economic-development interests more so in Austin than in San Antonio. With inconsistent political support no comprehensive plan can be consistently implemented. Continuity is impossible.

Earlier I noted that if planners embrace the sustainability paradigm they can "shift the practice of local participation from dominance by narrow special interests groups to a more holistic and inclusive view." Indeed, a city is an accumulation and integration of many individual and special interest group decisions, shaped by social and economic forces over time. Coalitions of builders, speculators, investors, chambers of commerce, lenders - or the "decision elite" - always seek to boost population growth, increase the market value of land, and stimulate the city's economy through investment and development (Macionis and Parrillo 2004). The global economy influences urban change because local political action is less effective at influencing decisions made in distant corporate headquarters. Local people have less power to oppose corporate goals, just as corporations have more power to get their way. Given this growth-for-growth's sake perspective and loss of local control, the predominant American urban growth pattern mostly yields benefits for capital

while the urban, regional, and global commons are being degraded, even with the best efforts at long-range, sustainable planning. These growth forces overwhelm a comprehensive plan that does embrace sustainability, at least in Texas and other states that revere private property rights and embrace the growth paradigm. In this political environment, the focus of decision-makers all too often only extends to abstract space issues involving the high profits that accompany real estate development. Illustrative of this perspective, Orum (1987, 308), writing a history of the City of Austin, concluded that:

...beginning in the late 1970s and lasting through the mid-1980s, ...[t]he rush to buy and to sell land...profoundly violated the sense of intimate community as well as the sense of public trust that had taken hold of Austin residents. Spurred on by the infusion of huge amounts of cash into the Austin real estate market, the land boom made it evident that this physical setting is not public property, that the community is not a public trust, and that in the end, when all is said and done, private property always reigns victorious over the common good.

The Root of the Problem

If even the best laid (comprehensive) plans are not implemented, what can be done to build sustainable cities? Many claim that urban planning can only ensure sustainable development if it embraces “new” ecological planning such as Hersperger’s (1994) *landscape ecology*, Kimmel’s (1992) *ecological adaptation*, Van der Ryn’s (1996) *ecological design*, Lyle’s (1999) *regenerative design*, Rosenzweig’s (2003) *reconciliation ecology*, or Steiner’s (2002) *urban human ecology*. Ecological planning enables planners and policy-makers to analyze urban growth and change as they relate to the local and regional landscapes, and to national and global political and economic structure. In other words, ecological planning asserts that the location of specific land uses be guided by biophysical and sociocultural information coupled with a regional perspective. But is not that exactly what Austin citizens and planners did with the development of the *Austin Tomorrow Plan*?

The root of the problem is that current land-use laws and regulations disregard the basic cultural and environmental facets of the very resource they govern, and they are not regional in scope. Indeed, the philosophy embodied in ecological planning has been around for a long time, but rarely implemented because of the commodification of the American landscape. Over 140 years ago George Perkins Marsh pointed out that to avoid destruction mankind must pay attention to the laws of nature. *The Austin Tomorrow Plan* did pay attention to those laws of nature. But it was never implemented because of the laws of man.

It is time to step back, take a look at the prevailing property rights regime, and either figure out ways to make it work, or change it. Aldo Leopold (1949) suggested the answer is a moral one in which there is a restructuring of values which include personal responsibility and recognition of the aspects of the natural world which have economic value as well as those that have not been or can not be assigned an economic value. Ecological planning provides a synthesis that values both the necessities of rule-making and place-making. Geographers are positioned to bridge the gap between rule-makers and place-makers and thus to help induce change. The geographic perspective enables the kind of understanding that is needed to address the problems of how we build our habitats, and thus can facilitate a value shift toward a land use model that reflects the complexity and interconnectedness of the natural world and modern urban systems.

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