

A Preliminary Analysis of the Fiscal Impact of Land Use Changes in Hamilton County

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Introduction

Land use changes throughout Hamilton County are providing new opportunities for homeownership. The move away from the urbanized core is consistent with a decades' long pattern of land use development in the United States. Many families and individuals prefer suburban or exurban living environments and these preferences have driven the demand for new housing developments. New home construction provides jobs, meets a market demand and generally is considered a sign of growth: new housing is also believed to be directly related to new tax revenue for local government.

But unplanned development – that is, unplanned growth that does not factor in the sustainability of all systems of community support--can result in significant costs. Some of those costs go to issues of the quality of our environment. A recently released study by the Brookings Institution found that the Chattanooga Metropolitan Area had one of the largest per capita carbon footprints among the nation's top 100 metro areas.¹ In significant part, this was attributable to land use patterns.

¹ Shrinking the Carbon Footprint of Metropolitan America (May 2008) by Andrea Sarzynski, Marilyn A. Brown, and Frank Southworth. Published by the Metropolitan Program, Brookings Institution, Washington DC.

A more direct fiscal impact can also be attributed to current patterns of land use. Schools, roads and other government services are required to keep pace with growth.

How Hamilton County grows – and where – is an important question, unanswered to date by policymakers. There is no clear, long term vision or goal for levels of density throughout the county. Absent such a plan, it is difficult for policymakers to have a context for making land use decisions.

Also, there is very little information to inform the planning discussion based on fiscal impact. While individual developers planning individual projects always do due diligence to determine their bottom line, there is no comprehensive approach that measures the effect of new developments – both positive and negative – on the bottom line of the public fisc.

With neither a clear and comprehensive plan nor information as to the relative fiscal costs and benefits of new development, decision making is made ad hoc and in a vacuum.

The purpose of this paper is to try to begin a conversation about the fiscal effects of current land use patterns in

Hamilton County. It is premised on the notion that the more information that public officials, developers and members of the public themselves have about cost, the more likely it is that better decisions will be made.

To better understand the relationship between development and local government finances, the Community Research Council (CRC) analyzed population density, single family unit development, tax rates and revenues,

assessed property value, and federally funded Transportation Improvement Plan (TIP) expenditures.

These findings were then the subject of a two hour roundtable conversation hosted by CRC that included elected officials, planning officials, developers, advocates and others.

The findings and the comments of the roundtable participants are summarized below.

Costs and Benefits of Land Use and Development

Development in Hamilton County has had an impact on local government revenues, costs and distribution of local services. While there have been numerous studies on the fiscal impact of low density development nationally – or sprawl – there have been few studies of the issue in Tennessee and none in Hamilton County.

Many scholars and researchers have noted the relationship between sprawl and increased public cost. As population density declines in a region, it often results in the need for new public investment in infrastructure in previously unpopulated or under-populated areas.² Public costs often outweigh the benefits of increased tax revenues. For example, a study of Rutherford County and Murfreesboro Tennessee concluded that the cost of providing services to 100 new households would exceed revenue from those households by \$3.3 million over 20 years.³

There are operational costs as well. For example, the number and staffing of fire stations depends on the ability to reach different populated areas on a timely basis; thus, the more that a region's population spreads out, the greater the need for additional fire service. Hamilton County Department of Education Superintendent Jim Scales has also noted that the decision to open new school buildings, even with a stable student enrollment district wide, will not allow for one for one offsets in school closings and budgetary savings.

Still, low density development reflects a choice. As long as home buyers want low density living, developers will respond to their demands. Some argue that if government were to restrict choice, home buyers might leave the region altogether: limits on growth could result in a decline in population and property tax revenue over time. However, others argue that government restricts choice for every landowner and developer already.

² Reid Ewing, Rolf Pendall and Don Chen. (2005) *Smart Growth America*

³ Jim Rhody, Public Costs of Growth: In-Depth Analysis of Impact Fees for Policy Makers (1995)

Summary of Findings

Hamilton County is experiencing sprawl. Within Hamilton County, a number of indicators suggest changes in land use are the result of increasingly low density development:

- | Between 1990 to 2000, population in outlying unincorporated areas grew at nearly four times the rate as population in incorporated areas;
- | Between 2001 and 2005, the number of parcels with single family units in low density unincorporated areas grew at more than twice the county-wide rate of growth; and

- | In 2005 and 2006, home sales in outlying unincorporated areas accounted for 47% of the countywide total.

Despite the higher rate of growth in lower density areas within the county, the percentage of the county tax base in Chattanooga has remained virtually unchanged at nearly 60%.

While a significant share of property value is still concentrated in the core of Chattanooga, an increasing percentage of transportation spending is occurring on the eastern edges of the city and county. These investments support the new development, but amount to infrastructure investment that is disconnected from where the greatest amount of property value still resides.

Changes in Population and Density in Hamilton County

Hamilton County has the lowest population density compared to three other metropolitan counties in

Tennessee and Chattanooga has the lowest population density of the state's four largest cities.

Tennessee city and county population densities (persons per square mile)

Hamilton County	567.6	Chattanooga	1150.1
Shelby County	1189.5	Memphis	2326.5
Davidson County	1134.7	Nashville	1154.5
Knox County	751.4	Knoxville	1874.4

Source: Census 2000

Census data from 1990 to 2000 show population growth in both the urban and

rural environments: the City of Chattanooga grew a modest 2% and the county's total population grew by 7.8%, with approximately 60% of growth occurring in unincorporated areas. While recent population estimates from the Census Bureau suggest significant increases in Chattanooga's population, home sales, subdivided properties, and new building construction all indicate

growth continues outside of the city within the county.

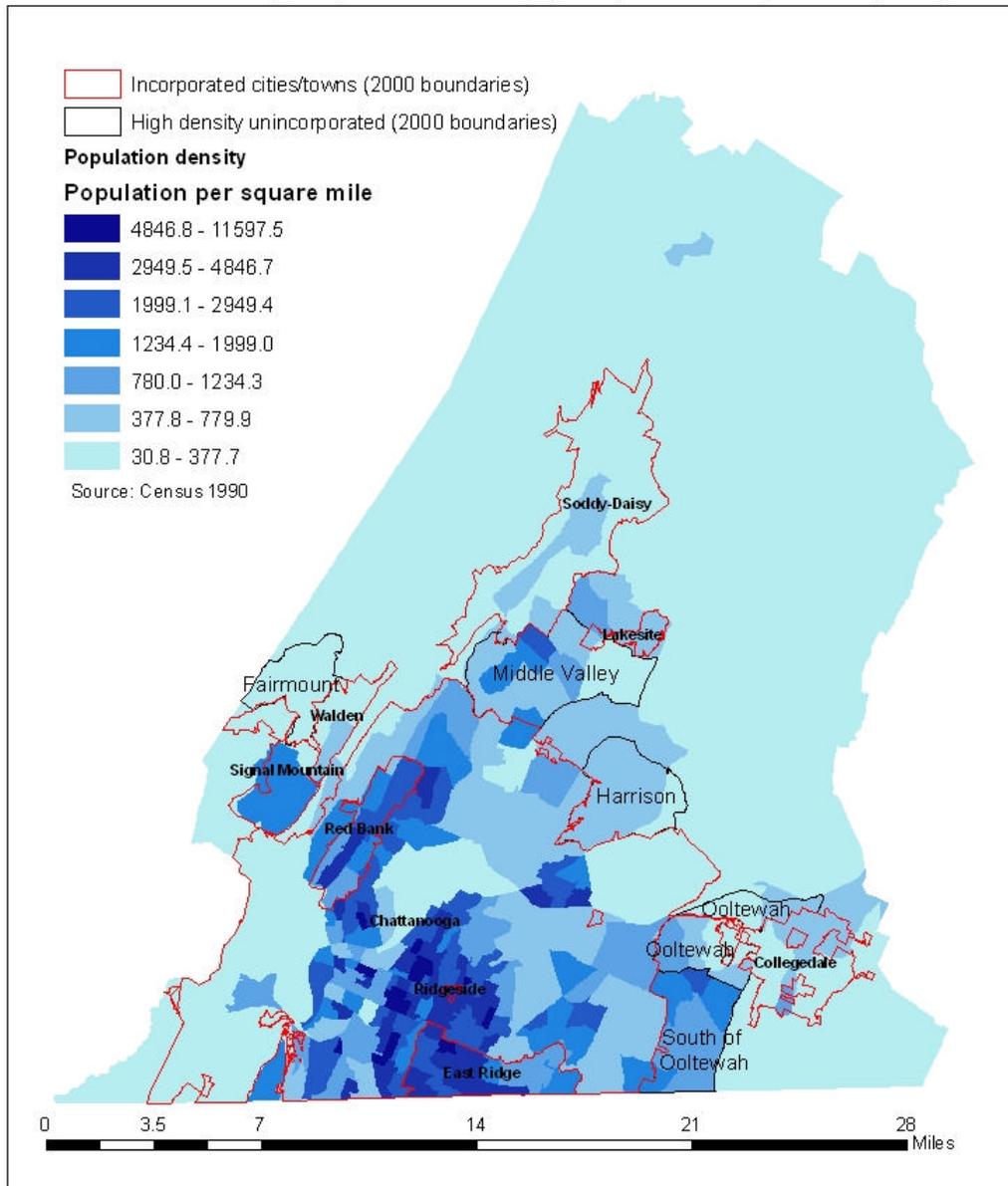
From 1990 to 2000 population density in the unincorporated areas increased by 17%--a rate nearly four times that of incorporated areas of the county. The area with the greatest rate of growth was in the Ooltewah area, on the eastern edges of the City of Chattanooga.

Population and density in incorporated and unincorporated county areas

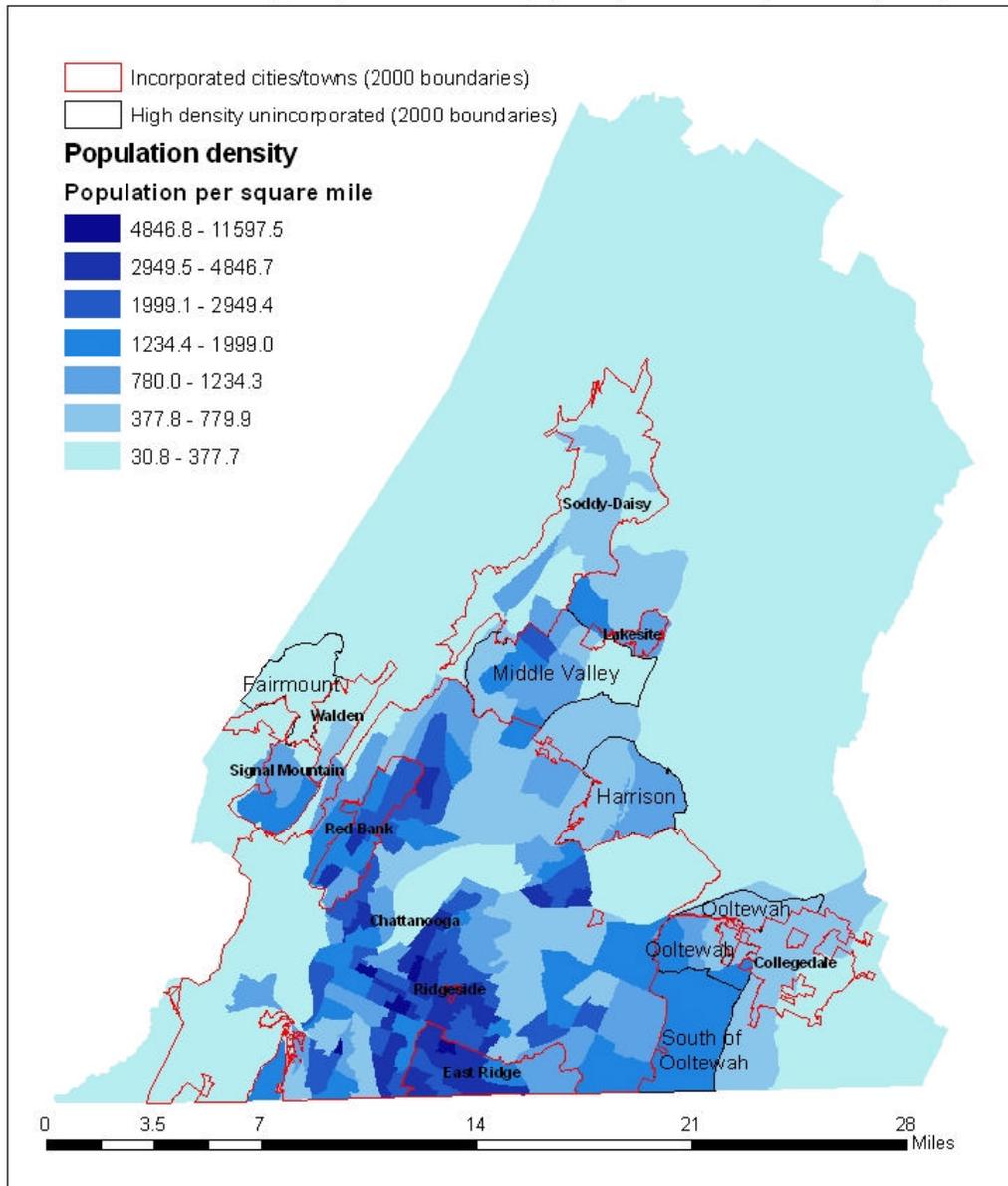
	Population				Density (Persons per Square Mile)	
	1990	2000	Change 1990- 2000	%Change 1990- 2000	1990	2000
County areas						
Incorporated	210,816	220,319	9,503	4.5%	1048.8	1096.1
Unincorporated	74,720	87,577	12,857	17.2%	199.3	233.5

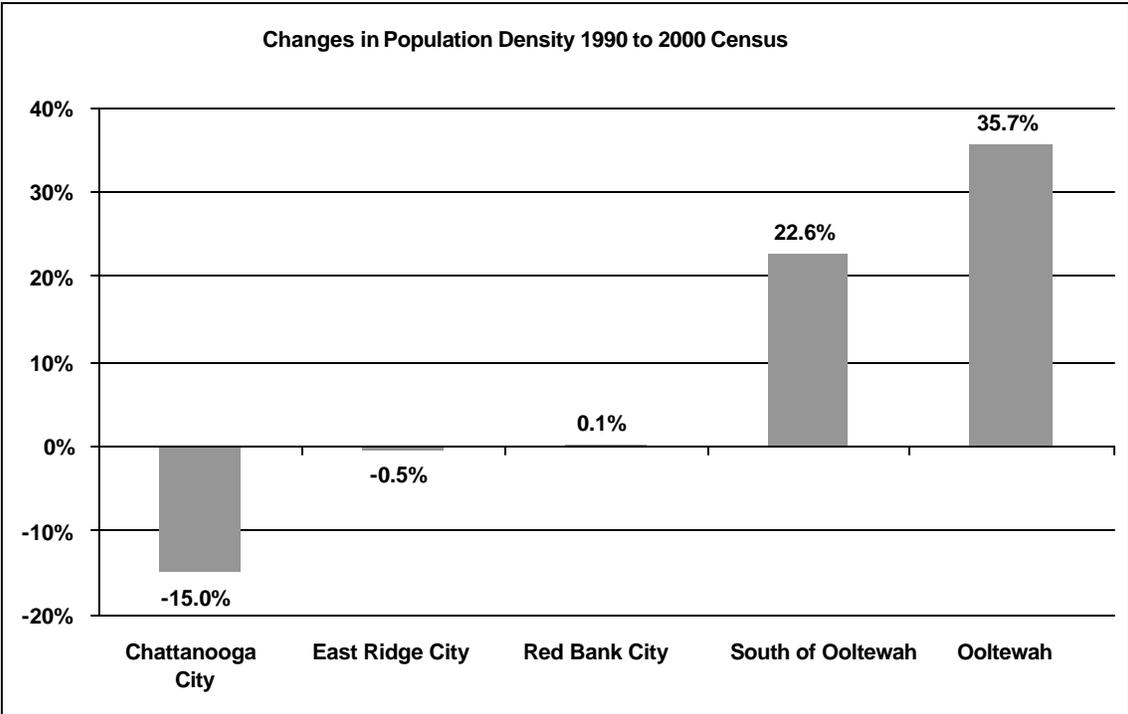
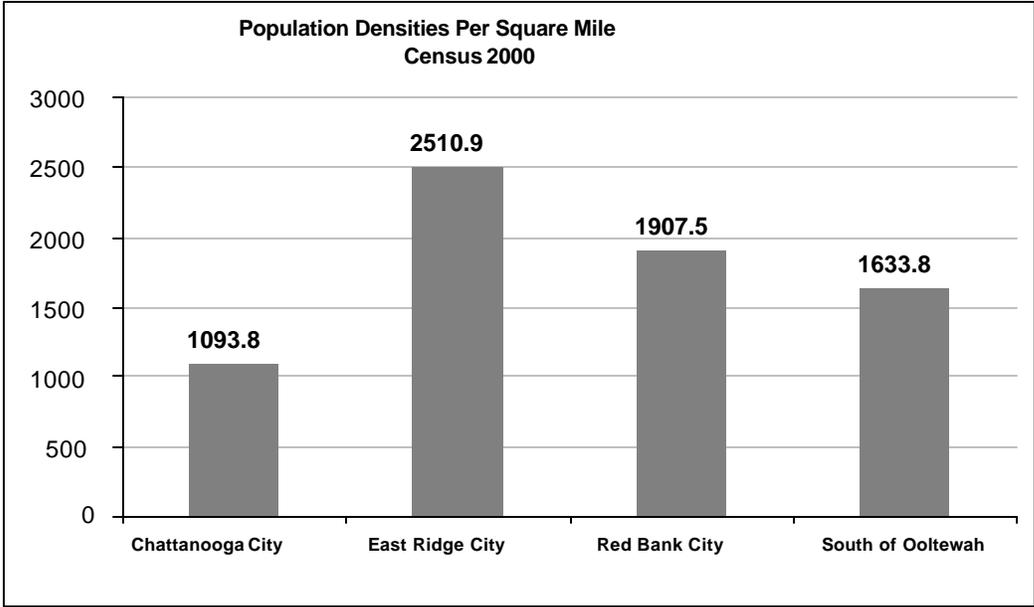
Source: Census 1990 and Census 2000 SF3

Hamilton County: Population Density (1990) and County Places (2000)



Hamilton County: Population Density (2000) and County Places (2000)





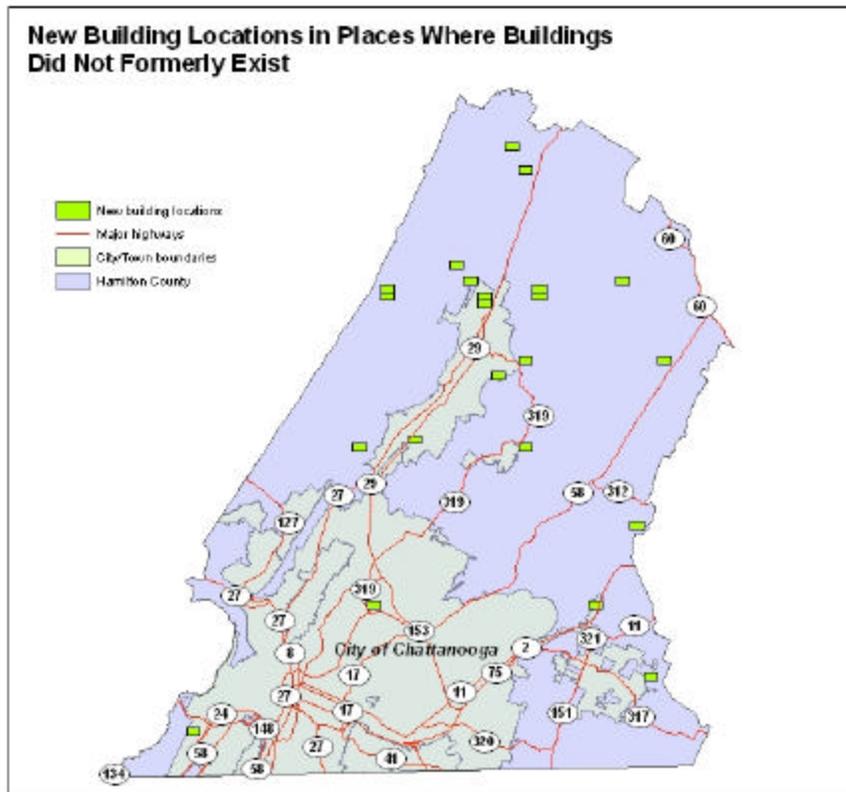
Low land prices and large homes stimulate development in more remote and low density areas for those willing to commute longer distances to work and shop. Between 2001 and 2005, rural unincorporated areas in Hamilton County had a 12.1% increase in parcels with single family units: more densely populated unincorporated areas had the next highest rate increase (6.7%). With

19% of the county's single unit housing, rural county areas had nearly 40% of all housing sales in 2005 and 2006. On average, home sales were for more expensive housing and average parcel sizes for units in low density areas were three-fourths of an acre--three times the average size of parcels in Chattanooga, East Ridge and Red Bank.

Changes in parcels with single family units

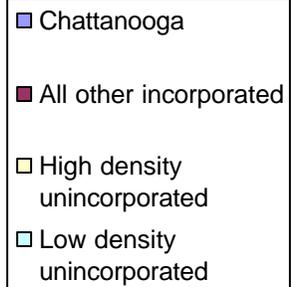
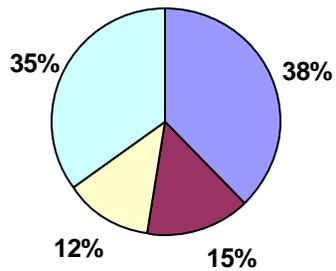
	2001	2005	Change	%Change
Chattanooga	41374	42844	1470	3.6%
All other incorporated areas	18469	19092	623	3.4%
Low density unincorporated areas	15803	17722	1919	12.1%
High density unincorporated areas	13388	14286	898	6.7%
<i>Total</i>	<i>89034</i>	<i>93944</i>	<i>4910</i>	<i>5.5%</i>

Source: Hamilton County GIS 2001 and 2005 property parcel files

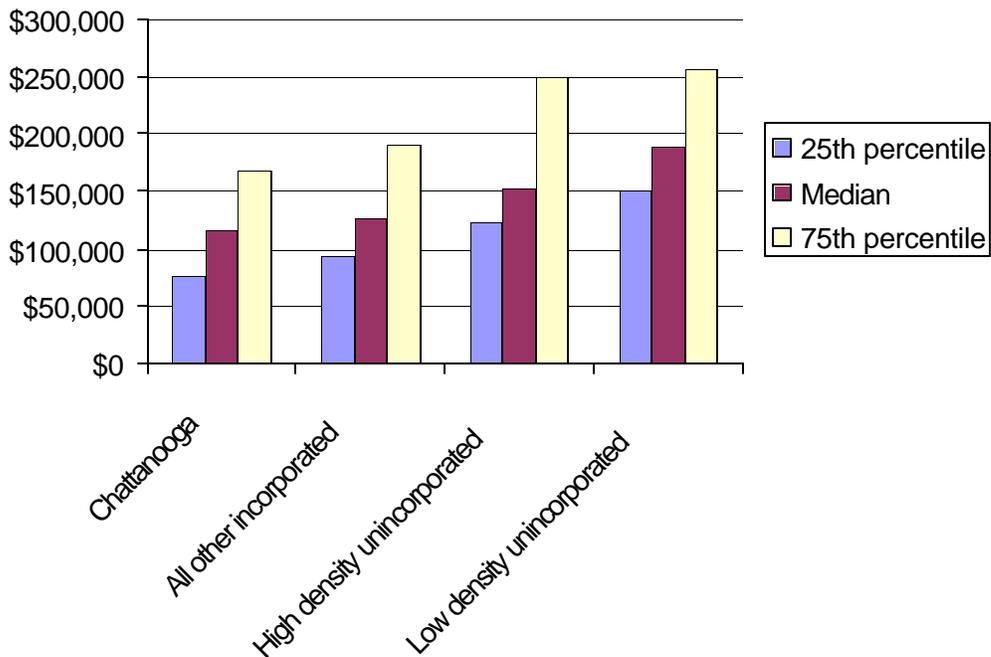


MLS Home Sales 2005 and 2006

N=11,661



MLS Home Sales 2005 to 2006 Values by Percentiles



Land in Hamilton County has been divided into smaller parcels. An estimated 274 parcels in 2001 were subdivided into more than 3000 property parcels by 2005. Approximately 4,800 acres of parcels that were 100 acres or

more in 2001 were converted to smaller size lots. Between 2001 and 2005, the number of parcels with fifteen acres or less of property has increased by more than 7,600.

Changes in parcel sizes: Single parcels to multiple parcels 2001 to 2005 (estimated)

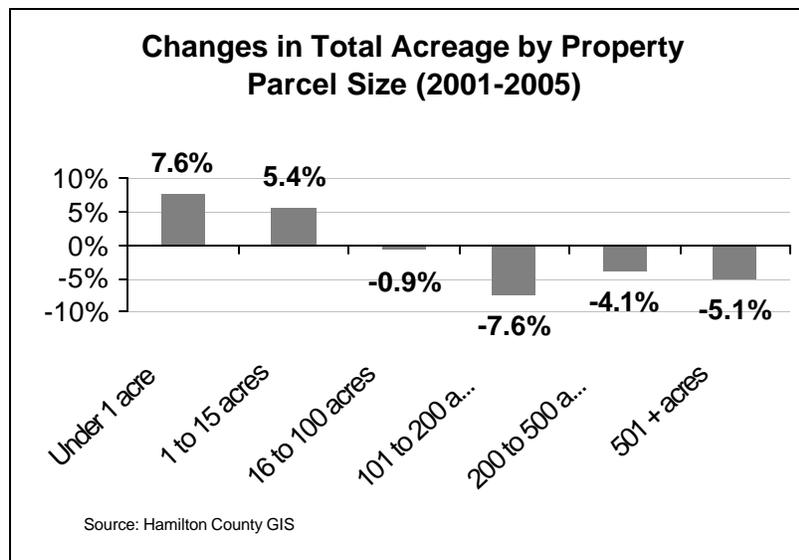
	2001	2005
Total	274	3332
Unincorporated	131	1872

Source: Hamilton County GIS

Acreage by property parcel size (estimates)

	2001	2005	Change	%Change
Under 1 acre	40701.2	43794.4	3093.2	7.6%
1 to 15 acres	83370.2	87894.9	4524.7	5.4%
16 to 100 acres	93024.7	92230.7	-794	-0.9%
101 to 200 acres	31658.4	29240.7	-2417.7	-7.6%
200 to 500 acres	22905.7	21977.1	-928.6	-4.1%
501 + acres	51505.9	48904.2	-2601.7	-5.1%

Source: Hamilton County GIS



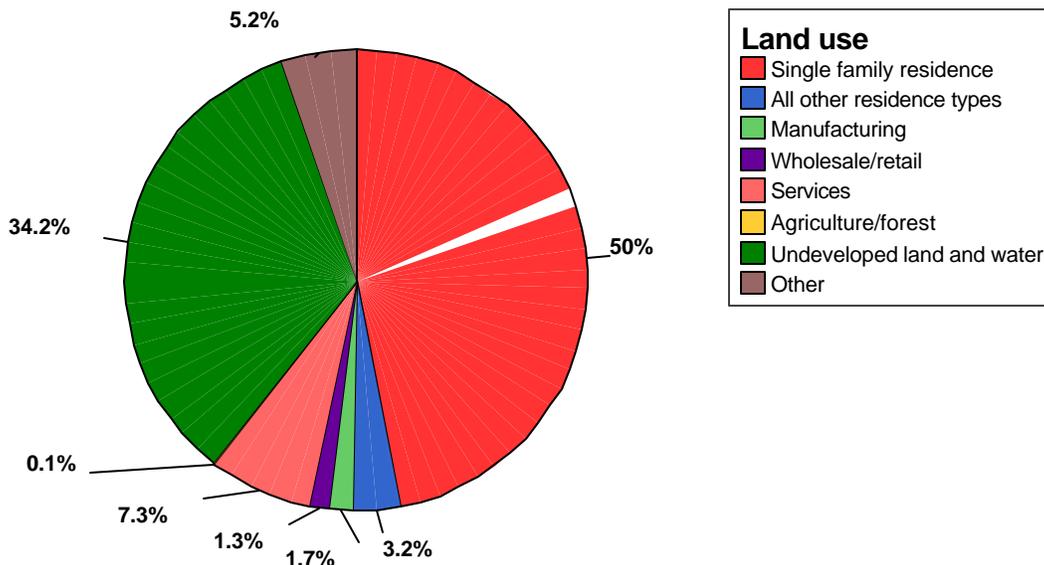
Geographic Analysis of Property Tax Revenue

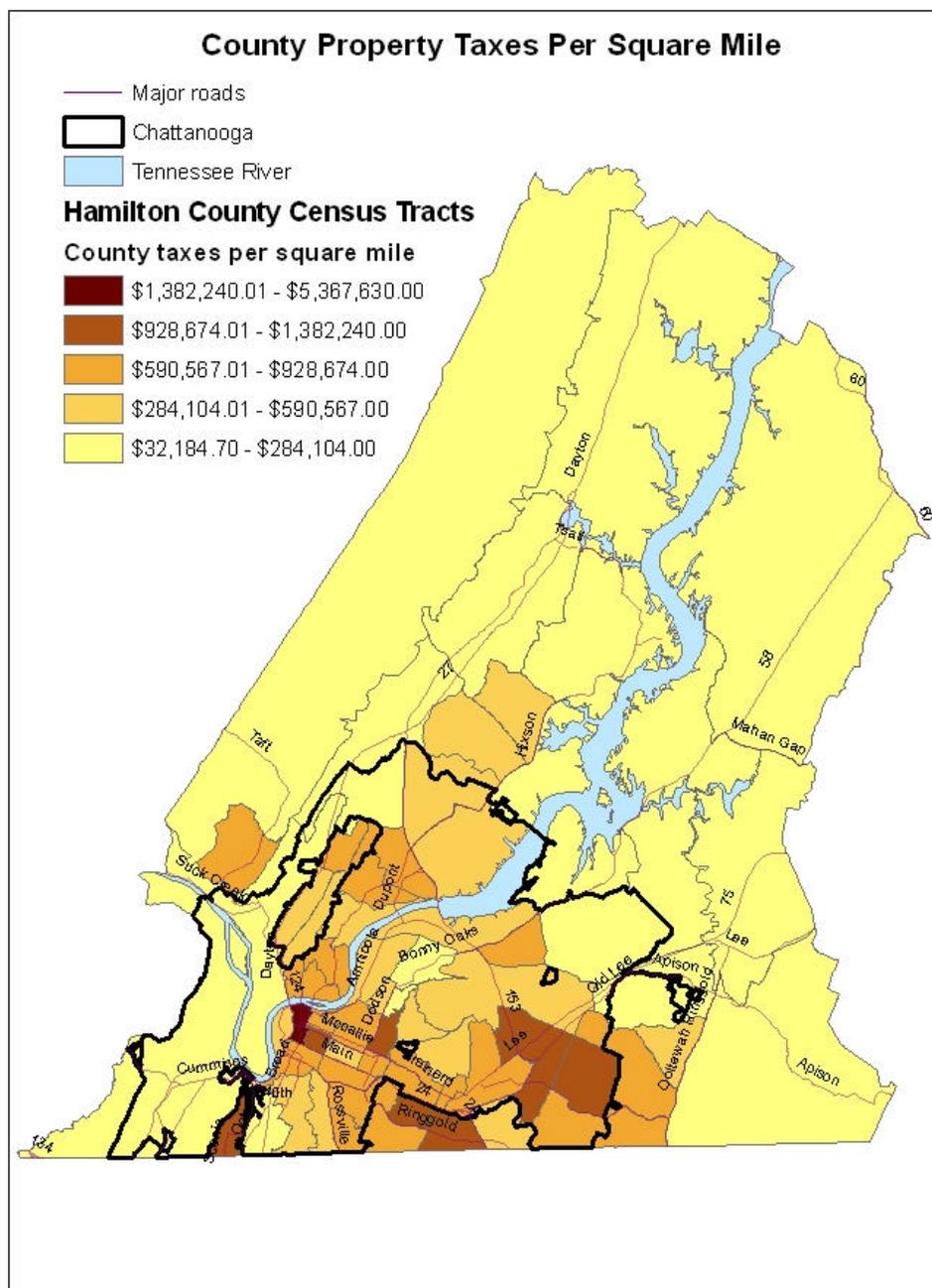
While development has spread out across the county, property tax revenue remains geographically concentrated. Cities and towns collect taxes from assessed properties within their boundaries and a single county property tax collected from each assessed property throughout the county, including those properties in city and town boundaries. Single unit residences occupy half of the total land area and provide 56% the total assessed value in Hamilton County—approximately 2.6 billion dollars. Those areas that are more densely populated, such as the City of East Ridge, are more efficient income generators per square mile.

Property within the City of Chattanooga is a major source of County revenue. In 2001, the City provided 59% of county

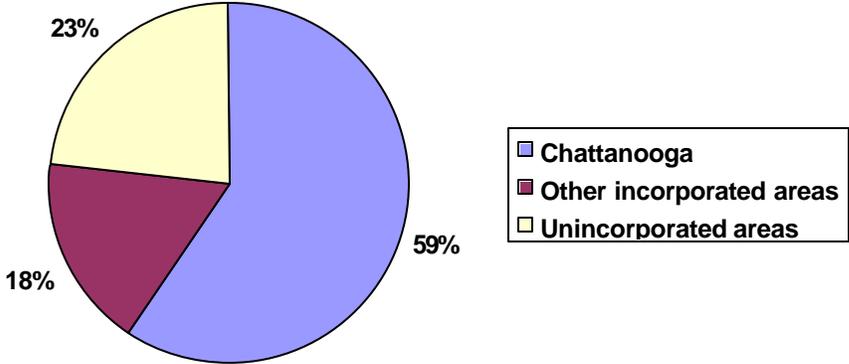
tax revenues. While the growth rate for single unit housing was higher in unincorporated areas of the county between 2001 and 2005, Chattanooga’s contribution to the County budget decreased by only 1%. In part, this is because the increased value of new housing in unincorporated areas cannot match the value of properties in other land use codes that are in the Chattanooga core. Approximately 2.1 billion dollars in assessed property value is from all other taxable land use, such as condominiums, apartments, manufacturing, retail, wholesale and others. Approximately 74% of the total assessed value for all other property, except single unit housing, is located in the City of Chattanooga. As a result, county revenues from the City of Chattanooga exceed revenues from all other parts of the county combined.

Property Parcel Land Use by Total Acres (2005)

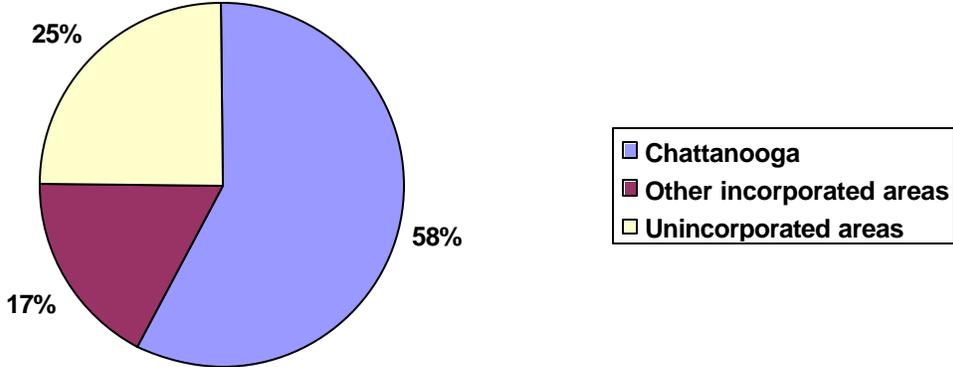




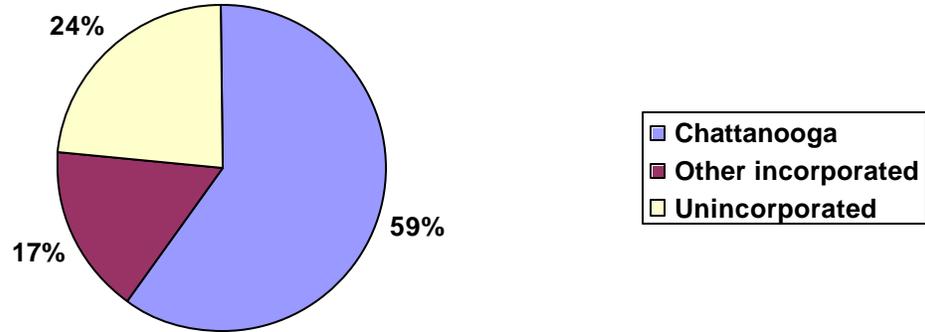
Total assessed value 2001



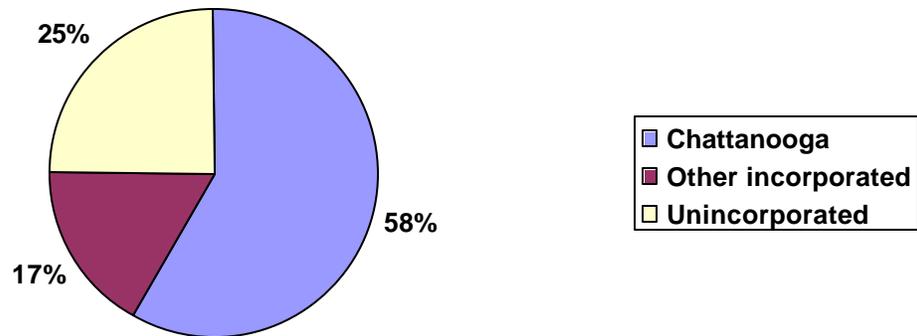
Total assessed value 2006



Estimated county tax revenues by county area 2001



Estimated county tax revenues by county area 2006



Land Use and Transportation Spending

Since 2002, more than 55 miles of second class road segments were added to the network of roads maintained by Hamilton County. Road-building by private developers of residential subdivisions in unincorporated County areas is added to the complex of public roads by resolution of the Hamilton County Board of Commissioners.⁴ From 2000 to 2006, a total of 242 new road segments, with a median length of 0.15 miles, provided avenues for residential traffic moving from suburban cul-de-sac neighborhoods to larger roads and then to major highways. In both County and City areas, the greatest concentration of new roads was in the

southeastern quadrant of the county, an area with the highest growth rate as measured by changes in population density.

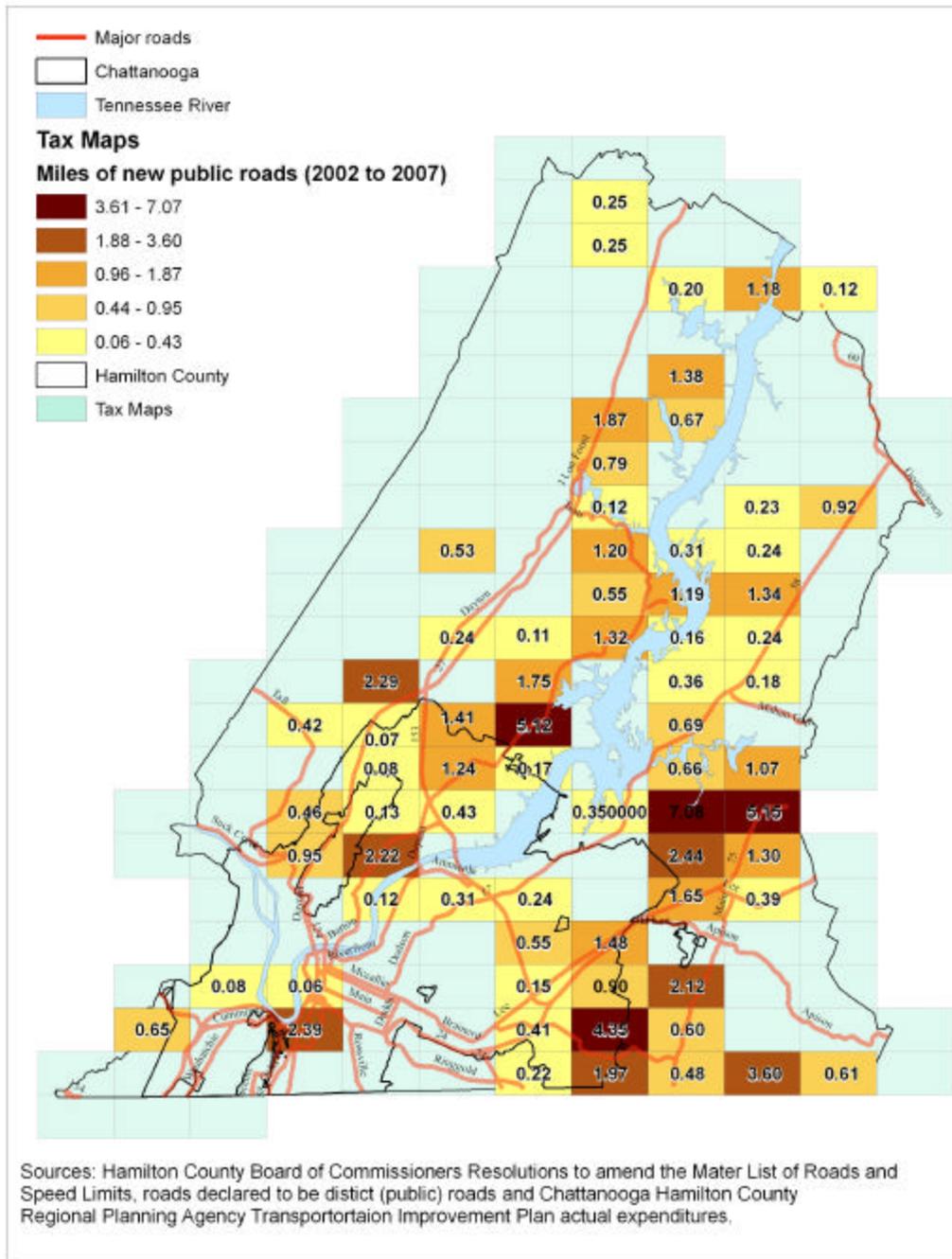
As networks of roads develop in residential areas outside of city boundaries, the increase in commuter miles necessitate planning for more expensive road projects such as road widening or bridge restoration. Increased commute times are the result of travel from homes that are further from the core, where many jobs – and property value – remains concentrated.

Total miles of new roads 2000 to 2007⁵

Chattanooga (2002-2007)	20.2
County roads excluding Chattanooga (2000-2006)	55.2
<i>Total</i>	<i>75.4</i>

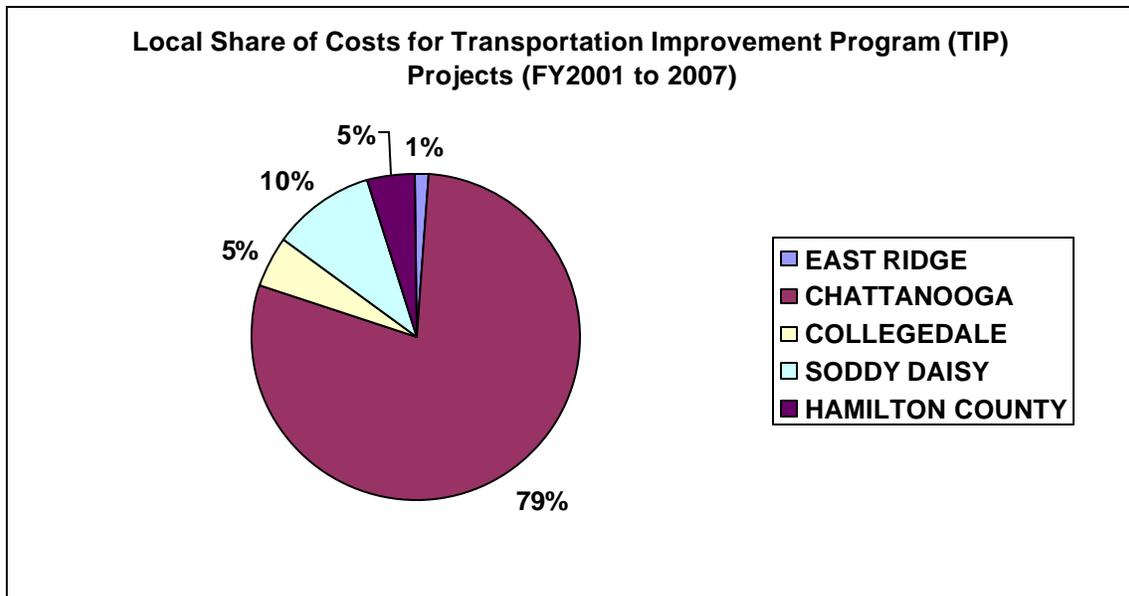
⁴ “Subdivision” means the division of a tract or parcel of land into two (2) or more lots, sites, or other divisions requiring new street or utility construction, or any division of less than five (5) acres for the purpose, whether immediate or future, of sale or building development, and includes resubdivision and when appropriate to the context, relates to the process of subdividing or to the land or area subdivided.” In *Hamilton County Subdivision Regulations*

New County and City Roads (Total Miles by Tax Map Location 2002 to 2007)

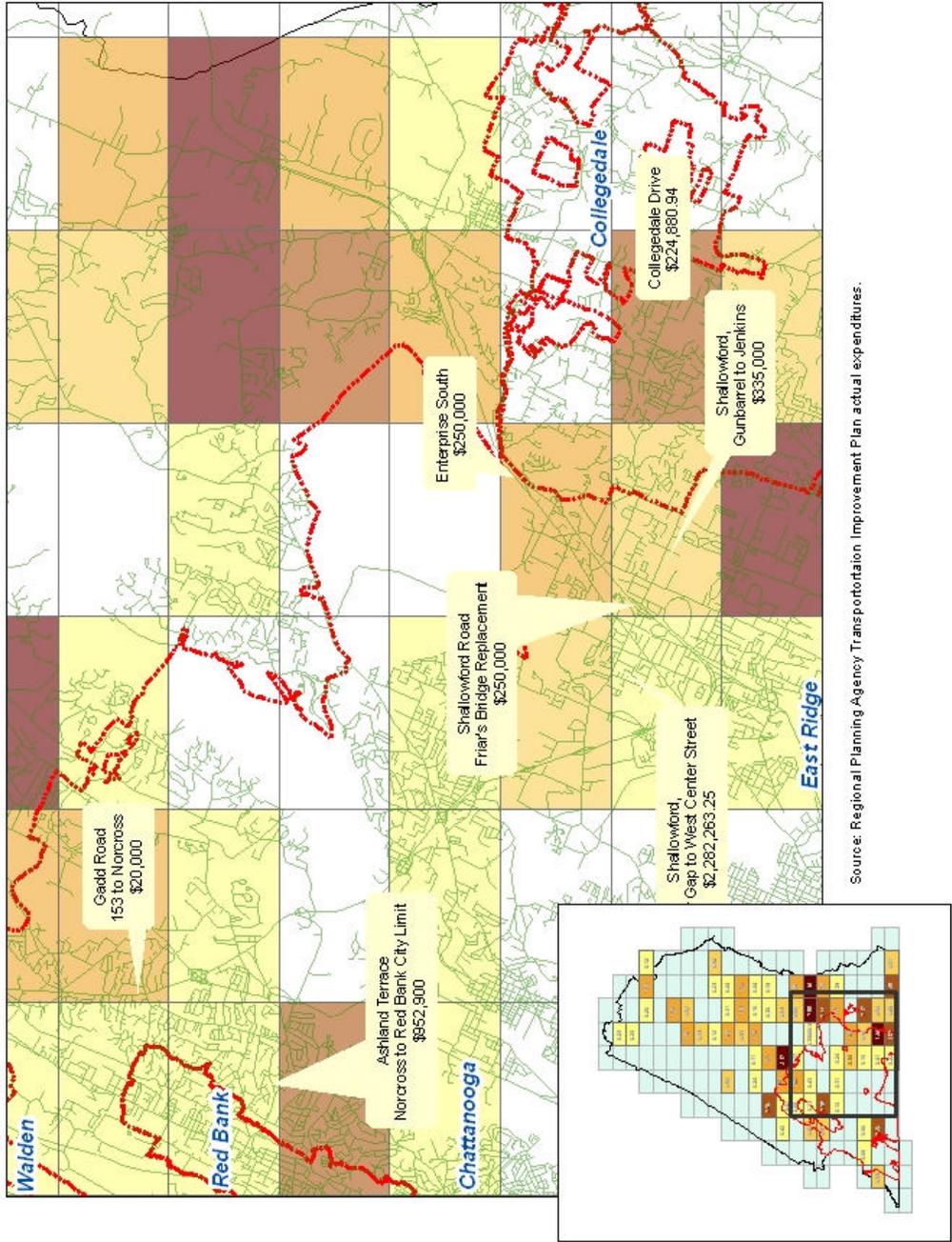


The Chattanooga Hamilton County North Georgia Transportation Planning Organization (TPO) develops priorities for capital projects for the federally funded Transportation Improvement Program (TIP). Projects include high cost road improvements that require local government matching funds (80%

Federal to 20% local). Between FY 2001 and FY 2007, the TPO approved more than \$27.8 million in transportation projects: while most of these projects were in the boundaries of the City of Chattanooga, they were concentrated at the outer edges of the city limits.



**Chattanooga Transportation Improvement Projects and Local Share of Costs
For the City of Chattanooga (2001 to 2007)**



Source: Regional Planning Agency Transportation Improvement Plan actual expenditures.

Conclusions

What do these findings mean?

CRC convened and led a two hour roundtable discussion on the findings with representatives of business, local government, the regional planning agency, the public school district, home builders and land conservation advocates.

The following is a summary of some of the conclusions drawn by roundtable participants:

The lack of communication between the private and public sector, and within the public sector, results in a lack of information about public costs and ad hoc decision making. Private sector development of new homes has met consumer demand. But, due to a lack of communication, public sector leaders often fail to plan for the costs of these new developments. The private sector is also left to plan on its own – with its plans then subject to ad hoc decision making.

“You’ve got to have better communication...Let’s face it—you’ve got to provide roads, public services, school systems. We talk about infrastructure. I’ve lived in this county for 40-something years and I didn’t know the county does not build roads. Hamilton County does not build roads. Ya’ll think about that. How do you expect to connect all this stuff together? You say, well, the developers are supposed

to do it. The state highway’s supposed to do it. The county’s not supposed to do it.”

New subdivisions follow a developer’s plan. Costs and revenues for each new subdivision are calculated. A developer knows who will buy the homes by the types of housing built. The number of children that will eventually move into a new subdivision and even children’s ages can also be calculated.

“...a residential developer comes in [with] a solid economic [analysis]. [The developer] looks at the type of housing they’re going to generate. [The developer] knows from housing studies what kind of school-age children they’re going to bring in, and then [the developer] is able to determine the needs for a school.”

But government and schools do not use similar methods to plan and calculate the costs of changes in land use that brings households to new county locations.

When a new subdivision brings in a new school building, student population projections are not calculated. New schools are built as older schools fall into disrepair.

“It’s been my observation that there’s no correlation between the placement of schools and growth.”

Operationally, if a new elementary school is built and less than 650 students attend, then the school will cost the district an extra \$1,000 per child. At least 650 students must attend a middle school to avoid additional costs.

“...if you were to look at our schools – you build it and it’s almost like it’s disposable construction. And after a few years you tear it down and you rebuild it...and if I learned one thing is that it costs less to provide preventative maintenance that it does to allow it to fall into disrepair. And then it costs a lot more to go back and fix it.”

“...we’ve got 78 schools in the system, we have 514 children per building . Look at the break-even point in educational buildings. You’ve got to take and look at them from a financial standpoint even though we’re in the business of educating children...We have 12 elementary schools below [350 students]. You’re losing a thousand dollars per student below the 650 mark. That’s how much it costs to subsidize. That’s where the dollars are going...instead of having the dollars going into the

maintenance, and instead of having the dollars go into a textbook, instead of having dollars that can go into technology, instead of having the dollars that can go where they need to go.”

Other fiscal costs to the public sector are not currently calculated, but just as school costs are evident, so are they. Second class roads networked throughout new subdivisions can cumulatively impact infrastructure, precipitating, for example, future reconstruction of major roads to accommodate increases in traffic and increased system capacity for wastewater discharges.

“...there is a long list of incidences where cumulative impacts of development drive massive road projects that are needed to connect to those. There’s not any one... [initially] needs are all met but it’s the cumulative needs [that drive future costs].”

In the absence of clear goals/guiding philosophies from government — a mission and vision statement — actions are reactive and come with unanticipated costs. In the past there have been those who identify comprehensive planning as inhibiting growth. But without an analysis that acknowledges that public and private sectors are indeed interactively connected and together will affect

quality of life issues, then sustainable growth is highly questionable.

“[I]t’s important...to ask the question “What does Hamilton County want to be as an entire county and how does Chattanooga as a city see itself over the next 15-20 years?” Because it’s really important for [everyone] to understand and see it the same way.”

Government and schools must communicate with developers before they seek building permits. Transportation systems should be coordinated with development plans.

“[Growth is] really important when you’re looking at a land-use and transportation plan. We’ve got a transportation plan update that’s...a requirement to get Federal monies. Well, how do those two pieces—land and transportation—come together as a whole vision for our city and county?”

The City of Chattanooga and Hamilton County are at a critical point in time to begin joint planning ventures. Variables and system measures should be established. Getting started means addressing the following questions:

- Does the community want growth?
- Does growth mean population growth?
- What is a realistic goal for Hamilton County?

- What is the relationship between growth outside of Chattanooga and population changes in the inner core?
- Is a comprehensive review of zoning necessary?
- Is county-wide land use planning the right way to plan?
- What fiscal and quality of life measures should inform plans for growth?

From the developer’s perspective, residential development is meeting the demand for housing away from the urban core and pays for itself with new tax revenues. The county doesn’t build roads, developers build roads. Developers also build water and wastewater lines. In some cases, developers include sidewalks and one developer reported that he includes land for schools as part of the neighborhood plan.

Despite recent, modest increases in population, most of the new housing in suburban and exurban areas results in a depletion of more densely populated areas. Urban core areas already have much of the necessary infrastructure to support density. Population shifts from these areas result in new costs associated with policing and code enforcement and a decline in urban revenue for urban incorporated areas.

“After [a neighborhood is] neglected and declined and you [then] have code enforcement and the rampant crime..Are we failing as a community to make those periodic maintenance and upkeep

investments that are leading to higher costs of [the initial] investment?”

“... cost isn't the result of new development; it's the result of disinvestment [in] the community.”

Neighborhoods do not have to keep losing people. Consider the following:

- Some neighborhoods are in decline but others are not, and are considered healthy. How can more urban core neighborhoods be revitalized so that they can compete with outlying areas?
- Look at the neighborhood as a whole system. When asked about quality-of-life measures, neighborhood residents have responded: the ability to walk to a library, sidewalks that are maintained, trees, clean air and others. Responses such as these indicate those neighborhood qualities that retain populations and offer clues to expand ways of thinking about public investment in city infrastructure to keep people from moving away. Some amenities are not provided directly by the public sector – neighborhood coffee houses and grocery stores, for example.

The recent lack of quality, affordable home ownership options in the urban core may also contribute to decisions about development. Although new housing opportunities are available in Chattanooga, costs are higher. New units in Chattanooga's Downtown reportedly range from \$240 to \$400 per square foot

whereas a new unit in Ooltewah is more affordable with costs ranging from \$110 to \$170 per square foot. In Chattanooga there are new housing units in lower price ranges, although the numbers of available units are much lower than those in places like Ooltewah.

“I see people moving out [of the urban core] because... [of concerns for] safety and security. One-hundred percent. The second thing is look at the infrastructure downtown. Where am I going to buy groceries?”

“And it all goes back to quality of life. A variable of quality of life. I disagree that we have to keep losing people and losing income from those people. I think we need to think differently about it...it's sidewalks that aren't being maintained or streets aren't being paved or police protection is not being provided, or schools that don't have resources – whatever they may be...Those are the things that cause conditions to exist and causes people to move. It creates a market where we have no population growth and [we] keep relocating the existing people.”

“I think what you do is back off and look at the system as a whole. And yes, there are those variables because

every one of those are indicators of quality of life, which is why people are moving...but the most important thing is that we're just shuffling people. So look at why you're shuffling and it comes back like a broken record - quality of life."

"...the flip side of imposing restrictions or costs on developments [outside of the city] ...is investing inside [the city] so that you make it more competitive..."

Areas for Future Research and Discussion

As suggested in the roundtable discussion, there is an information and communication gap when it comes to the cost and benefit of land use planning and development in Hamilton County.

The following areas for future study can provide additional insights into the fiscal impacts of land use changes:

1. **Comparative analysis of urban residential redevelopment vs. new residential development:** New residential developments may target those home buyers who desire larger homes and more spacious property parcels than those available in the city. The proposed analysis would examine the cost of rehabilitating existing city infrastructure for new housing on vacant city properties as well as the cost of new infrastructure for new housing developments.

2. **A detailed reporting of increased public operational costs associated with land use development patterns:** For example, a greater understanding of the impact of population changes and associated changes in operational costs can provide an assessment on the capacity for the school system to fund kindergarten to 12 grade classes for a population that is more widely dispersed.
3. **A regional analysis of land use change:** Hamilton County is bounded by three high growth counties, Catoosa County and Walker County, Georgia, and Bradley County Tennessee. A regional analysis of the population and the economy over time may reveal patterns of change that indicate the direction of the county's future development and the need for regional planning that extends beyond the borders of Hamilton County.