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Urban Sprawl: Problems and Policy in Knox County, Tennessee

By: Avery Emison

5/3/04

Senior Honors Project

University of Tennessee, Knoxville

Urban Sprawl creates problems for many groups in American society. As a society, we generally dislike urban sprawl, yet feel as if we cannot do anything to combat it. This paper will examine specific policies that governments can use to control urban sprawl, and then apply those policies to Knox County, Tennessee. I will also present Tennessee Public Chapter 1101, the Tennessee Growth Policy Act, as an abbreviated case study. Due to my lack of background in economics, this paper will not attempt to reflect costs of developing or implementing policies; it will only examine the potential benefits.

The Problem of Sprawl

Denying the presence of urban sprawl in America is impossible. Due to population growth and a decrease in density, America now has eight times more developed land than it did in 1920 (Benfield Once 12). While population has quadrupled since 1920, the main culprit is the decrease in density. In 1920 America's cities, suburbs and towns averaged 6,160 people per square mile. In 1990, similarly developed areas averaged 2,589 persons per square mile. Areas developed since 1960 averaged only 1,469 persons per square mile (Benfield Once 12). Our desire for space affects residential and commercial areas. While lot sizes are increasing, average household size has decreased from 3.28 persons in 1940 to 2.63 persons in 1990. (Benfield Once 13). For every American, there is now nineteen square feet of retail space. This represents a 30% increase since 1986. (Benfield Once 16). Furthermore, this commercial space is increasingly located away from the city. For example, Huntsville, Alabama lost every downtown store to suburban development by the 1990s. (Benfield Once 15). With the

residents go the jobs. 120% of net job growth in manufacturing went to suburbs; while cities were losing jobs, suburbs were gaining them. (Benfield Once 14). By the 1980s, 60% of jobs in Boston were located in suburbs.

Urban sprawl affects virtually every field of environmental concern. One such concern, air pollution, could be greatly reduced if urban sprawl were curtailed. Decreased density increases gasoline usage dramatically. Phoenix and Houston, two of the least dense American cities at under 15 persons per hectare (ppha), have a per capita usage of over 70,000 units¹. New York and Chicago, two of the most dense American cities at 25 ppha, have a per capita usage of less than 50,000¹. Many European cities such as Paris, London and Brussels have densities of 50-75 ppha and per capita gasoline usage of less than 20,000¹. (Ewing 9). The following graphic illustrates the correlation between sprawl and vehicle usage in Toronto, Canada.

Table 8.1 Residential Densities, Car Use, and Carbon Dioxide Emissions in the Toronto Region (Autumn 1986)

	Core	Inner Suburbs	Outer Suburbs
Persons per km ²	5300	2780	1440
Vehicles per 1000 people	407	526	572
Percentage of trips made by car	55	70	81
Average car trip length (km)	8.7	9.0	11.8
Grams of CO ₂ /person/day	2100	2940	4520

Source: Adapted from Gilbert, R. (1991). in McCulloch, J. (Ed.) *Cities and Global Change*.

(White 176)

The reason that decreased density equates higher gasoline usage is that many suburban housing developments are not within walking distance of anything. Therefore,

families must drive to school, jobs, household errands and any other activity besides visiting a close neighbor. (Benfield Once 40). As density decreases, and new residences are built on the fringe of existing development, people must drive further to reach their destinations (Benfield Once 43). Increased gasoline usage naturally increases air pollution (Benfield Once 59-60). 1998 U.S. Department of Transportation statistics report that highway vehicles account for 29% of Volatile Organic Compounds (VOC), 31% of Nitrogen Dioxides (NO_x) and 60% of Carbon Monoxide (CO) emissions in the U.S. If air pollution is to be brought down to acceptable levels, urban sprawl must be effectively controlled.

Urban sprawl also contributes to water pollution by causing nonpoint source pollution. Nonpoint pollution generally means runoff, which comes from agricultural and urban areas. Runoff occurs when impervious surfaces are built and water can no longer percolate into the ground. Instead, water rushes off the surface into the nearest waterway, carrying any pollutants and sediment on the ground with it (Nonpoint). Runoff from impervious surfaces can cause an unnatural increase in water temperature because runoff carries heat from paved surfaces into waterways (Benfield Once 80). Runoff pollution now affects 40% of the nation's waters by some degree (National Water). Sprawl directly causes more surfaces to be converted to impervious objects- roadways and rooftops. Kaid Benfield states that

“It is now thoroughly documented that, as the amount of impervious cover increase in a watershed, the velocity and volume of surface runoff

increases; flooding, erosion and pollutant loads in receiving waters increase; groundwater recharge and water tables decline; stream beds and flows are altered; and aquatic habitat is impaired. As a result, there is a strong correlation between the amount of imperviousness in a drainage basin and the health of its receiving waters” (80).

Research also shows that water quality begins to degrade when 10% of a watershed is impervious; the watershed is generally degraded at 30% imperviousness (Benfield Once 81-82). Once an area has reached 30% imperviousness, environmentalists advocate high-density development since the watershed is already degraded. This way, more open space can be preserved without impervious surfaces. In fact, keeping areas roadless or as road-free as possible is key to maintaining water quality. Paved surfaces such as roads, sidewalks, parking lots and driveways usually account for 60-70% of impervious surfaces in suburban areas.

Habitat destruction is one of the most obvious results of urban sprawl. Newly developed land must come from some form of undeveloped land. Most often developers build on farms, forests, or wetlands. Although farms do not provide the best habitat, they do provide large open spaces which wildlife can cross. Once developed, wildlife is no longer welcome. Forests and wetlands, on the other hand, provide excellent habitat when present in large tracts. The worst culprit for harming plants and wildlife though, is habitat fragmentation. By dividing undeveloped areas into increasingly smaller parcels, habitat fragmentation disrupts migration and breeding patterns which lead to lower populations of already disturbed species (Benfield Once 70).

In addition to environmental concerns, urban sprawl causes social and infrastructure problems as well. Suburban developments, as discussed previously, are highly dependent on cars. Due to this dependence, neighbors are less likely to encounter one another walking or at neighborhood stores (Benfield Once 128). One problem caused by this phenomenon is a lack of sense of community. Studies have shown that typical residential neighborhoods are likely to lack such community engagements, while mixed-use neighborhoods are likely to feel that they are part of a community (Benfield Once 129). According to Kaid Benfield, the notion of a sense of community is important because “While this factor is one of the most difficult to quantify, it also represents the cornerstone for a vast grouping of related impacts, including social alienation, increased stress, and a lack of civic engagement” (128).

Social isolation affects children and the elderly in particular because they lack access to transportation. For the elderly, access to transportation equates independence; gerontologists have found that social isolation and a lack of independence can result in premature institutionalization (Beaumont 10). Children are denied access to spontaneous play. Jane Seaberry of the Washington Post observes: “Suburban developments are so sprawling that in many places neighborhood games are all but obsolete. Children have to be driven miles to play with friends, requiring intricate planning and plenty of time” (Seaberry).

For those who do have access to cars, problems also abound. Americans spend approximately two hours per day driving (Benfield Once 130). Between 1983 and 1995, the average commute time increased 14% and the average commute trip lengths increased

by 37% (Benfield Once 129). Mental health caregivers now routinely include traffic congestion on their checklists of stress sources for those who seek counseling (Beaumont 10). Traffic congestion and increased commute times have been linked to worker absenteeism, lack of professional fulfillment, physical health problems, and “road rage” (Benfield Once 130-131). U.S. Department of Transportation statistics show that road rage is a widespread problem, factoring into one-third of crashes and two-thirds of crash fatalities (Benfield Once 131).

Urban sprawl causes economic problems as well. Although urban sprawl is often encouraged by those who wish to create jobs or broaden the tax base, sprawling businesses often do not bring as many benefits as perceived. When large “superstores” move into an area, they relocate business from downtown to the outer fringes of a community. One study concluded that for every \$20 million in superstore sales, only \$9 million represented actual increased sales for the community. The remaining \$11 million represents sales lost to other businesses (Beaumont 6-7). Typically, businesses hurt by superstores are small and locally owned. Therefore, the gains brought by superstores are at least partially offset by the loss of higher-quality jobs and locally owned businesses (Beaumont 9).

Another social problem of urban sprawl is commonly called “white flight”. This is the mass movement of affluent people to the outer rings of communities. Many times affluent residents move because they misperceive level of safety offered by suburbs as compared to cities. A survey of Minnesota residents found that residents perceived their risk of attack to be six times higher in the city than in surrounding suburbs. Nationwide

FBI crime statistics, however, show that criminal activity in the suburbs is 51.8 crimes per 1000 while criminal activity in urban areas is 67.6 per 1000 (Benfield Once 134).

When everyone who can afford to move goes to an outer-ring suburb, cities and inner-ring suburbs suffer. School districts usually get their revenue from property taxes; if the land values in an area decrease dramatically, the quality of the schools is likely to follow. Once thriving downtown businesses lose their customers and are forced to close. The cycle continues, often causing “urban blight”; the status of a community that is poor and cannot attract investment to revitalize (Benfield Once 122).

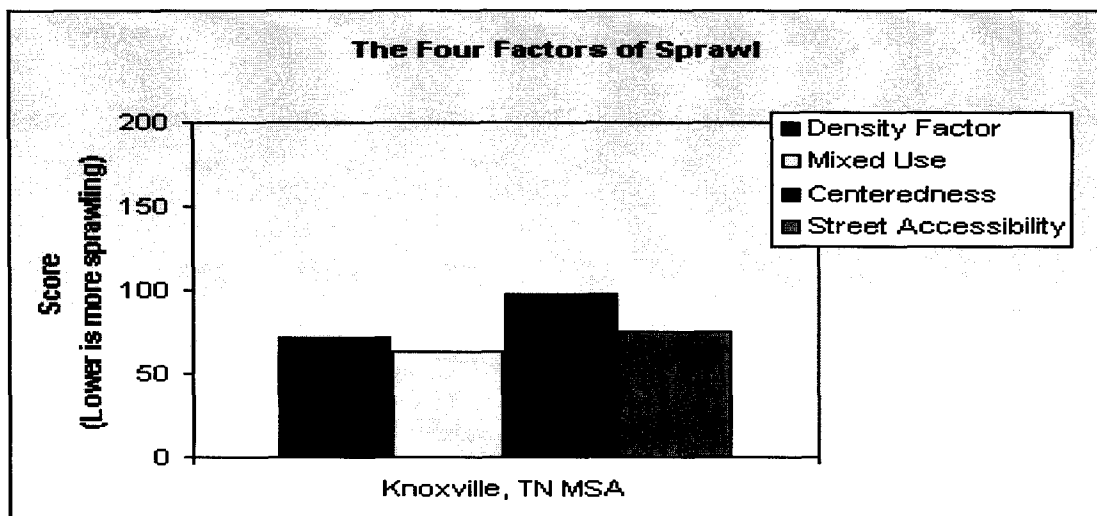
While urban sprawl is bad news for cities and inner ring suburbs, it can also be bad news for the new suburbs as well. Low density suburbs impose higher costs on local governments than high density development. Each growing municipality has to provide roads, sewer lines, schools and emergency services among other services. Sprawl increases the costs to these governments (Benfield Once 95). Local governments are not the only ones affected by sprawl, however. A study commissioned by New Jersey found that promoting high-density development instead of sprawl would save the state \$873 million in road construction costs, \$700 million in water and sewer line construction, and \$216 million in school construction (Greenfields 101).

Knoxville and Sprawl

The above evidence clearly shows that urban sprawl causes undesirable consequences. Therefore, it is troubling that Knoxville has become such a sprawling city. The city’s continued sprawl earned a ranking of 8th worst sprawling city by Smart Growth America. In a 2002 report, Smart Growth America analyzed data from eighty-

three metropolitan statistical areas and ranked cities based on four criteria: residential density, mixed-use areas, strength of town centers and/or downtowns, and accessibility of street network. Knoxville was rated worst of the 83 for residential density, 8th worst for mixed-use areas, 35th worst for strength of town centers and/or downtown, and 14th worst for accessibility of street networks (www.smartgrowthamerica.org).

Smart Growth America strengthens its argument by adding useful statistics to demonstrate the effects of sprawl on Knoxville. The website reports that the city's fatal automobile accident rate is 22.4 per 100,000 persons. Of course, the amount of cars on the road relates to the number of fatal accidents. The average Knoxville household drives 35.6 miles per day and has an average commute time of 23.48 minutes. Most telling is the



amount of Knoxvillians who do not drive: Only 1.99% of people walk to work and even fewer, .53%, use public transit (www.smartgrowthamerica.com).

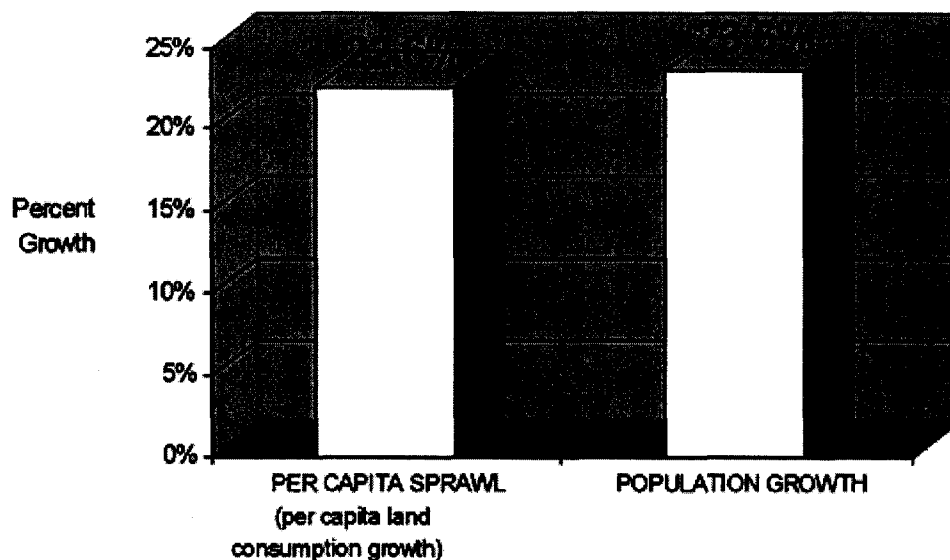
Other organizations have also singled out Knoxville for its problem with sprawl. Sprawlcity.org ranks Knoxville 40th in the nation for the size of its sprawl; but, the interesting comparison is population growth rates of cities and per capita land

consumption growth rates from 1970-1990. Knoxville not only increased in population 59.8%, or 14th, but it also increased in per capita land consumption 59%, or 5th nationwide. Compared to the nationwide aggregate average shown below, Knoxville exceeds national trends in both population growth and per capita land consumption

**Rate of Per Capita Sprawl Compared to
Population Growth**

(Source data: Census Bureau 100 largest Urbanized Areas 1970-90)

The rate of the two factors behind Overall Sprawl - per capita land consumption growth and population growth - were nearly identical.



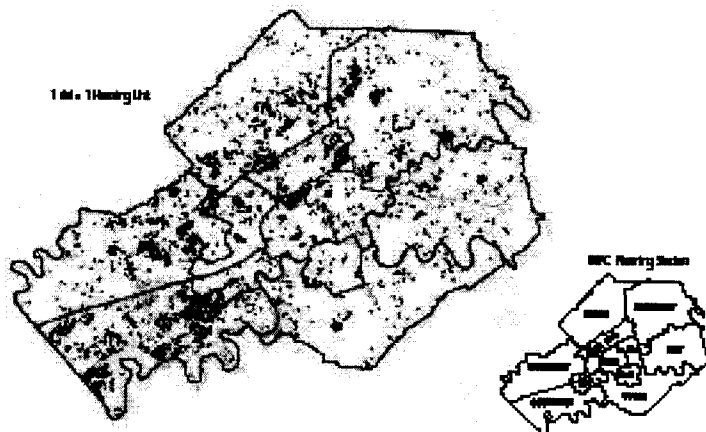
growth.

(www.sprawlcity.com)

Knoxville's demographic and development data is recorded by the Knoxville-Knox County Metropolitan Planning Commission (MPC). The MPC has been responsible for zoning and land-use planning for the area since 1956 (www.knoxmpc.org).

Appointments to MPC are divided between the city (7) and county (8). Commissioners serve staggered 4-year terms (www.knoxmpc.org). MPC is supported by a permanent

staff of professional planners. Statistics derived from MPC development reports confirm the problem of sprawl in Knoxville and Knox County. Of the 3,676 construction permits granted in 2002, 70% were located outside the city limits (Development 2). Single-family homes constituted the greatest category of building permits at 57%. 84% of all permits for single family homes were located outside city limits (Development 3). From 1993-2002, the number of permits for residential buildings never fell below 3,000 permits per year (Development 3). The figure below reports housing patterns in 2002. Each dot represents one housing unit. Clearly, Knoxville is developing in a sprawling pattern.



(Development 4)

Although MPC does not provide data concerning all the previous uses of developed land, it does provide information about rezoned farmland. In 2002, 42 % of land converted to residential status was formerly agricultural land. From 1993-2002, 8,120 acres of Knox County farmland were converted to residential areas in addition to the 2,240 acres rezoned to commercial areas (Development 5, 7).

Containing Sprawl

While urban sprawl is damaging to our natural environment and social fabric, growth need not be so. Many policies have succeeded in areas fighting the battle against sprawl. Zoning is the first step in many such policies. Communities can use comprehensive zoning plans as a tool to direct growth the way they wish. Knox County, especially, could benefit from many new zoning perspectives. One potential policy is compacting residential development. Currently, MPC zones residential areas into three categories: low-density residential (LDR), mid-density residential (MDR), and high-density residential (HDR). LDR zoning allows a maximum of six dwelling units (d.u.) per acre, MDR allows for six to twenty-four d.u. per acre, and HDR calls for greater than 24 d.u. per acre (1996 One-Year Plan). Currently, much of Knox County is zoned for LDR (Knox County Zoned Acres). According to MPC's 2002 development report, the average subdivision lot has ranged from .6 to .8 acres for the past decade. This equates to 1.67 d.u./acre and 1.25 d.u./acre, respectively (Development 6). New subdivisions, then, are not coming close to the 6 d.u./acre allowed by even low-density zoning.

Trends for single-family detached homes are usually assumed to result from a need to house families (Benfield Solving 128). However, definitions of families in America and the size of traditional families are both changing. Divorce creates the need for two households instead of one, and many young people now delay marriage and having children. Traditional families, as defined by a mother, father, and child(ren), are becoming scarcer. 58 % of American households are made up of one or two people (Benfield Solving 128). In Knox County, only one-quarter of all households have minor children (Neely). These social circumstances lead to fewer people living in each household and

more households being built for each family unit. Knox County's population of 389,327 occupies 181,225 d.u., for an average of 2.14 persons per d.u (Knoxville Area Facts). These facts show that low-density, single-family detached homes are ideal for only a small proportion of the population. For others, higher-density housing may be acceptable or even desirable.

To achieve the goals of compacted zoning, MPC should seek to reduce the areas zoned for LDR while increasing MDR and HDR zoning. MPC should prioritize its rezonings of agricultural land or unzoned land to give preference to MDR and HDR. Furthermore, all local government bodies should encourage developers to increase the compactness of new LDR developments. As stated above, LDR allows for 6 d.u. per acre, and most developers could quadruple the current density in LDR without violating zoning standards (Development 6). MPC should develop a policy that gives preference and monetary incentives to developers willing to experiment with variations from the traditional cul-de-sac neighborhood. Even a reversion to the pre-World War II grid neighborhoods would increase density in LDR.

Many cities have found that MDR developments designed to mimic LDR developments do well in the market in addition to saving open space. When Mountain View, California, was faced with growth projections of 200,000 persons in the next 15 years, the town made the commitment to encourage compact developments (Benfield Solving 96). The first such development was The Crossings, a development of 300 homes on 18 acres (Benfield Solving 97). Density for the development averaged 22 d.u./acre, which would be classified MDR in Knox County (Benfield Solving 98).

Surprisingly, the development includes single-family detached homes. These homes are the fastest selling in the Bay region with resale values \$100,000 more than the original price. Village Green, a development of 77 homes in Los Angeles, California, also mimics LDR development with MDR results. The developers decreased lot sizes and street widths and priced the homes for lower-income families (Benfield Solving 133). With support of Los Angeles municipal government as well as the Fannie Mae Foundation, the developers created a neighborhood of 10 d.u. per acre (Benfield Solving 135). Although the lots are small, the demand is not. All 77 homes in the area have sold even though 58 are not yet completed (Benfield Solving 135). Third Street Cottages is yet another example of detached housing in MDR. The town of Langley, Washington created an entirely new zoning code for this development called Cottage Housing Development (CHD). Under this plan, eight small homes surround a common area and occupy less than an acre, and the developer can accommodate as many as 15 d.u./ acre (Benfield Solving 128). The development has been such a success that other municipalities have adopted CHD zoning provisions and have projects underway (Benfield Solving 130).

While compacting development is key to controlling sprawl, other zoning mechanisms are also important. Mixed-use zoning allows homes, offices, and retail stores to reside within walking distance of one another. Planning a suburb for mixed-use can minimize the effects of the development because people can reach their places of work, shopping and entertainment by walking or by short car drives. As shown above, one of the biggest concerns of sprawl is air pollution, and decreased driving means decreased air pollution.

Currently, Knox County is lacking in its mixed-use developments; the vast majority are zoned strictly for residential. In some instances, MPC allows for Neighborhood Commercial (NC) zoning. However, NC usually constitutes a few convenience stores at the entrance of a neighborhood. Few homes are within walking distance of the stores. Most importantly, most NC areas are not planned to offer a variety of stores; residents may be able to complete some but not all of their errands at these locations.

The areas that are zoned for mixed-use (MU) may not necessarily offer all that a self-sufficient neighborhood needs. In fact, MU zones may not be a neighborhood at all. MPC zones land for MU simply because it has more than one use, not because it has multiple, interactive uses. MPC defines MU zones as

“Areas where a single land use category does not adequately address specific conditions. In these cases: a very specific, compatible mixture of land uses is considered appropriate; or land use is changing from one predominant type to another similar or compatible type; or property is primarily vacant and the plan recommends that market forces be allowed to guide development, within a specified range of similar or compatible land uses” (1996 one year plan 10).

Knoxville and Knox County should follow other municipal governments’ leads in encouraging mixed-use areas. The Crossings, mentioned above, owes part of its success to its design as a mixed-use neighborhood. It is mixed use in two dimensions. First, it offers many different housing types, including single-family detached homes, townhouses,

rowhouses, and apartments (Benfield Solving 97). This is an important feature because it allows people such as single or couples who desire a neighborhood feel to live in a traditional neighborhood, while still residing in a smaller housing unit. Second, and most importantly, The Crossings has a large grocery store, Sears, and various offices located within walking distance. As one resident stated “It’s not at all confining, since you can walk to everything” (Benfield Solving 98). Addison Circle in Dallas, Texas and Mashpee Commons in Mashpee, Massachusetts are two exemplary mixed-use developments that do not include single family detached homes. Although Addison Circle is much larger in scale, both include shopping districts with apartments and townhouses located above the first story of the building. Residents can complete nearly any errand without a car and are satisfied with the social aspect of the areas. Adequate green spaces are included to ensure that residents do not feel cramped. Orenco Station in Hillsboro, Oregon is an example of a planned high-density center similar to Addison Circle and Mashpee Commons that goes further to plan compact detached homes around the center, so that homes are within walking distance of neighborhood amenities (Benfield Solving).

These success stories could not have been possible without the cooperation and encouragement of municipal and county governments. Addison Circle was formed by a community that boasted 160,000 jobs but only 10,000 residents (Benfield Solving 83). The town government formed a long range plan for a town center, then selected the location and recruited a developer (Benfield Solving 83-84). The town provided \$4.5 million for infrastructure, built a conference center and theater, and purchased public art (Benfield Solving 84). The town also agreed to provide an additional \$4.5 million

contingent on the development's success (Benfield Solving 84). Finally, the town reformed zoning and regulations to fit the project (Benfield Solving 84).

The Crossings was part of a larger Mountain View plan to concentrate development around transit facilities. The city purchased a failed shopping mall for the site, then hired a developer. When the town was not satisfied with the developer's plan, it forced the developer to hire a compact development specialist. In this case, the developer financed the project without city help, and still made a profit. Mashpee Commons was initiated by a private developer, but the town's assistance in rezoning was crucial to the project. In this town, rezonings must be approved by a 2/3 majority at a town meeting, so it was truly public support that aided this project (Benfield Solving).

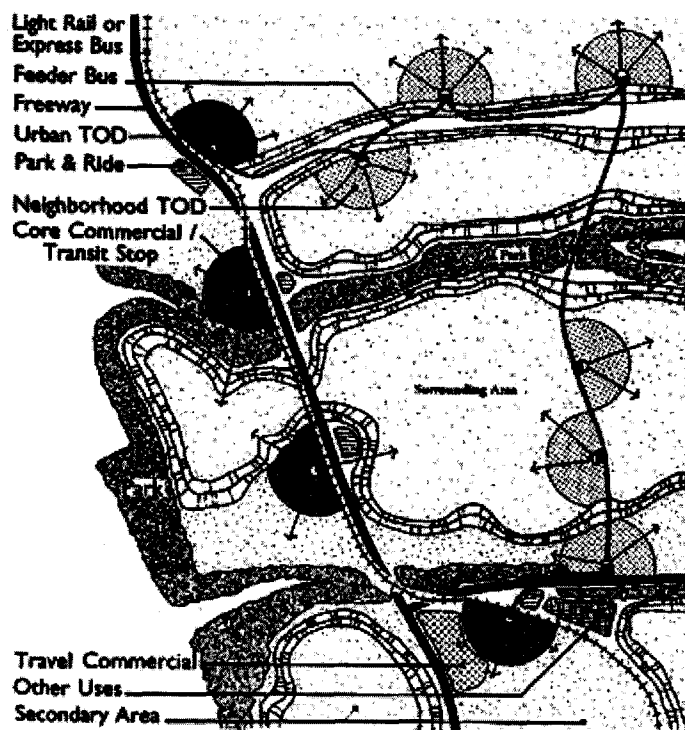
Orenco Station was brought about by the city of Portland's plan to add a train stop to its light rail line. In order to build the stop, the town of Hillsboro was required to rezone the area around the stop for mixed-use. Once the area was rezoned, the developer was responsible for the vision of the project (Benfield Solving 119-120). This case exhibits the strengths of public-private partnerships. Mark Mehaney, the project manager, observed "The public agencies did what they do best- setting worthy policy goals. We did what we, as a private company do best- finding out what would sell in the market and delivering it in an innovative and cost effective way. We actually became more ambitious than we would have under more prescriptive guidelines, because we were in control of our risk management" (Benfield Solving 120).

One area of Knoxville that exhibits true mixed-use traits is the Central Business District (CBD), commonly known as downtown. Here, residents can work, shop,

recreate and reach public transportation hubs within walking distance of their homes.

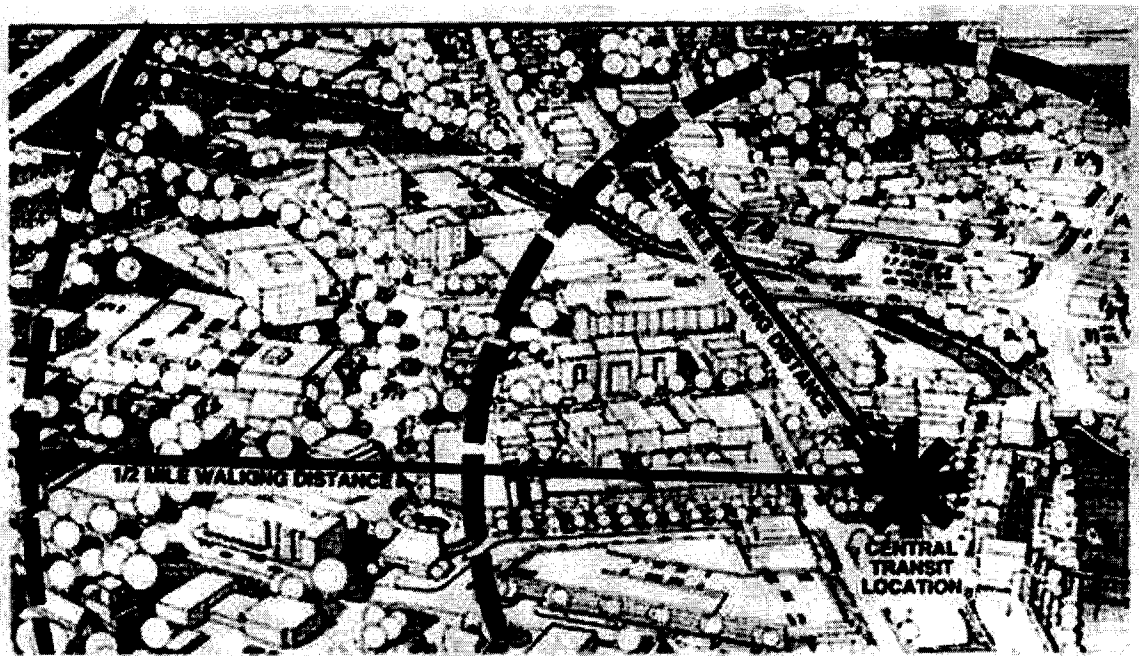
However, much could be done to improve the area. Attracting more residential development, improving the KAT system, and encouraging developers to add amenities such as a price-competitive grocery store would increase the CBD's chances of becoming a self-sufficient neighborhood.

When planned efficiently and connected to transit, mixed-use zoning can eliminate the need for a car altogether. This type of zoning is called Transit-Oriented Development (TOD). Orenco Station of Hillsboro, Oregon, is one such TOD; another is The Crossings of Mountain View, California. (Benfield Solving). In TOD, communities purposely plan new growth along a light rail or bus line, as shown in the diagram.



This policy controls sprawl because it forces communities to plan the location of new growth before it is needed. Various policies to encourage or stimulate TOD exist. In the case of Orenco Station, the city of Hillsboro was required to rezone the land around the stop in order to receive funding for the stop. Areas around transit stops are required to be compact and mixed-use (Benfield Solving 119). For The Crossings, the city of Mountain View decided voluntarily to plan TODs. When a new stop was planned for the area, the town hired a designer to plan a compact residential development near the stop (Benfield Solving 97).

TOD is also a worthy policy because it greatly reduces car usage, which reduces air pollution. Ideally, all new growth occurs within a five-minute walking distance. Studies have shown that people are likely to use public transportation instead of a personal car if they can reach a station within 5 minutes. For most people, this distance is between _ and _ miles.



(www.cnu.org)

The final policy tool for controlling urban sprawl may be the most important. Urban Growth Boundaries, (UGB) are a tool that can mandate planning for an entire region and facilitate long-term compromises between developers and environmentalists; UGBs allow economic growth while protecting the environment. All the policies discussed above- compacted zoning, mixed-use developments, TOD- can be incorporated into an Urban Growth Boundary. Solving Sprawl defines UGB as

“A growth management tool that sets a clear limit to the area that can be developed within a metropolitan area. Inside the UGB, growth is encouraged; outside the line, growth is strictly limited. In effect, the UGB is designed to separate the urban and suburban areas from rural and open-space areas. To be effective, the location of a UGB has to be set very carefully: if it is too close in, the area within may experience stresses such as over-development or a housing shortage; if it is set too far out, it may do little to contain sprawl. When drafted carefully and administered effectively, an urban growth boundary can be a powerful tool to contain sprawl and protect farms, forests, and natural areas from development (Benfield Solving 193).

One cannot discuss UGBs without presenting Oregon as an example. Although there are many cities, counties and states around the country that have adopted Urban Growth Boundaries, Oregon is the only state to mandate that every municipality adopt an effective UGB as defined by Kaid Benfield’s Solving Sprawl. Oregon passed

legislation in the 1970s that planned for urban growth. A boundary was set outside each city as an acceptable amount of growth until 2040. Past the boundary, land cannot be sold in a deed of less than 80 acres. So, people can still build outside the boundary, but very few do because of the cost of buying 80 acres of land. This has forced Oregon's cities to build inward in a compacted, responsible way (Mitchell).

Tennessee Public Chapter 1101

Tennessee has also mandated that all counties adopt an urban growth plan under Tennessee Public Chapter 1101, the Tennessee Comprehensive Growth Plan Act. However, the Oregon and Tennessee mandates have resulted in county plans that are quite different from one another. I will now present an abbreviated case study of the development of Knox County's urban growth plan. I believe that many issues addressed in the development of this plan reflect on the local government's willingness and/or ability to control sprawl through any of the discussed options.

In early May of 1998, the Tennessee State Legislature passed Tennessee Public Chapter 1101, the Tennessee Comprehensive Growth Plan Act. (NS 5/2/98). The purpose of the act is to

“establish a comprehensive growth policy for this state (Tennessee) that:

- 1) Eliminates annexation or incorporation out of fear; 2) Establishes incentives to annex or incorporate where appropriate; 3) More closely matches the timing of development and the provision of public services;
- 4) Stabilizes each county's education funding base and establishes an

incentive for each county legislative body to be more interested in education matters; and 5) minimizes urban sprawl” (PC 1101 1-2).

Interestingly, minimizing sprawl is listed last.

The Act requires that each county create a growth coordinating committee. The committee is made up of representatives from the county legislative body, each municipalities’ governing bodies, the utility system, soil conservation district, board of education, chamber of commerce, and four citizens to represent environmental, construction and homeowner interests, for a total of 12 representatives in Knox County’s case (PC 1101 2-3)

The Growth Coordinating Committee (GCC) had a straightforward job, as outlined by the legislation. GCC’s job was to come up with a plan to separate the county into 3 zones- urban growth boundaries, planned growth areas, and rural areas (PC 11017-8). Urban Growth Boundaries(UGBs) were to be drawn around each municipality; for Knox County this includes Knoxville and Farragut. UGBs for the purpose of this law are defined as

“Territory that is reasonably compact yet sufficiently large to accommodate residential and nonresidential growth projected to occur during the next 20 years...territory that a reasonable and prudent person would project as the likely site of high density commercial, industrial and/or residential growth patterns and topographical characteristics...reflect the municipality’s duty to facilitate full development of resources within the current boundaries of the

municipality and manage and to control urban expansion outside of such current boundaries, taking into account the impact to agricultural lands, forests, recreational areas and wildlife management areas...The municipality shall also determine and report on the need for additional land suitable for high density, industrial, commercial and residential development, after taking into account all areas within the municipality's current boundaries that can be used, reused or redeveloped to meet such needs " (PC 1101 7-8)

Planned Growth Areas (PGAs) are simply areas outside of city limits that allow development like that within the UGB. Rural areas include territory outside UGBs and PGAs that is protected from high-density development. (PC 1101 8-9). The GCC was to submit its plan to all County and City governments for ratification by January 1, 2000 (PC 1101 3). The local governments then had to ratify the plan by July 1, 2001 (PC 1101 9). Local governments who could not agree to a plan would face economic sanctions by the state and would have their plan mediated by a panel of administrative law judges in Nashville (PC 1101 13). On a state scale, the Tennessee Advisory Commission on Intergovernmental Relations (TACIR) implements the plan (PC 1101 14). On a local scale, the joint economic and community development board implements the plan (PC 1101 15).

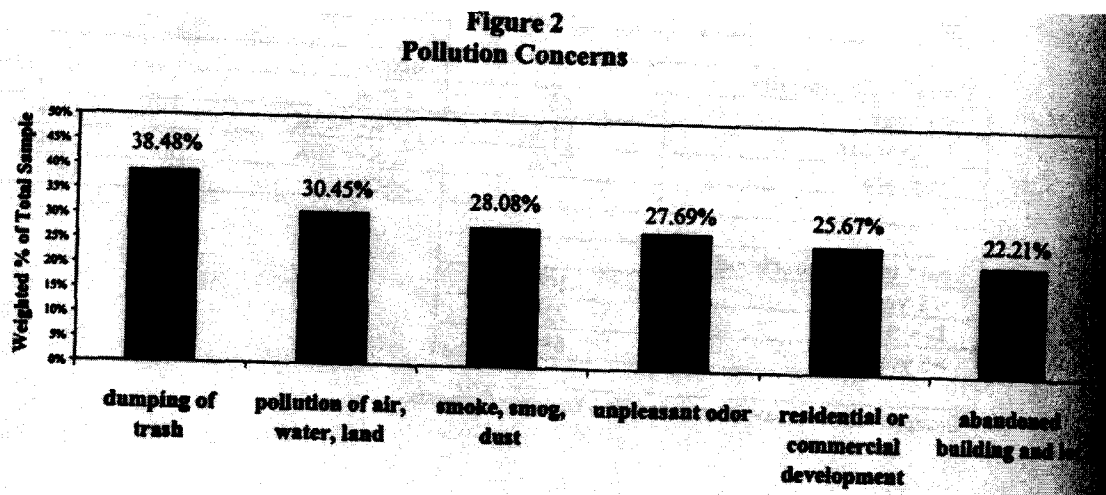
This law opened a window of opportunity for Knox County to control its sprawl problems. In analyzing the steps taken by Knox County to form its growth plan, it is clear that Knox County did not fully utilize this window of opportunity. For various

reasons, Knox County's struggle to form a plan centered entirely on issues other than urban sprawl.

In analyzing any action by political leaders, it is important to analyze the salience of the issue confronting such leaders. In the case of Public Chapter 1101, all attention was focused on the annexation issues of the law; hardly any attention was paid to the law's ability to control sprawl. Annexation has long been a hot topic for Knox County (Whitaker 3). Our previous Mayor, Victor Ashe, is infamous for his policy of involuntary annexation. Former County Executive Tommy Schumpert termed his policy "cherry-picking annexations" (NS 2/23/97). The Metropulse's Joe Sullivan terms Mayor Ashe's actions "divisive annexation binges" (Sullivan). Common terminology for annexing strips of land is "finger annexations". Tempers run high regarding this issue because annexation means that the city provides sewer, garbage, and emergency services; however, the services come with the price of greatly increased property taxes.

Along with a level of public hostility towards annexation comes a general lack of interest in environmental issues. A study by the Metropolitan Health Department of Nashville and Davidson County shows that only 26% of Tennesseans consider development a concern (Larson 1). Concern about development rated behind concern for dumping of trash, at 38%, and pollution of air, water and land at 30% (Larson10). This shows a slight disconnect between concern for irresponsible development and the air, water, and land pollution that irresponsible development causes. When asked what topics they would be interested in learning more about, 47% of respondents indicated that they would like to learn more about development plans in their area. Although this

number is relatively high, it rates behind three other topics of interest: how to reduce pollutants in home, learning about health risks of eating food grown near contaminated areas, and how to dispose of household hazardous material (Larson 31). Further more, only 16% of citizens polled were aware of community environmental groups in their area, and only 5% were active in such groups (Larson 1).



(Larson 10)

East Tennessee is unique in its culture, and part of that culture is defiant of regulations. Citizens have strong feelings about property rights and the government's ability to control the use of their property. Whatever the reason, zoning often elicits strong emotions from citizens. One subject interviewed for a UT thesis claims that any zoning violates the 5th Amendment of the Constitution (Hedburg 42).

Due to this political situation, members of the Knox County Commission found it advantageous to take a stand against annexation. The city, under then-Mayor Victor Ashe, stood poised to ensure its ability to annex in the future. Thus, a political struggle formed between the two governments. This struggle, centering on annexation, pushed the

issue of minimizing sprawl out of the picture. A search of Knoxville News-Sentinel archives shows that of 154 articles written concerning PC 1101 in Knox County, only 7 mention or focus on minimizing sprawl. The remainder are articles publicizing public hearings or, the vast majority, detailing the battle between the city council and the county commission.

This political battle began before then Governor Sundquist even signed the bill when Commissioner Frank Leuthold claimed that the law would force commissioners to commit political suicide by identifying parts of their districts for inclusion in the UGB (NS 5/19/98). Days later, the Commission asked its Law Department to review the law for judicial action (NS 5/21/98). In early July 1999, tensions between the Council and Commission flared as Council members did not attend a Commission meeting that had been rescheduled to accommodate Council members (NS 7/2/99). Later that month, the County Law Department proposed a growth plan that froze current city limits as the UGB (NS 7/22/99). In August of 1999, the city outlined its own growth proposal that would have included 114 square miles in the UGB (NS 8/19/99).

In November of 1999, the Growth Commission chose an UGB that included 16 square miles of territory outside of city limits (NS 11/23/99). In early December, the city proposed a plan to include 25 sq. mi. of territory outside city limits, and the County backed the proposal to add 16 sq. mi. (NS 12/8/99 and 12/9/99). 2000 brought new political battles, beginning with the Mayor's proposal to fight for the city's original 114 sq. . mi. UGB (NS 1/7/2000). On January 13 of 2000, the Growth Commission formally

approved its plan to include 16 sq. mi. of new territory, for a total of 47 sq. mi. inside the UGB (NS 1/13/2000).

By March, neither the city nor county had acted upon the Growth Commission's formal recommendation (NS 3/19/2000). In April, the city rejected the plan, and in May the County filed suit with Hamilton County challenging the Constitutionality of the law (NS 4/24/2000 and 5/9/2000). In June, the Growth Commission voted to maintain its plan even though the city and the county governments had both rejected the plan (NS 6/7/2000). By December 2000, the parties had stalled and the City and County were forced to go through a mediation process with an administrative law judge (NS 12/8/2000).

Meanwhile, urban sprawl was not at the forefront of citizen groups either. Neighborhood organizations and business groups both fought the plan; the former in an attempt to not be annexed and the latter in an attempt to ensure economic growth (NS 12/3/99, 1/26/99).

The implementation of this plan did not bring the kind of controversy seen in the adoption process. Because the plan set a straightforward limit on annexations, there were simply no battles to fight. The Knox County Growth Plan contained almost no provisions to minimize sprawl; even in rural zones land can be developed for residential space, business parks, or industry if a few conditions are met (KC growth plan 3-4).

Evaluating PC 1101 and Knox County's growth plan is difficult because the short time span in which the plan has been enacted. Some results may not be noticeable at this time. Yet, most planners and environmental leaders recognize that although a plan that

minimizes sprawl and encourages compact growth could be derived under this law, Knox County's plan will not accomplish these goals.

The Executive Director of the MPC, Norman Whitaker, released a report finding problems with PC 1101 and with Knox County's Plan. Whitaker finds fault with PC 1101 because its language is vague, it requires questionable population projection methods, and it actually encourages sprawl by allowing counties to designate all land areas within UGBs and PGAs (7). Mr. Whitaker also lays some blame with the local governments. He admits that "If a county and its cities were interested in conserving natural areas, channeling growth into the least environmentally constrained areas, and encouraging infill development, the growth boundary provision of PC 1101 would support these objectives" (Whitaker 5). Mr. Whitaker goes further to say that PC 1101 "could enable innovative, effective growth management programs in counties where there is substantial agreement and political will to designate growth boundaries..." (Whitaker 8).

Douglas R. Porter, president of the Growth Management Institute has also published criticism of PC 1101. Porter also blames PC 1101's inadequacies, citing vagueness and a lack of state guidance. (1-2). Porter also alleges that counties have complied with the "letter" but not the "spirit" of the law (Porter 1). Finally, Porter states that "While Tennessee has taken an important step in defining a state interest in local planning, and has induced useful discussions and actions among local governments to plan for growth, its version of state leadership in improving the quality of local planning appears to be an almost toothless tiger" (Porter 14).

Conclusions

In summarizing the effectiveness of PC 1101's goal to minimize urban sprawl, it is clear that PC 1101 could be a tool used to minimize sprawl. Knox County has not used the statute for this purpose. Knox County will not form an UGB that will minimize sprawl without a leader who has made this a clear goal. I believe that other efforts to minimize sprawl in Knox County will follow the same pattern. Low salience, cultural facets, pressure from business and industrial groups, and a history of political fighting between the Knox County commission and the Knoxville City Council will stand in the way of controlling Knox County's sprawl unless City and County leaders make a priority of doing so.

However, individuals discouraged by the UGB process in Knox County should not lose hope. Many policies exist which can control sprawl. Zoning reforms such as mixed-use zoning, encouragement of MDR and HDR, and innovative zoning such as CHD are the first steps to making improvements. Political support often brings responsible developments into existence. However if political leaders do not believe that the public supports measures to control sprawl, governmental leadership is unlikely to occur.

Therefore, those who wish to improve the air, water and social fabric of Knox County should begin with public education. Knox County residents must be informed of the connection between sprawl and pollution. Then, activists should educate Knox County Commission and Knoxville City Council members about policies that control sprawl. Only when these steps have taken place will Knox County begin to reverse its position as one of America's most sprawling cities.

Benfield, F. Kaid, Matthew D. Raimi, and Donald D.T. Chen. Once There Were Greenfields: How Urban Sprawl is Undermining America' Environment, Economy, and Social Fabric. Published independently by National Resources Defense Council, 1999.

Benfield, F. Kaid, Jutka Terris, and Nancy Vorsanger. Solving Sprawl: Models of Smart Growth in Communities Across America. . Published independently by National Resources Defense Council, 2001

Beaumont, Constance E. How Superstore Sprawl Can Harm Communities, and what citizens can do about it. Published independently by the National Trust for Historic Preservation, 1994.

City of Knoxville One Year Plan 1996. Prepared and Published by the Knoxville/Knox County Metropolitan Planning Commission, 1996.

Congress for the New Urbanism Website. <<http://www.cnu.org>>. 15 April 2004.

Development Activity 2002. Prepared and Published by the Knoxville/Knox County Metropolitan Planning Commission, 2002.

Ewing, Ried H. Characteristics, Causes, and Effects of Sprawl: a Literature Review. 1994. Obtained from UT Libraries Electronic Document Delivery Service.

Hedberg, Lee Margaret Duver. An Analysis of Participant Perception and Behavior at the Knoxville/Knox County Metropolitan Planning Commission Public Hearings. Thesis for Masters of Science in Planning Degree at The University of Tennessee, Knoxville, 2000.

Knox County Zoned Acres. Prepared by the Knoxville/Knox County Metropolitan Planning Commission, 3/2002.

Knoxville Area Facts and Figures 2003. Prepared and Published by the Knoxville/Knox County Metropolitan Planning Commission, 2003.

Knoxville- Knoxville County Metropolitan Planning Commission website.
<<http://www.knoxmpc.org>>

Knoxville News-Sentinel. 19 May 1998. "Commission debates new annex bill as 'suicide' law". 13 Apr 2004. <<http://web.knoxnews.com/archives/newsbank>>

Knoxville News Sentinel. 21 May 1998. "Annex law is facing fight". 13 Apr 2004.

<<http://web.knoxnews.com/archives/newsbank>>

Knoxville News Sentinel. 26 Jan 1999. "Industrial recruiters say law threatens business in

county". 13 Apr 2004. <<http://web.knoxnews.com/archives/newsbank>>

Knoxville News Sentinel. 2 Jul 1999. "Officials miss growth policy meeting". 13 Apr 2004. <<http://web.knoxnews.com/archives/newsbank>>

Knoxville News Sentinel. 22 Jul 1999. "County lawyers finalize anti-growth solution". 13

Apr 2004. <<http://web.knoxnews.com/archives/newsbank>>

Knoxville News Sentinel. 19 Aug 1999. "City proposes 114-square-mile area for growth in next 20 years". 13 Apr 2004. <<http://web.knoxnews.com/archives/newsbank>>

Knoxville News Sentinel. 23 Nov 1999. "Committee decides to recommend 16-square-mile area for growth". 13 Apr 2004.
<<http://web.knoxnews.com/archives/newsbank>>

Knoxville News Sentinel. 3 Dec 1999. "2nd group backs no-annex plan". 13 Apr 2004.
<<http://web.knoxnews.com/archives/newsbank>>

Knoxville News Sentinel. 8 Dec 1999. "Hard work on growth policy starts tonight". 13 Apr 2004. <<http://web.knoxnews.com/archives/newsbank>>

Knoxville News Sentinel. 9 Dec 1999. "County offers less restrictive growth plan". 13 Apr 2004. <<http://web.knoxnews.com/archives/newsbank>>

Knoxville News Sentinel. 7 Jan 2000. "Ashe says city will fight for original claim if growth plan decision goes to panel of judges". 13 Apr 2004.
<<http://web.knoxnews.com/archives/newsbank>>

Knoxville News Sentinel. 13 Jan 2000. "Growth committee approves map". 13 Apr 2004. <<http://web.knoxnews.com/archives/newsbank>>

Knoxville News Sentinel. 19 Mar 2000. "City, county mired in indecision as deadline on growth plan nears". 13 Apr 2004.
<<http://web.knoxnews.com/archives/newsbank>>

Knoxville News Sentinel. 24 Apr 2000. "City want new look at factors in growth plan". 13 Apr 2004. <<http://web.knoxnews.com/archives/newsbank>>

Knoxville News Sentinel. 9 May 2000. "Lawsuit: growth plan may harm counties". 13 Apr 2004. <<http://web.knoxnews.com/archives/newsbank>>

Knoxville News Sentinel. 7 Jun 2000. "Committee will not alter growth plan". 13 Apr 2004. <<http://web.knoxnews.com/archives/newsbank>>

Knoxville News Sentinel. 8 Dec 2000. "Urban growth plan trade-off OK'd". 13 Apr 2004. <<http://web.knoxnews.com/archives/newsbank>>

Larson, Dr. Celia O., and Bart Perkey. Environmental Concerns, Interests, and Perceptions: A Survey of Tennessee Citizens. Administered by the Research and Evaluation Division of the Metropolitan Health Department of Nashville and Davidson County. Published by the Tennessee Department of Environment and Conservation, 2001.

Mitchell, John. "Urban Sprawl: The American Dream". *National Geographic Magazine*. July 2001. Vol. 200. Pg.48-73.

"National Water Quality Inventory, 1996 Report to Congress". Prepared by U.S. Environmental Protection Agency

Neely, Jack. "Growing Pains: Sprawling Development threatens everything people say about East Tennessee, but nobody's doing much to stop it". 6 Mar 2000. <http://www.weeklywire.com/ww/03-06-00/knox_cover.html>. 1 April 2004.

"Nonpoint Source Pollution: The Nation's Largest Water Quality Problem". 1996. Prepared by the Office of Wetlands, Oceans, and Watersheds of the U.S. Environmental Protection Agency.

Porter, Douglas. "Tennessee's Growth Policy Act: Purposes, Implementation, and Effects on Development". July 2002. www.realtor.org/SG3.nsf/files/tengrowthpol.pdf. 13 Apr 2004.

Seaberry, Jane. "For Suburban Youths, Recreation Is No Longer Just Child's Play". *The Washington Post*. 31 May 1993.

Smart Growth America website. <<http://www.smartgrowthamerica.org>>. 5 April 2004.

Sprawl City website. <<http://www.sprawlcity.com>>. 5 April 2004.

Sullivan, Joe. "City's Snafus Threaten Its Future". Knoxville Metropulse on the Web. 1 Feb. 2001. 20 Apr. 2004.
<http://www.metropulse.com/dir_zine/dir_2001/1105/t_insights.html>.

Tennessee Public Chapter 1101. By: Rochelle. Enacted 19 May 1998.
<<http://www.state.tn.us/sos/acts/100/pub/PUBC1101.htm>>. 18 April 2004.

Tennessee Public Chapter 1101: Growth Plan for Knoxville, Knox County, and Farragut, Tennessee. <<http://www.knoxmpc.org/plans/growthpl.htm>>. 13 April 2004.

Whitaker, Norman. Tennessee's Growth Policy Act: The Role of the Metropolitan Planning Commission in Knox County. Prepared and Published by the Knoxville/Knox County Metropolitan Planning Commission, 2000.

White, Rodney R. Urban Environmental Management. New York: John Wiley & Sons, Ltd, 1994.