The Beltline and Rising Home Prices:

Residential Appreciation Near the Beltline Tax Allocation District and Policy Recommendations to Minimize Displacement

A study prepared for Georgia Stand-Up

by

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About Georgia Stand-Up

Established in 2004, Georgia Strategic Alliance for New Directions and Unified Policies (Georgia STAND-UP) remains the only Georgia alliance of leaders representing community, interfaith, labor, environment, and academic organizations that seeks to alleviate poverty and promote regional equity by organizing and educating working communities to promote economic development. Georgia STAND-UP pursues its mission by empowering community leaders to advocate for community change.

It has become common for governments and entities to contemplate economic development strategies that focus on the future of a neighborhood without first considering the needs of its current residents. In fact, local decision-makers often approve projects submitted by developers without assessing the costs and benefits to communities and without requiring developers to address these impacts. Some of the costs, both tangible and intangible, are:

- Low wage jobs without health benefits
- Lack of affordable housing
- Lack of park/open space in urban neighborhoods
- Toxic pollution from poor development
- Lack of proper land use planning that creates sprawl and unlivable neighborhoods
- Land use planning processes that prioritize property and sales tax revenue generation above community benefits
- Large public subsidies provided to developers with no return to the community
- Development that is not situated near transit facilities, perpetuating vehicle dependency and increasing personal transportation expenses
- Rising property taxes and rents for existing residents, causing displacement

As a result, current residents often are pushed out of neighborhoods before they are able to take advantage of the promises the revitalization effort offers.

Georgia STAND-UP addresses these impacts by empowering leaders through grassroots leadership education and skill building, community participation in research, and the articulation of policy alternatives. By organizing an alliance of leaders to conduct community benefits campaigns that address a broad range of needs facing working communities throughout metropolitan Atlanta and across the South, Georgia STAND-UP provides a 'think and act tank' for working communities. Georgia STAND-UP seeks to demystify the economic development process and mobilize communities to ensure that developers and the public invest resources into projects that are economically sound and that provide a return to the community.

For more information about Georgia STAND-UP, please contact us at 404-581-0061or visit us on the web at www.georgiastandup.org.

About the Author

Dan Immergluck, PhD, is Associate Professor of City and Regional Planning at Georgia Institute of Technology. Professor Immergluck has conducted numerous studies on housing, real estate issues and community development topics, including housing market dynamics, mortgage lending patterns, and neighborhood change and development. He is the author of two books, more than 20 academic peer-reviewed articles, and dozens of policy research reports. Dan has worked with policy-makers at all levels of government and has testified before the U.S. Congress as well as state and local legislative bodies. He teaches courses in statistics, real estate finance, and housing policy in Georgia Tech's graduate program in city and regional planning. Prior to becoming a full-time academic, Dan was a Senior Vice President at the Woodstock Institute in Chicago.

Executive Summary

The Atlanta Beltline project involves the development – over a 25 year period -- of a 6,500 acre ring of parks, open space, light rail transit and mixed-use development by tying together infrastructure and related development along a 22-mile industrial rail line that circles the Atlanta central business district (CBD), Midtown, and the core of the city. The Atlanta Development Authority has projected that the Beltline Tax Allocation District (TAD) will generate approximately $1.3 to $1.7 billion in tax exempt bonds over 25 years and that these bonds will provide from 50 to 70 percent of the development costs of the Beltline project (Atlanta Development Authority, 2005).

Though the Beltline has potential for improving the quality of life in many of Atlanta's neighborhoods, the project has already had some unintended consequences that need to be addressed by planners and policy-makers. Some community groups and residents in neighborhoods near the TAD have expressed concerns that rising property values are resulting in substantial increases in property taxes and rents, effectively displacing some current residents.

Though the Beltline has potential for improving the quality of life in many of Atlanta's neighborhoods, the project has already had some unintended consequences that need to be addressed by planners and policy-makers.

This report offers evidence that taxes and rents are rising and causing displacement in the neighborhoods around the proposed Beltline. Given the extent of value appreciation in many places near the TAD, more vigorous and comprehensive policies are needed to reducing and respond to problems caused by rapidly increasing housing costs, especially for low- and moderate-income residents.

Using a detailed examination of home sales in the City of Atlanta from 2000 to 2006, this study finds that publicity surrounding the Beltline proposal has resulted in an increase in residential property values for neighborhoods around the Beltline. More specifically, the analysis provides strong evidence that the planning and publicity surrounding the Beltline project beginning in 2003 has increased residential appreciation near the south side of the Beltline TAD compared to the appreciation rates of homes located farther from the Beltline.[i]

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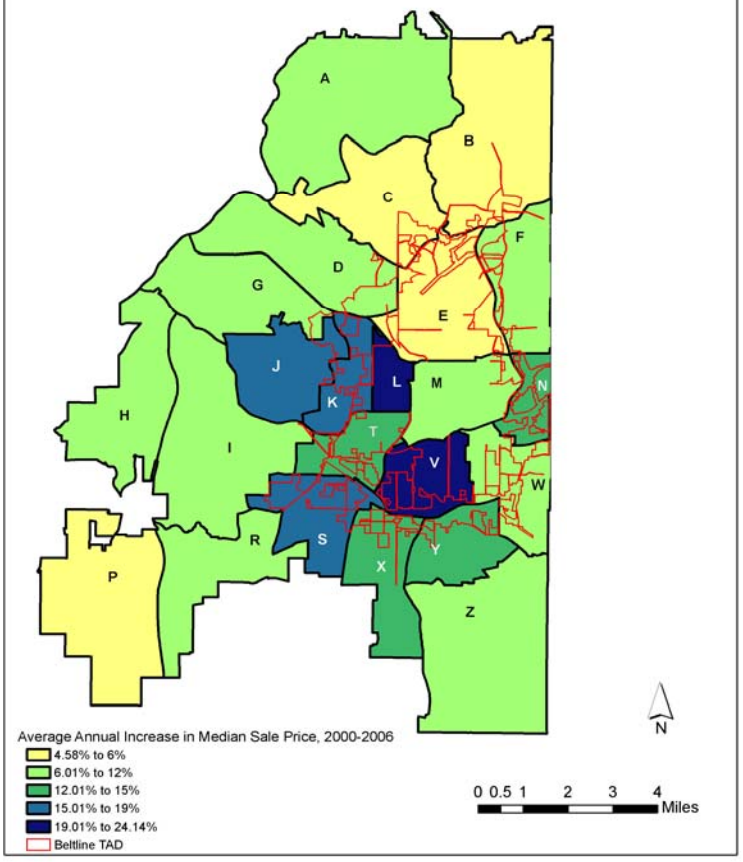
Figure E-1 maps the average annual rate of increase in median prices for the Neighborhood Planning Units (NPUs) in Fulton County. This map shows that when calculated at the NPU level, median prices generally increased the most in NPUs on the south and west sides of the city. While useful for context, changes in median single-family home prices across NPUs do not tell us much about the impact of the Beltline project thus far on residential property values. Changes in median prices may occur due to changes in the types or sizes of houses being built in particular neighborhoods rather than underlying changes in residential land values. To detect changes in true

[i] Because Fulton County property records were the used to conduct this analysis, the small portion of the city lying in DeKalb County is not included in most of the analyses in the report. The full report also looks at the incomes of homebuyers in census tracts nearer to versus farther from the Beltline over a seven year period. The analyses for the later years also include neighborhoods in Fulton, DeKalb and Cobb counties.

property appreciation near the Beltline, we need to compare changes in prices of homes close to the Beltline to those of otherwise similar homes farther from the Beltline.

Figure E-1. Average Annual Increase in Median Single Family Home Prices, 2000-2006, by NPU, Fulton Only



The approach used to do this is called hedonic price analysis.[ii] This method identifies relationships between the characteristics of homes and their prices[iii] and is used in most computerized property valuation systems, including those employed by tax assessors and mortgage lenders.

Figure E-2 illustrates key results of the study, in which distance from the Beltline TAD is specifically accounted for in the pricing analysis. It shows the expected cumulative appreciation, compared to the year 2000, for properties located in different rings – or buffers – around the TAD on the south side. South side properties in and within a quarter mile of the TAD appreciated at substantially higher rates than those farther from the TAD.

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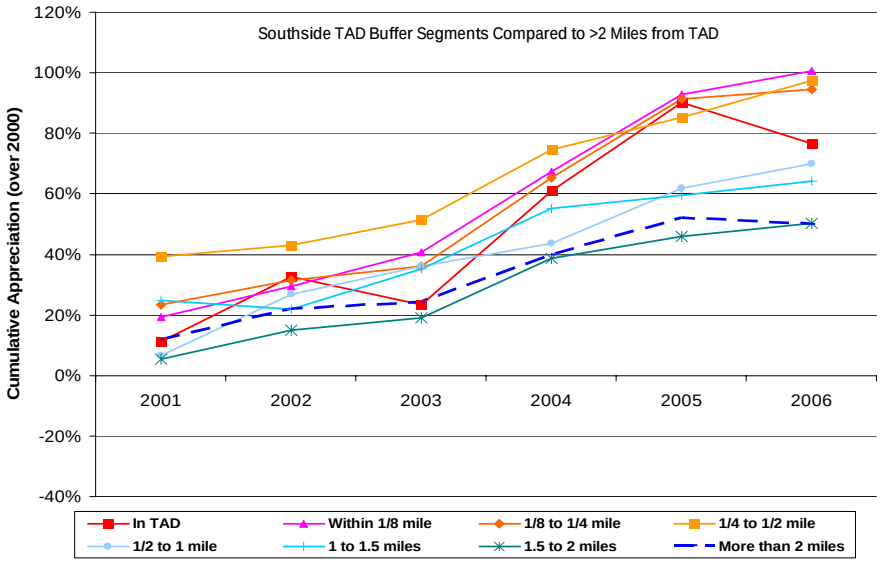
Meanwhile, the full report shows that properties near the TAD on the north side did appreciate, the appreciation they experienced was generally comparable to the appreciation for properties farther from the TAD. As property values in the north side areas near the TAD were, on average, substantially higher to begin with, there was less "room" for rapid appreciation, gentrification, or speculation.

[ii] The full report and its Technical Appendix explain the hedonic price analysis in greater detail.

[iii] The basic logic of the method is that the price of a house is a function of a set of physical characteristics (e.g., square footage of the building, lot size, number of bedrooms and bathrooms, basement type, exterior construction, etc.), a set of neighborhood characteristics (e.g., poverty rate, owner-occupancy rate, etc.), location variables (e.g., distance from the central business district), and the date of the sale.

Figure E-2. Cumulative Appreciation Due to Different Locations Relative to Beltline TAD, 2000-2006, Southside Neighborhoods only

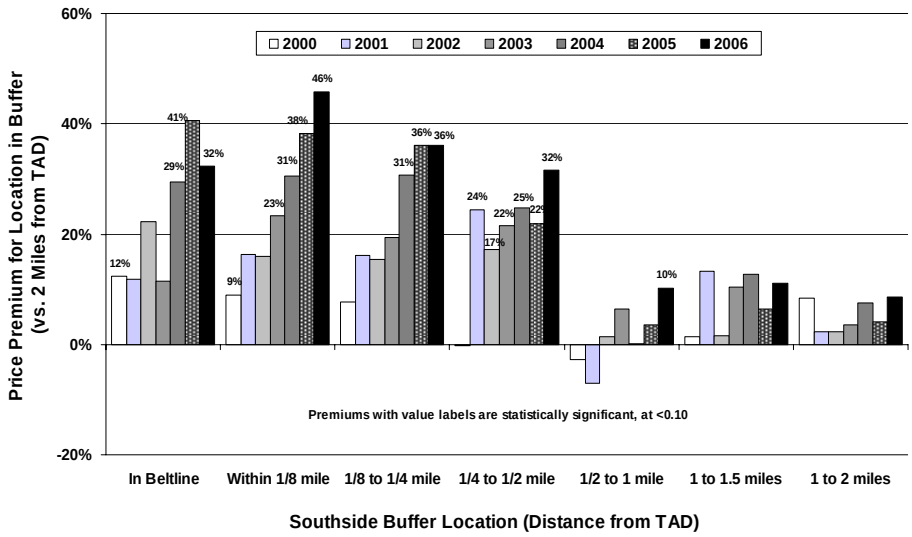


For south side neighborhoods, Figure E-3 indicates appreciation of price premiums due to proximity to the TAD as compared to similar properties located more than 2 miles from the TAD. It shows that comparable on the south side in 2004, 2005, and 2006 generally sold for considerably higher prices than those farther away.

On the south side, premiums for homes near the TAD were substantial. In 2004, properties within a quarter mile of the TAD on the south side sold for 29-31 percent higher than otherwise similar outer-area properties. In earlier years, the differences had been smaller and statistically insignificant.

Within a quarter of a mile of the TAD on the south side (an area with substantial single-family densities) the increases in price premiums – from before to after the initial public discussions of the Beltline to after – were on the order of 10 to 20 percent within a year or two. Premiums fall off quickly farther than a half mile from the TAD.

Figure E-3. Southside Price Premiums for Being Located near the Beltline TAD, 2000-2006



Summing It Up

The results of this study suggest strong trends toward increasing prices since 2000 in south and southwest neighborhoods near the Beltline TAD, resulting in higher-income home buyers for the areas. Beginning as early as 2003, homes in many of these areas experienced increasing price premiums, even after adjusting for detailed housing and neighborhood characteristics and distance from downtown Atlanta.

Price premiums for homes within a quarter mile of the TAD on the south side increased on the order of 10 to 20 percentage points over the 2002 to 2005 period – the same period in which public discussion of the Beltline reached high levels. This increase represents greater appreciation in residential land values relative to other places in the city. While factors other than the public discussion of the Beltline project could account for some of this appreciation, this study presents strong evidence that discussion and anticipation of the project substantially boosted values near the TAD between 2002 and 2005.

Implications for Planning and Policy

The findings of this study have a variety of implications not only for the ongoing implementation of the Beltline, but also for policies concerning other TADs and large-scale community development projects. The results support concerns about gentrification in and potential displacement – due to higher rents and taxes – from neighborhoods close to the Beltline. The price increases are quite large. One should keep in mind that these results are averaged over thousands of transactions, suggesting that, for a substantial portion of sales in the impacted areas, the price increases are even greater than those indicated by the aggregate results in Figures E-2 and E-3. This means that many modest-income homeowners near the TAD have found – or will find – that the assessed values of their homes have increased substantially in recent years.

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Table E-1 shows both the impact of rising home values near the Beltline for a hypothetical home priced at $100,000 in 2001, and the even greater proportional impact on property tax bills.

A home located within one-eighth of a mile from the TAD experienced an increase of approximately 68 percent in value between 2001 and 2006 compared to only 32 percent for a home located a mile from the TAD. Moreover, the city and schools portion of the tax bill of the house located closer to the TAD would have grown much more (160 percent) than if it were farther from the TAD (74 percent).

Although the analysis focuses on sales of detached single-family homes, the results have implications for renters as well. As local single family sale prices increase, landlords are likely to charge higher rents (in part to compensate for higher property taxes, but also because new renters are willing to pay higher rents), while others may sell to new owners who, in turn, are likely to charge higher rents.

Table E-1. The Impact of Price Increases on City and School Property Taxes for Two Similar $100,000 Owner-Occupied Homes*

		Distance from TAD	
		<1/8 mile	1-1.5
Price in 2001	$100,000		
Predicted Price in 2006		$168,064	$131,490
Assessed value = 40% of market value	$40,000	$67,225	$52,596
Less homestead exemption ($15,000)	($15,000)	($15,000)	($15,000)
Less state tax relief ($8,000)	($8,000)	($8,000)	($8,000)
= Taxable base	$17,000	$44,225	$29,596
Approx. City and School taxes at millage rate = 0.032**	$544	$1,415	$947
Increase in Property Value vs. 2001		68.1%	31.5%
Increase in Estimated City/School Property Taxes vs.2001		160.1%	74.1%

**Based on results in Tables A-1 and A-2 in Appendix, and shown in Figure E-2.*
***2006 millage rate; includes city & school taxes only; since 2004, Fulton County provides a floating homestead exemption, which limits effect of growth in assessed valuation on county portion of tax bill.*

Recommendations

To address the problems caused by higher housing prices and rents, policy-makers should bolster policies aimed at sharing the benefits of the Beltline with current residents of nearby neighborhoods and at minimizing displacement.

This report is not meant to define a comprehensive set of highly detailed policies that might be used to manage gentrification or mitigate the potential displacing effects of higher property values. Numerous studies and reports around the country have offered more detailed policy proposals to address these sorts of problems, including some completed locally in Atlanta.[iv] However, the report does offer some specific recommendations:

To address the problems caused by higher housing prices and rents, policy-makers should bolster policies aimed at sharing the benefits of the Beltline with current residents of nearby neighborhoods and at minimizing displacement.

1) The City of Atlanta should **revisit recommendations made in the report of the Atlanta City Council's Gentrification Task Force**, entitled *A City for All* and published in 2001. The study put forward a substantial set of recommendations, which has not been implemented fully. Among the long list of recommendations made in this report were the following[v]:
    a. **Establishing a definition of affordable housing** as units affordable to those with incomes below 50 percent of the median for the Atlanta metropolitan area. (Despite the formal adoption of this definition as a goal in a City Council ordinance in December of 2001, current TADs do not appear to use this definition of affordable housing.)
    b. **Create programs for deferred or extended payments** of delinquent taxes by lower-income homeowners.
    c. **Impose impact fees** for all new construction projects which do not contain affordable units in order to provide funding for development of affordable housing.
    d. Provide home purchase and loan **counseling to homebuyers and owners**.
    e. **Acquire and "bank" parcels of land** for affordable housing development.
    f. **Create a housing trust fund** toreceive revenues dedicated to it by the City, such as housing impact fees, real estate transfer taxes, and other funds.
2) The City should **increase its financial support for rental housing** and target a substantial portion of it toward neighborhoods located near the Beltline, particularly on the south and west sides.
3) In addition to increasing support for affordable rental housing, the city and county should **promote less traditional forms of land and housing tenure to provide for long-term housing**

[iv] For example, see Levy, Comey and Padilla, 2006; Kennedy and Leonard, 2001; Keating and Alexander, 2001.

[v] The recommendations are paraphrased.

affordability. These include community land trusts (CLTs) and limited equity cooperatives, which have been more widely used in some other cities.[vi]

4) **The City should seek to expand the property tax deferral program for the elderly to all low-income homeowners.** This would allow homeowners to defer taxes until a sale or transfer of the property, which would be more effective at reducing increases in tax bills than a one-time expansion in exemptions. Another option would offer a floating exemption to lower-income homeowners, similar to that offered to all homeowners by the County. Such an exemption would limit growth in the taxable value of a covered property to the rate of inflation. Whichever tool is used to provide property tax control for vulnerable homeowners, care must be taken to make it easy to use and widely understood.

5) **The City of Atlanta and Fulton County should initiate a program to increase homeowner education regarding property tax exemption programs and provide funding or resources for such a program.** While such education efforts should be available citywide, particular focus should be targeted on areas with high appreciation rates. Moreover, Fulton County should report annually on county and city property tax homestead exemption and deferral programs. The report should indicate, by neighborhood, the number and percentage of applications for exemptions or deferrals that are approved and reasons for denials.

6) Lower-income homeowners located close to the Beltline TAD who are considering selling their home should be provided with **technical assistance to help them understand the true market values of their homes.**

7) **The City of Atlanta should develop and secure funding for a Beltline-area "neighborhood investment fund"** to provide lower-income homeowners with assistance in paying property taxes or maintaining their homes. Lower-income homeowners often experience pressure from newer, higher-income neighbors to improve or better maintain their properties, but limited resources can make this difficult. For properties located within the TAD, funding could come from the TAD bonds.[vii] However, most affected residents are not in the TAD, and alternative sources of funds will be required.

8) To eliminate any erroneous increases in assessed valuations, **the Fulton County Tax Assessor should consider developing additional methods for flagging sales in which values have increased greatly within a short period of time** (e.g., 3-6 months). These sales should generally be removed from the mass appraisal system unless corresponding improvements are confirmed. (The Assessor's office already utilizes various methods for identifying potentially overvalued or undervalued properties and has been discussing improving such methods to identify properties where property flipping or mortgage fraud may have occurred.)

9) Percentage targets used in affordable housing set asides for TADs, city housing programs, or **inclusionary zoning initiatives should be established** in a less arbitrary fashion. Given that 45 percent of city residents had incomes below 50 percent of the area median in 2000 (Keating and Alexander, 2001), set aside targets of 15 to 20 percent do not appear particularly aggressive.

[vi] The Beltline Partnership and Beltline Inc. are in discussions with the Institute for Community Economics and Burlington Associates, two consultants with expertise in community land trusts, regarding the potential for CLTs in Atlanta.

[vii] In the case of TAD properties, there is precedent for such small scale finding from TIFs in other cities. "NIFs," as they have been called in Chicago, involve the use of some portion of tax district proceeds to capitalize funds which can be used for small-scale homeowner-based projects, including home-improvement grants.

Targets should be established after examining existing income distributions of owner- and nonowner-occupied housing units.

10) Finally, the **city should also adopt a "no net loss policy,"** in which it aims to ensure that there is not a net loss of affordable housing units within a half mile of the Beltline TAD.

Introduction

The Atlanta Beltline project involves the development – over a 25 year period -- of a 6,500 acre ring of parks, open space, light rail transit and mixed-use development by tying together infrastructure and related development along a 22-mile industrial rail line that circles the Atlanta central business district (CBD), Midtown, and the greater core of the city.

The project will be funded in part by a tax allocation district (TAD), which in most other states is called a tax increment financing (TIF) district. The Beltline is Atlanta's sixth TAD, following the Westside, Eastside, Perry/Bolton, Princeton Lakes and Atlantic Station TADs. The bulk of funds from the Beltline TAD are intended to go towards uses such as transit, parks and related site preparation, and open space, with some set aside of funds for affordable "workforce" housing as well as for streetscape improvements and related efforts targeted at local economic development in lower-income neighborhoods. Although the majority of the dollars coming from this TAD are to be ostensibly used for "public" purposes, such as parks and transit, if these amenities have particular value to local residents and businesses– and they are likely to– then we should expect that a good deal of the added value of these services will spillover to the values of nearby residential properties, both owner- and renter-occupied, as people will be willing to pay rents and land prices to locate near these new or improved amenities.

Because of the scale and nature of the Beltline project, as well as the large amount of press and public discussion around it, the impacts of the Beltline TAD on nearby property values might be expected to exceed those of the smaller, more targeted TADs in Atlanta or most other places. Moreover, while much of the existing research on the effects of TIFs has focused on impacts on properties and activity within TIFs, the focus here is primarily on the effect on residential property and residents near the Beltline TAD before development occurs. This is partly because only a relatively small portion of the TAD area itself is currently used for residential units, but also because the TAD is expected to have substantial spillover impacts on nearby neighborhoods.

The primary goal of this initial study is to identify whether the announcement of, and publicity around, the Beltline proposal in the 2002 to 2005 period resulted in a bidding up of property values even before the TAD had actually been formally adopted in November of 2005. The main tool for doing this is to examine sale prices of single family homes in the City of Atlanta over the 2000 to 2006 period. Because Fulton County property records were the used to conduct this analysis, the small portion of the city lying in DeKalb County is not included in most of the analyses in the report. The report also looks at the incomes of homebuyers in census tracts near versus farther from the Beltline over a seven year period. In these latter analyses, neighborhoods in Fulton, DeKalb and Cobb counties are included.

This question of whether and to what degree anticipation of the Beltline TAD has led to increased property values is important for at least three reasons:

1) Community groups, Georgia Stand-Up, and other observers have expressed concerns over the potential for targeted placed-based developments, especially those that are subsidized by tools such as TADs, to fuel rapid gentrification and the possible displacement of long-term residents (e.g., through higher rents or property taxes), particularly in lower-income neighborhoods in the southern and western neighborhoods in and around the TAD. At the same time, the stimulation of higher property values in neighborhoods surrounding the TAD may be just the sort of outcome desired by TAD proponents. In

fact, if a TAD can generate additional property tax revenues in areas outside the TAD district, these revenues may offset the effective diversion of future tax revenues in the TAD away from general revenue budgets of local governments and the school system. However, if the gains in tax revenues in nearby neighborhoods come at the expense of lower tax revenues in other parts of the city, then there may still be a net diversion of future revenues away from general revenue uses.[1]

2) A second concern about property value appreciation in neighborhoods around the TAD involves problems caused by rapid and potentially unsustainable speculative real estate investment. Real estate investors anticipating that a neighborhood's values will increase substantially can cause values in the neighborhood to rise based on a highly uncertain set of expectations about future investment and prices. Investors may purchase land and dilapidated homes and properties, fix them up (or not), and either sell them at a substantially higher price quickly or hold them until some anticipated rise of values. (Some of these activities fall under what is sometimes called "property flipping" or "mortgage fraud.") If other investors are doing the same, values in the neighborhood are likely to increase due to mere speculative investor activity – at least for a while. Poor, irresponsible – and sometimes fraudulent – appraisal and lending practices can feed such a cycle by allowing buyers to pay much more than previous prices for properties. Eventually, if homes are not occupied by stable, longer-term residents, this "micro-bubble" in the neighborhood housing market is likely to pop, harming property values in the area. In the meantime however, the speculative prices can become incorporated into the tax assessor's appraisal systems, resulting in higher neighborhood tax bills. Especially since property tax systems tend to lag current market values, such neighborhoods can sometimes experience a paradox of falling actual values but rising property taxes. This is equivalent to a substantial increase in the effective property tax in such neighborhoods. Substantial increases in effective tax rates, in turn, can further depress the real values of homes in a neighborhood.

3) From the perspective of the Atlanta Development Authority and TAD bondholders, if speculation drove up land prices *within* the TAD relatively quickly after public knowledge of TAD planning became known – and before the passage of the TAD in November of 2005 – then, depending on how quickly these increases were incorporated into the tax assessor's assessed value of the property, a substantial portion of the increase in assessed valuation caused by the TAD might have already occurred between the early initial anticipation of the TAD proposal and the formal designation of the TAD. Thus, a substantial portion of the appreciation expected to be "caused" by the TAD, and value that planners might have intended to use as the "increment" to be diverted to TAD uses may have already been realized prior to the freezing of the tax base.[2]

There are other issues surrounding the use of TADs which are not the focus of this report. Perhaps the most important of these is the degree to which TADs actually induce rising property values or merely capture growth that would have occurred anyway and divert some of the associated tax revenues to subsidize activities in the TAD. If the latter is the case, and the substantial boost to property values identified in and near the TAD after 2002-2003 (described later in this study) was not spurred by

[1] What is essential here is whether the new activity and investment near the TAD will be activity that, but for the TAD, would have occurred somewhere else in the city (or, from Fulton County's perspective, the county) or would have occurred in some other city or county.

[2] This depends partly on how current the assessed value used in designating the TAD was. If it lagged a couple of years (that is not based on very recent sales), then this problem may not occur. If the assessed value used to freeze the TAD tax base is very current, however, this problem would be more likely.

anticipation around the Beltline, but was caused by some other, independent factor, this would suggest that the TAD was effectively serving to divert growing tax revenues that would have occurred without the TAD planning and designation. It is likely that, in the case of most TADs or TIFs, subsequent growth is a mix of growth spurred by the TAD and growth that would have occurred regardless.

While concerns about whether the Beltline TAD is causing or merely capturing rising property values are important, and certainly not fully resolved here, there are two factors that provide significant support to the notion that at least some of relationship between proximity to the Beltline and greater appreciation is due to the Beltline planning and designation process causing rising values and not simply the other way around. The first is the research method used here, which looks at changes in property values before and after serious public planning about the Beltline began, and compares such changes near the Beltline to changes in places farther from the Beltline. The second is the fact that the location of the Beltline was not simply chosen by development officials from a wide variety of potential locations for a large TAD, but was determined primarily by the historical location of the chain of pre-existing railroad rights of way and the large parcels of land surrounding them. While officials could influence the precise boundaries of the TAD to pick up parcels that were likely to experience growth with or without the TAD, the constraints of the original rights of way used to assemble the TAD should have limited their ability to do so to some degree

A related criticism of TADs is that they merely reshuffle the development deck within a city, pulling development from other parts of the city into the TAD area and, in the process, distort the mechanics of private markets. In a study of TIFs in Illinois, Dye and Merriman (2006) found that cities that used TIFs actually saw overall tax bases decline as a result of TIF usage, despite the fact that TIFs resulted in economic growth within the TIF districts themselves. This essentially suggests that the growth within TIFs comes at the expense of areas outside the TIF but still in the same municipality following a sort of zero-sum or even negative-sum scenario.

The focus of this study, however, is not on the impact of *existing* TADs or TIFs on property values or economic growth *within* special districts versus nearby areas. Rather, the focus is on the extent to which the announcement and media coverage of a *future,* large-scale TAD project can have a substantial impact on neighborhoods *surrounding* the TAD.

If a TAD brings positive amenities to an area – for example by eliminating blight or increasing urban amenities such as retail stores, parks, or transit services – then nearby residential values might be expected to increase and gentrification and associated displacement may be a real concern to established residents with low or moderate incomes. In a study of TIFs in Chicago, Weber, Bhatta, and Merriman (2007) found that proximity to TIFs focused on industrial development actually lead to reduced residential property values, but that TIFs involving a mix of residential and commercial property led to higher values in nearby neighborhoods.[3]

[3] Even when TIFs do cause nearby property values to rise, Dye and Merriman's scenario may still occur, so that TIF-induced growth might be drawn from other places in the city. In such cases, TIFs may not yield net benefits when measured on a citywide basis. On the other hand, even in such a zero-sum scenario, TIFs may steer development within cities to places where planners and communities feel that development is lacking.

About TADs and TIFs

Tax increment financing is not a new development finance tool. It dates back to at least 1952, when California adopted it as a way to match federal grants (Dye and Merriman, 2006). But until the late 1980s, it was not a very widespread public financing scheme. The use of TIFs grew in the 1980s and 1990s in large part due to the restrictions put on the use of tax-exempt bond financing – especially industrial revenue bonds – by changes in federal tax law, particularly the 1986 Tax Reform Act.

TIFs have largely been viewed as an economic development tool that is ostensibly designed to finance job creation and economic revitalization of underdeveloped or blighted areas. In fact, most state authorizing statutes require localities to demonstrate that the TIF area or district is "blighted" or exhibits "slum and blight." This follows the classic notions of urban redevelopment programs following the federal 1949 Housing Act, which ushered in the urban renewal of the 1950s and 1960s. All but two states allow for some types of tax increment financing, although the use of TIFs appears to vary widely across states. Minnesota, for example, has more than 2,000 TIF districts. The city perhaps best known for the widespread use of TIFs is Chicago, which as of 2005 had 136 TIF districts (Quigley, 2005). Cook County as a whole, in which Chicago sits, had 373 TIFs at this time.

Tax increment financing involves the designation of a geographic area (commonly referred to as a "TIF district") in which the taxable value of real estate (and sometimes other taxes) is frozen at pre-development levels, so that increases in property taxes that follow the development (commonly referred to as the "increment") is dedicated to financing development in the TIF district. In one common approach, the increment is used to pay the debt service on a revenue bond that funds capital investment in the district. This might include infrastructure, but also might include subsidies for privately owned commercial or residential real estate or other property. However, TIFs can involve other financing schemes. For example, the City of Chicago frequently uses a "pay as you go" approach to front-funding TIF projects, in which private developers obtain their own financing (typically bank loans), using the promise of future TIF proceeds later on to obtain the loans (Weber, 2003). The lenders require warrants from the City as part of the developer's loan package. The City has done this in part to limit its overall debt exposure and to place more risk on the backs of developers rather than the City or bond investors.

TIF financing is used at a variety of spatial and financial scales. Cities have frequently designed TIFs that are relatively small – on the order of a few adjacent neighborhoods or below. For example, Chicago's 136 TIFs together account for 26 percent of the city's land area (Quigley, 2007), while the Beltline TAD alone accounts for 8 percent of Atlanta's. Of course, Atlanta's land area is less than 60 percent of the City of Chicago's, but the average TIF in Chicago is less than 280 acres, with many much smaller than this. Two of the existing TADs in Atlanta – Atlantic Station and Princeton Lakes -- are similar in geographic size to the average TIF in Chicago, with Atlantic Station being the smallest in area at approximately 185 acres. The other three TADs, although not nearly as big as the Beltline TAD, are substantially larger in land area, with Perry/Bolton being the largest.

Most statutes authorizing TIFs, including Georgia's, require that some condition of slum or blight be established in the proposed TIF district prior to establishing the district. In Georgia's case, not every parcel or subgroup of parcels in the TAD must meet specific slum and blight criteria, and no specific minimum proportion of the proposed TAD must meet these criteria. Rather, the statute defines conditions that constitute slum and blight (e.g., vacant land, underutilization, structural deficiencies, etc.) and says

that the "redevelopment area" must exhibit these conditions, but does not specify the degree to which the entire TAD area must meet these criteria (Georgia Redevelopment Powers Law, 1981 as amended). For example, the statute does require that a certain percent of the land in the TAD must meet one or more of the criteria.

The Beltline Tax Allocation Feasibility Study used to develop the TAD boundaries found that 66 percent of the land area met one or more slum and blight conditions (Beltline Steering Committee, 2005). However, the largest single criterion used for determining slum and blight in this study was "low value/underutilization," accounting for more than 2,500 of the 2,834 parcels deemed to be suffering from slum and blight. The primary method for establishing underutilization was to compare the appraised value of structures to the appraised value of buildings and deem any parcel in which the former exceeded the latter to be "substantially underutilized." It should be noted that this methodology has a built-in bias towards classifying smaller (and therefore generally more affordable) housing units, particularly those in areas with high land values (such as areas close to central business districts and areas experiencing gentrification), as substantially underutilized.[4]

The Beltline TAD

The Atlanta Development Authority has projected that the Beltline TAD will generate approximately $1.3 to $1.7 billion in tax exempt bonds over 25 years and that these bonds will provide from 50 to 70 percent of the development costs of the Beltline project (Atlanta Development Authority, 2005). TAD bonds will be used to pay for capital costs for transit, trails and parks, but some funds are slated to be made available for "workforce housing, quality development in underserved communities, environmental clean-up and transportation connectivity (including street, sidewalk and streetscape improvements) in neighborhoods close to the Beltline."

Moreover, when the Atlanta City Council authorized the Beltline TAD in November of 2005, a number of "community benefits" requirements were included in the ordinance. These included Section 11, which requires 15 percent of the net proceeds of each TAD bond to be set aside in a fund designated for "affordable housing" (which was not defined in the ordinance); Section 12, which requires that "a portion" of the bond proceeds are used to establish an Economic Incentives Fund that will be used to encourage private development in areas that "historically have experienced unemployment, poverty or little or no commercial, retail or residential growth or investment;" and Section 19, which requires the use of a first-source hiring system, prevailing wage standards, and apprenticeship programs (Atlanta City Council, 2005).

The Beltline TAD is essentially a ring of land approximately 22 miles in circumference. The TAD amounts to more than 6,500 acres of land or about eight percent of the City's land area (Atlanta Development Authority, 2005), much bigger than any of the City's previous TADs and certainly bigger

[4] This approach does not appear to be specifically authorized or recommended as a method for determining "substantially underutilized" by the Georgia Redevelopment Powers Law [See Section 36-44-3(7)]. The TIF feasibility study implies that this method is sufficient to satisfy the Redevelopment Powers Law criterion in which there are "structures or buildings of relatively low value as compared to the values of structures or buildings in the vicinity." However, the method actually used in the study does not make such a comparison. Rather it compares the appraised value of the building on a parcel to the appraised value of the land on the same parcel.

than most urban TIF districts in other cities. According to the Atlanta Development Authority, the TAD directly affects almost 50 neighborhoods in the city. The existing land use in the TAD is comprised chiefly of rail right of way (25%), industrial uses (23%), low density commercial and office (19%), and open space (15%). Existing residential land use is relatively modest, with single family and low density residential uses amounting to less than 3 percent of the total, and medium-to-high density and multifamily residential amounting to 4.9 percent of the total. It should be pointed out, however, that while residential land use accounts for less than 8 percent of the TAD, the size of the TAD means that this amounts to more than 450 acres of residentially zoned land.

Figure 1 is a diagram of the City of Atlanta with the Beltline TAD shown in light green. Also shown are the locations of the central business district (CBD) and the 24 official neighborhood planning units (NPUs) in the City of Atlanta.

Median Sale Prices of Single-Family Homes by NPU and by Proximity to the Beltline

In order to begin looking at the effect of the Beltline on single family home prices, it is helpful to start with some basic data on median prices in different parts of the city over time. This will provide some context for the more detailed analysis to follow. Table 1 provides median single family home prices for each Atlanta NPU in Fulton County (again, for NPUs lying partly in DeKalb County, only the Fulton County sales are included here) for the years 2000 to 2006. These data represent all sales of single-family, detached properties with a sale price of at least $5,000, with some types of sales excluded. In particular sales for which the nature of the transaction would be expected to have very large impacts on price were excluded.[5] Table 1 gives the median prices for each year together with the number of sales for that year. The two columns furthest to the right also give percent change information for the median prices from 2000 to 2006. The first of these two columns gives the percent change in price from 2000 to 2006. Citywide over this period, prices rose 102 percent – or essentially doubled – but in some NPUs the medians rose much faster than others. The median price in NPU V rose by more than 260 percent over this period, from $56,000 in 2000 to $205,000 in 2006. The median in NPU L rose by more than 240 percent, and NPUs J, K, S and T all saw medians rise by substantially more than the citywide rate of 102 percent.

The right-most column in Table 1 converts the six year increase in prices to an average annual rate (the annual rate, which if compounded for six years, equals the six year increase). Figure 2 then maps the average annual rate of increase in median prices for the NPUs (or portions thereof) in Fulton County. This map shows that when calculated at the NPU level, median prices generally increased the most in NPUs on the south and west sides of the city.

[5]Excluded sales are those with prices of less than $5,000 or those involving: relatives, divorce, or related companies; legal difficulties or foreclosure; a bank as seller/buyer; land contracts or a quit claim deed or that did not include clear title; a person with adjoining property; property that was burned or razed after the sale; a deed of gift; persons having adjoining property; burned or razed property after sale; trades of property; portfolio sales; partial interests; life estates; or multiple parcels that were sold together for an overall price (so that a per-unit price was unavailable).

Figure 1. The Beltline TAD and City of Atlanta Neighborhood Planning Units (NPUs)

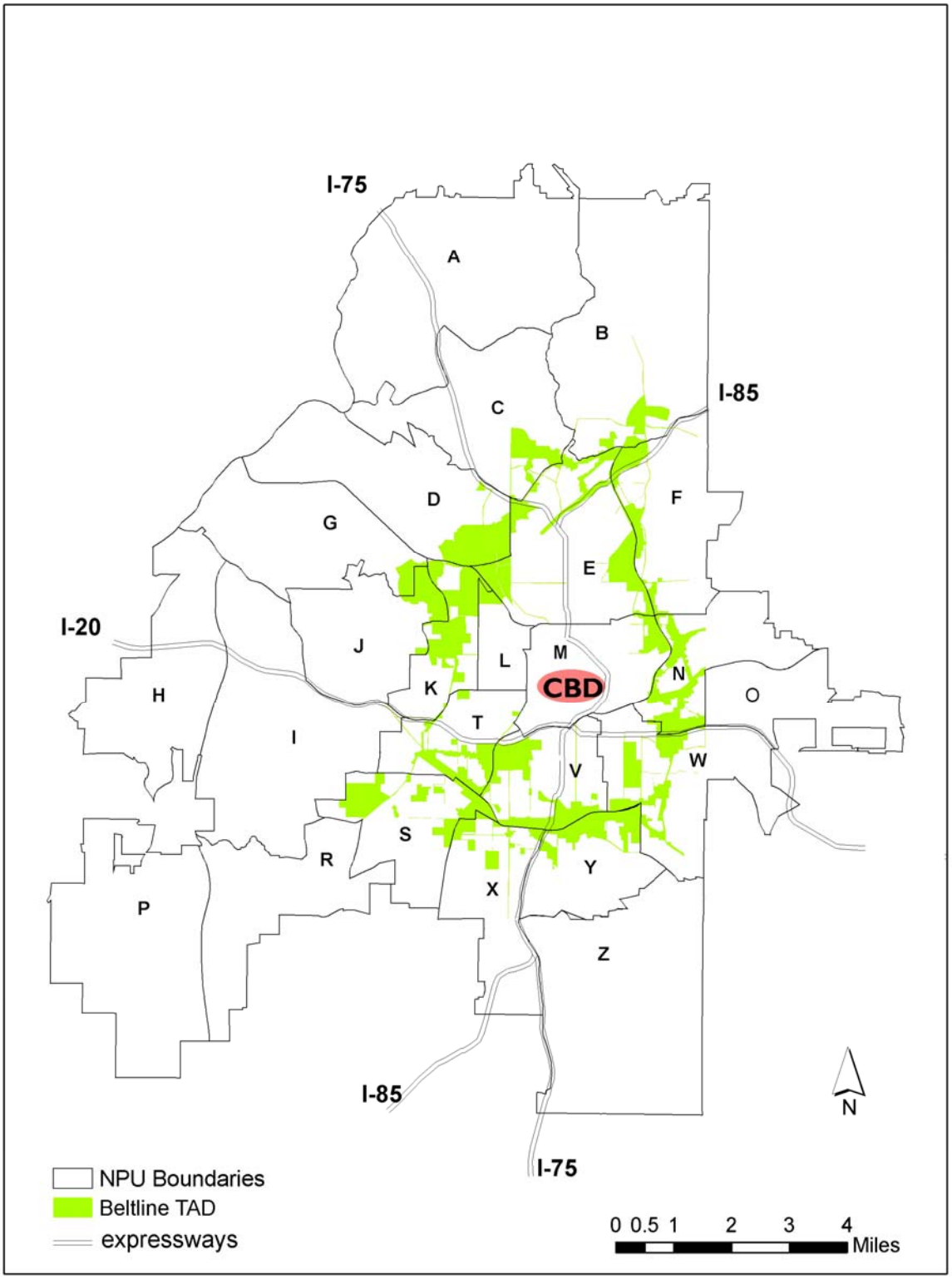
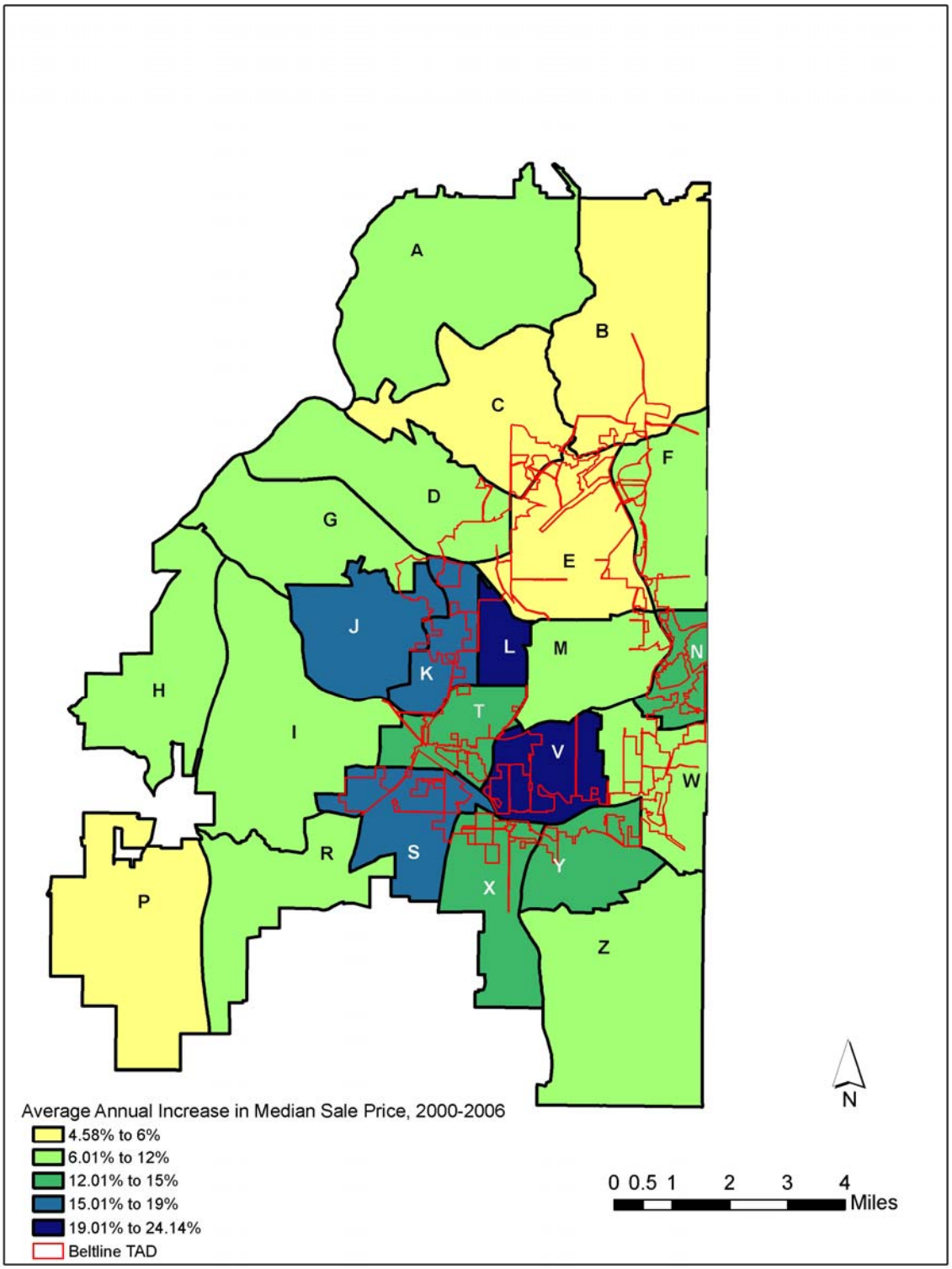


Table 1. Median Prices and Counts for Single Family Home Sales, 2000 – 2006 by NPU
Fulton County Sales Only*

NPU	2000	2001	2002	2003	2004	2005	2006	Increase in Median Price 2000-2006	Average Annual Increase
A	625,000	743,500	725,000	739,250	863,000	945,000	1,040,000	66.4%	8.9%
# of Sales	223	182	167	176	274	275	319		
B	405,000	402,500	429,500	437,500	450,000	499,000	550,000	35.8%	5.2%
# of Sales	465	428	442	472	554	527	571		
C	410,530	425,200	439,000	462,000	495,000	580,000	557,000	35.7%	5.2%
# of Sales	299	268	304	329	335	343	355		
D	125,000	180,000	172,000	175,000	209,000	211,500	230,000	84.0%	10.7%
# of Sales	210	175	187	197	227	249	259		
E	355,500	350,000	415,000	455,000	428,750	512,500	465,000	30.8%	4.6%
# of Sales	191	181	175	183	202	236	163		
F	355,000	375,000	388,000	380,000	414,000	450,000	512,500	44.4%	6.3%
# of Sales	368	310	318	336	355	417	372		
G	58,585	66,900	72,500	77,503	109,000	130,000	90,000	53.6%	7.4%
# of Sales	101	93	130	140	155	170	273		
H	79,496	79,000	88,900	86,725	108,500	110,981	114,300	43.8%	6.2%
# of Sales	124	138	131	136	199	218	237		
I	100,000	97,378	112,000	127,000	129,500	142,000	150,000	50.0%	7.0%
# of Sales	182	206	228	215	264	286	244		
J	58,000	67,100	70,000	79,400	95,000	122,825	145,000	150.0%	16.5%
# of Sales	282	310	375	296	396	451	365		
K	65,000	75,500	85,000	109,900	109,900	152,500	180,000	176.9%	18.5%
# of Sales	270	274	290	281	297	409	265		
L	48,000	56,000	76,400	85,000	88,800	145,000	165,000	243.8%	22.8%
# of Sales	157	144	140	119	135	172	125		
M	132,438	194,950	158,750	194,500	206,800	240,000	255,000	92.5%	11.5%
# of Sales	58	68	50	66	62	93	77		
N	127,500	146,469	182,500	174,500	229,900	260,000	260,000	103.9%	12.6%
# of Sales	182	149	152	151	173	201	181		
P	99,000	110,500	108,000	116,000	125,729	134,448	130,000	31.3%	4.6%
# of Sales	155	138	107	157	170	266	227		
R	95,000	102,900	108,000	112,546	135,000	145,000	135,000	42.1%	6.0%
# of Sales	78	94	91	94	111	140	123		
S	63,950	86,250	105,000	117,000	139,450	175,000	150,000	134.6%	15.3%
# of Sales	262	314	317	285	546	633	655		
T	80,000	106,600	135,000	133,000	175,000	226,625	172,000	115.0%	13.6%
# of Sales	307	311	370	254	573	526	431		
V	56,000	78,000	100,000	140,000	147,750	170,000	205,000	266.1%	24.1%
# of Sales	378	338	297	271	388	426	357		
W	159,900	170,000	179,900	189,900	200,000	224,625	238,984	49.5%	6.9%
# of Sales	426	367	370	385	548	518	464		
X	72,000	84,751	94,000	122,065	125,250	140,000	146,750	103.8%	12.6%
# of Sales	364	363	383	213	334	364	352		
Y	60,385	64,950	108,000	91,000	120,000	110,000	125,000	107.0%	12.9%
# of Sales	208	188	167	191	259	373	378		
Z	62,750	72,000	84,000	84,000	94,500	93,250	98,346	56.7%	7.8%
# of Sales	324	258	257	371	514	542	518		
Citywide	96,000	116,500	134,000	150,000	160,000	181,584	194,014	102.1%	12.4%
# of Sales	5,857	5,501	5,665	5,491	7,244	7,984	7,434		

* Excludes sales per footnote 5, page 6.

Figure 2. Average Annual Increase in Median Single Family Home Prices, 2000-2006, by NPU City of Atlanta, Fulton County Sales*



* Excludes sales per footnote 5, page 6.

Table 2 provides a similar sort of analysis as in Table 1, except this time the city is broken into the concentric rings or "buffers" around the Beltline.[6] If the TAD affects surrounding property values, we should expect this impact to be stronger for properties that are very close (e.g. less than one quarter or one eighth of a mile) to the TAD than for those farther from it. The columns furthest to the right show that median sales price in the Beltline or within 1/8th of a mile of the Beltline increased by more than 130 percent (or about 15 percent annually) over the six year period. The median sale price of properties in the buffer from ¼ to ½ of a mile also increased at about 15 percent (14.7 percent) annually. The median price for properties in the 1/8th to ¼ buffer increased at almost 11 percent (10.5 percent) annually, while the median for homes in the 1 to 1.5 miles buffer rose by 9.8 percent annually, and the median for the 1.5 to 2 mile buffer rose at an 8.6 percent annual rate. The median for homes outside of the 2 mile buffer, but still in the city, rose at only a 4.7 percent annual rate.

Table 2. Median Prices and Counts for Single Family Home Sales, 2000 – 2006 by proximity to the Beltline TAD, City of Atlanta, Fulton County Sales Only*

	2000	2001	2002	2003	2004	2005	2006	Increase in Median Price 2000-2006	Average Annual Increase
In the Beltline	103,000	135,000	152,500	155,000	180,000	230,000	240,000	133.0%	15.1%
# Sales	203	184	166	201	270	284	264		
Within 1/8 mile	95,000	120,000	150,000	167,000	176,000	215,000	220,000	131.6%	15.0%
# Sales	1,946	1,797	1,809	1,613	2,353	2,513	2,134		
1/8 to 1/4 mile	123,500	137,000	149,900	173,304	186,000	220,000	225,250	82.4%	10.5%
# Sales	699	679	706	635	841	982	869		
1/4 to 1/2 mile	95,500	134,000	130,000	159,900	175,500	205,000	218,000	128.3%	14.7%
# Sales	730	681	690	679	834	945	848		
1/2 to 1 mile	80,000	85,000	103,400	131,000	136,949	150,000	155,000	93.8%	11.7%
# Sales	549	570	604	560	713	772	773		
1 to 1.5 miles	88,500	98,950	107,000	140,000	141,000	142,000	155,000	75.1%	9.8%
# Sales	396	366	477	445	554	600	636		
1.5 to 2 miles	88,314	120,000	133,620	130,000	132,500	142,000	145,000	64.2%	8.6%
# Sales	400	409	425	457	532	575	578		
2 or more miles	110,000	119,000	116,955	123,600	139,000	146,900	145,000	31.8%	4.7%
# Sales	934	815	788	901	1,147	1,313	1,332		
City Total	96,000	116,500	134,000	150,000	160,000	181,584	194,014	102.1%	12.4%
# Sales	5,857	5,501	5,665	5,491	7,244	7,984	7,434		

* Excludes sales per footnote 5, page 6.

[6] Figure A-1 in the Technical Appendix illustrates the series of buffers lying at various distances from the TAD, including an eighth of a mile, a quarter of a mile, a half of a mile, one mile, and two miles. These buffers will be used in this study to identify differences in property value trends at different distances from the Beltline TAD. This figure also illustrates parts of the buffers that are north or south of the CBD ("northside" vs. "southside").

Analyzing Property Values More Carefully to Identify the Effects of Proximity to the Beltline

While useful for context, the above analyses of trends in median single-family home prices across NPUs and by distance from the Beltline TAD are limited in what they tell us about any potential impact that the Beltline project may have had on residential land prices. This is because the analyses merely group all sales together and do not control for changes in the mix of types of homes (e.g., size of building, lot size, number of bathrooms, etc.) or in the characteristics of the location in which the home is situated (e.g., socioeconomic demographics of the neighborhood, distance from the central business district, etc.). Changes in median prices may occur more because of changes in the types or sizes of houses being built in particular neighborhoods rather than underlying changes in residential land values. To detect changes in property appreciation near the Beltline, we essentially need to compare changes in prices of homes close to the Beltline to those of *otherwise similar* homes farther from the Beltline.

More specifically, we are interested in knowing whether the advent of public discussion and planning activities surrounding the Beltline beginning in early 2003 and accelerating in 2004 affected prices of homes near the Beltline compared to prices of similar homes farther from the Beltline. Moreover, because one might expect different impacts in the generally lower-income neighborhoods that are near the Beltline on the south side of the city versus the more affluent neighborhoods on the north side, the analysis will distinguish between trends in south side versus north side buffer segments.[7]

The approach we use to do this is called hedonic price analysis.[8] This is the general method used in many computerized property valuation systems, including those used in "mass appraisal" tax assessment systems and the automated valuation models used by banks to appraise property quickly or to check manual appraisals. The technique involves using actual data on the sales and characteristics of houses to identify relationships between the characteristics and the prices. It is also the technique used to create sophisticated locality-specific housing price indices used by the federal government and housing market analysts. The basic logic of such models is that the price of a house is a function of a set of physical characteristics (e.g., square footage of the building, lot size, number of bedrooms and bathrooms, basement type, exterior construction, etc.), a set of neighborhood characteristics (e.g., poverty rate, owner-occupancy rate, etc.), location variables (e.g., distance from the central business district), and the date of the sale.

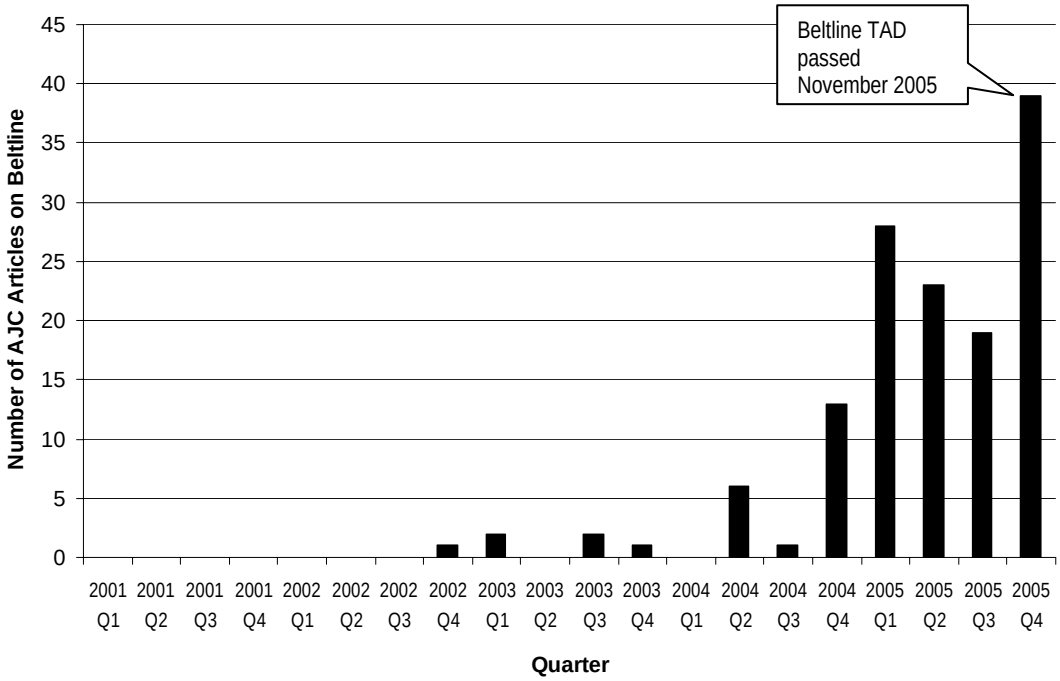
Such methods of housing price analysis are frequently used to estimate the impact on housing or land values due to some large public project or redevelopment initiative. Urban economics suggests that as knowledge of a major development project becomes public, prices in areas likely to be impacted positively by the development should increase relatively quickly. Real estate markets tend to essentially price in or "capitalize" anticipated future increases in rents or value that the land will command in the future. Thus, we might expect that, after the plans for the Beltline began to be publicized and known to real estate investors and homebuyers, prices near the Beltline would increase relative to areas farther from the Beltline.

Before looking closely at the housing appreciation trajectories in and around the Beltline, it is helpful to examine more detail on the trends of press coverage of the Beltline project. The beginning of coverage in

[7] The buffers could not be broken up into even smaller parts (e.g., northwest, northeast) because some of these smaller segments would not have enough sales per year to conduct the statistical analysis.

[8] The Technical Appendix explains the hedonic price analysis in greater detail.

Figure 3. Coverage of the Beltline Proposal/Project in the Atlanta Journal-Constitution



the *Atlanta Journal-Constitution (AJC)* should be a strong proxy for when public knowledge and discussion of the Beltline began, at least among those likely to be early investors or buyers in TAD areas.

Even modest amounts of press coverage could initiate speculation or anticipation around potential valuation shifts in neighborhoods near the Beltline, especially when the talk is of a very large project. Figure 3 indicates the number of *AJC* articles mentioning the Beltline proposal or project. These counts came from an exhaustive Lexis-Nexis analysis of *AJC* articles from 2000 through 2006. (Only 2001 through 2005 are shown for clarity and because these are the key years of concern.) There were no articles on the Beltline concept or project in the *AJC* until December 2002. In 2003, a few more articles appeared, and by mid-to-late 2004, coverage became more common. When we look at property appreciation trends in and around the Beltline compared to farther-out areas, it will be important to keep the timing of early public discussion of the project in mind.

In order to measure the boost that property values near the beltline might receive due to the public knowledge of the Beltline project, each sale was allocated to one of the 15 locational categories listed in Table 3, including: the north side of the TAD, the south side of the TAD, one of the six north side TAD rings or buffers around the TAD, one of the six south side TAD buffers, or the part of the city that is more than 2 miles from the TAD.[9]

Adding these location variables to the regression of sales prices, and then interacting these new variables with the year of the sale, allows us to measure the impact of being in a particular buffer segment on the change in property values over time, and to compare such changes to the growth in press coverage of the Beltline. Again, the Technical Appendix describes the methodology and results in more detail.

[9] See Figure A-1 in the Technical Appendix for a map of the TAD buffers.

Table 3. Locational Categories Used for Single Family Home Sales

North side – in the TAD	South side – in the TAD
North side – from TAD to 1/8 mile from TAD	South side – from TAD to 1/8 mile from TAD
North side – from 1/8 to ¼ mile from TAD	South side – from 1/8 to ¼ mile from TAD
North side – from ¼ to ½ mile from TAD	South side – from ¼ to ½ mile from TAD
North side – from ½ to 1 mile from TAD	South side – from ½ to 1 mile from TAD
North side – from 1 to 1.5 miles from TAD	South side – from 1 to 1.5 miles from TAD
North side – from 1.5 to 2 miles from TAD	South side – from 1.5 to 2 miles from TAD
More than 2 miles from TAD	

Figure 4 illustrates the key results for the expanded pricing model. It shows expected cumulative appreciation, compared to the year 2000, for properties located at different distances from the TAD for both the north and south sides.[10] The bottom chart in Figure 4 shows that among properties south of downtown, those in the TAD and within a quarter mile of it generally appreciated at substantially higher rates than those farther from the TAD.

Meanwhile, the top chart in Figure 4 shows that, on the north side, while properties did appreciate over time, those close to the TAD roughly followed the trajectory of properties located more than 2 miles from the TAD. Most of the statistically significant differences in appreciation were actually ones in which properties near the TAD appreciated *more slowly* than those in the outer area.[11]

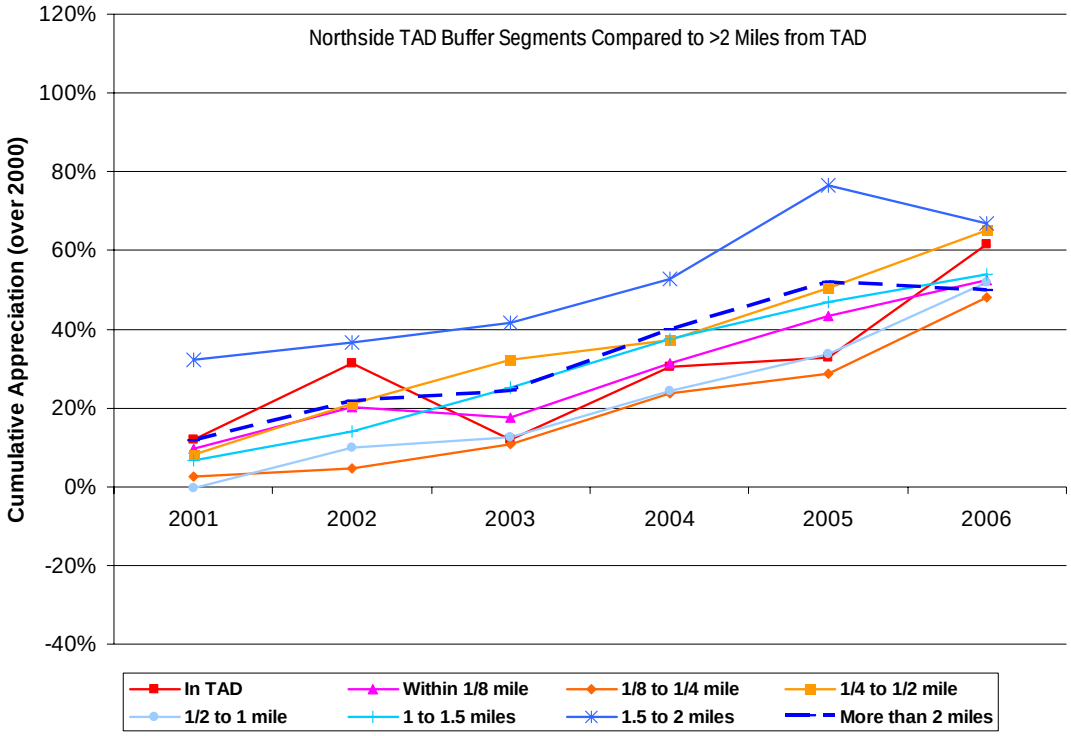
Why is it that there generally appears to have been little to no boost in value from being closer to the TAD for north side properties? The most likely answer lies in the fact that property values in the north side segments were, on average, substantially higher to begin with and so there was less "room" for rapid appreciation, gentrification, or speculation.

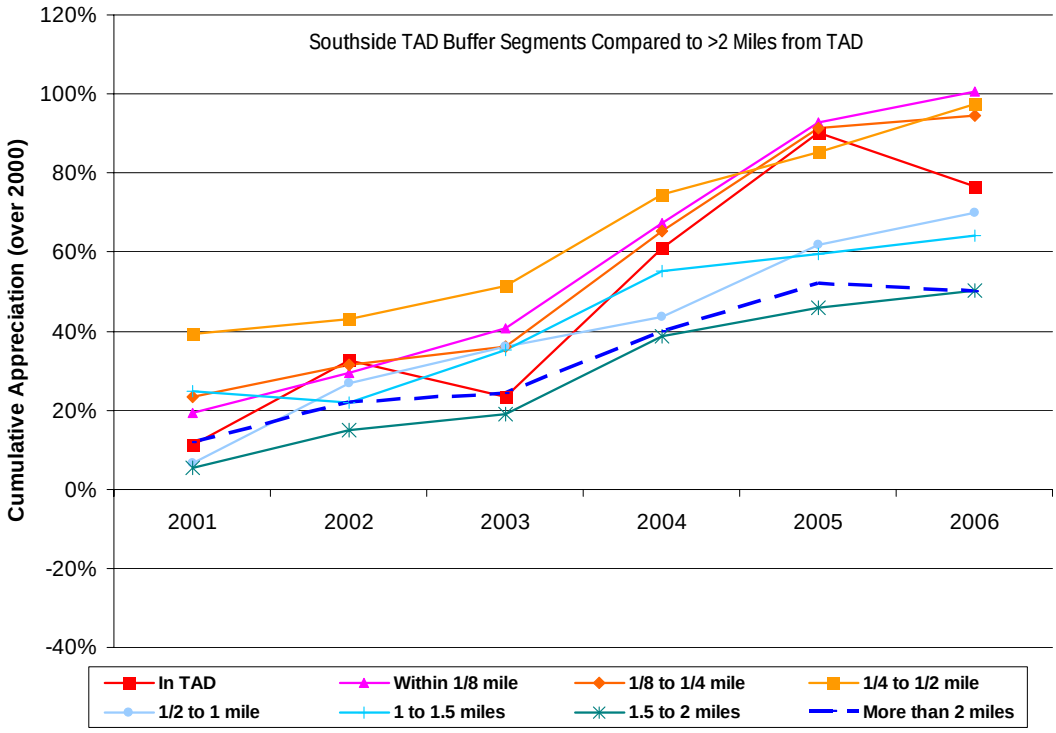
Figure 5 illustrates changes in the price premium due to location in each of the south side TAD buffers compared to being located more than 2 miles from the TAD. It shows that properties sold in or within a quarter mile of the TAD on the south side generally sold for considerably higher prices than properties farther away in 2004, 2005 and 2006. (The price premium for properties in the eighth-mile buffer was also significant in 2003.) These premiums were substantial, with properties in 2004 within a quarter mile of the TAD selling for 29-31 percent higher than otherwise-similar outer-area properties. Importantly, such differences were much smaller (generally on the order of 10-20 percent), and not statistically significant for 2001 or 2002. So, within one-quarter of a mile of the TAD on the south side – an area with substantial single-family densities – the increases in premiums from before to after the initial public discussions of the Beltline project were very large, on the order of 10 to 20 percent increases in value within a year or two. Moreover, the premiums generally continued to increase in 2005. In 2006, the premiums generally flatten out, with some drop in premium within the TAD and some continued growth in premium in the eighth of a mile buffer.

[10] Table A-2 in the Technical Appendix gives the exact figures from Figure 4 and indicates when the difference in cumulative appreciation rates between a buffer and the area more than 2 miles from the TAD is statistically significant with 90 percent confidence or above.

[11] Of the TAD buffers on the northside that were within a mile of the TAD, only those from ¼ to ½ mile saw an appreciably higher levels of appreciation over the 2000 to 2006 period, and this was difference was only statistically significant in 2006. (Table A-3 in the Technical Appendix gives the details.)

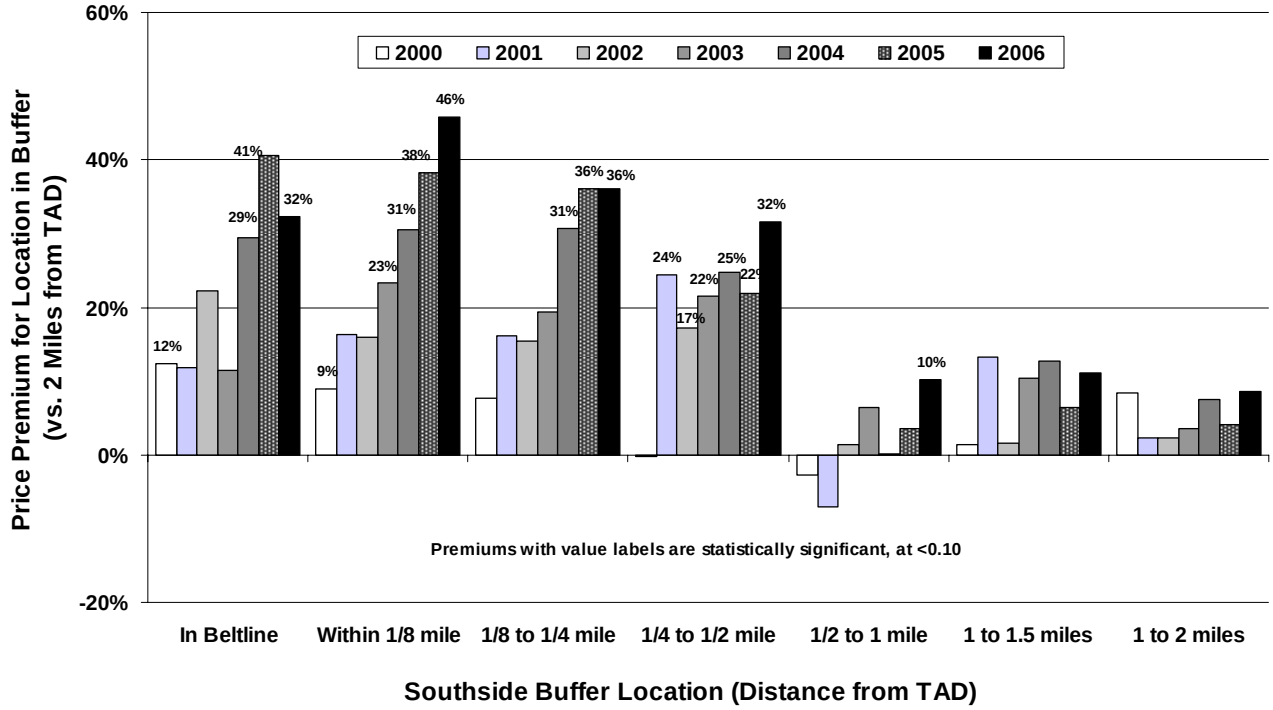
Figure 4. Property Value Trajectories for Beltline TAD Buffer Areas:
North side and South side Buffers compared to all Sales Greater than 2 miles from TAD
(Hedonic-adjusted for housing quality and neighborhood characteristics and distance from central business district*)





*Assumes miles from CBD and distance north of CBD are set at mean values.

Figure 5. South side Price Premiums for Being Located near the Beltline TAD, by Year, 2000-2006
(Compared to being located over 2 miles from TAD; hedonic-adjusted for housing quality and neighborhood characteristics and distance from central business district)



South side buffer price premiums fall off quickly after one-half mile from the TAD. Moreover, premiums for the quarter-to-half mile buffer are not substantially higher after public discussion of the Beltline than before such discussion. Therefore, the impact of the Beltline planning and discussion on property values was felt largely in areas within a quarter mile of the TAD and south of downtown.

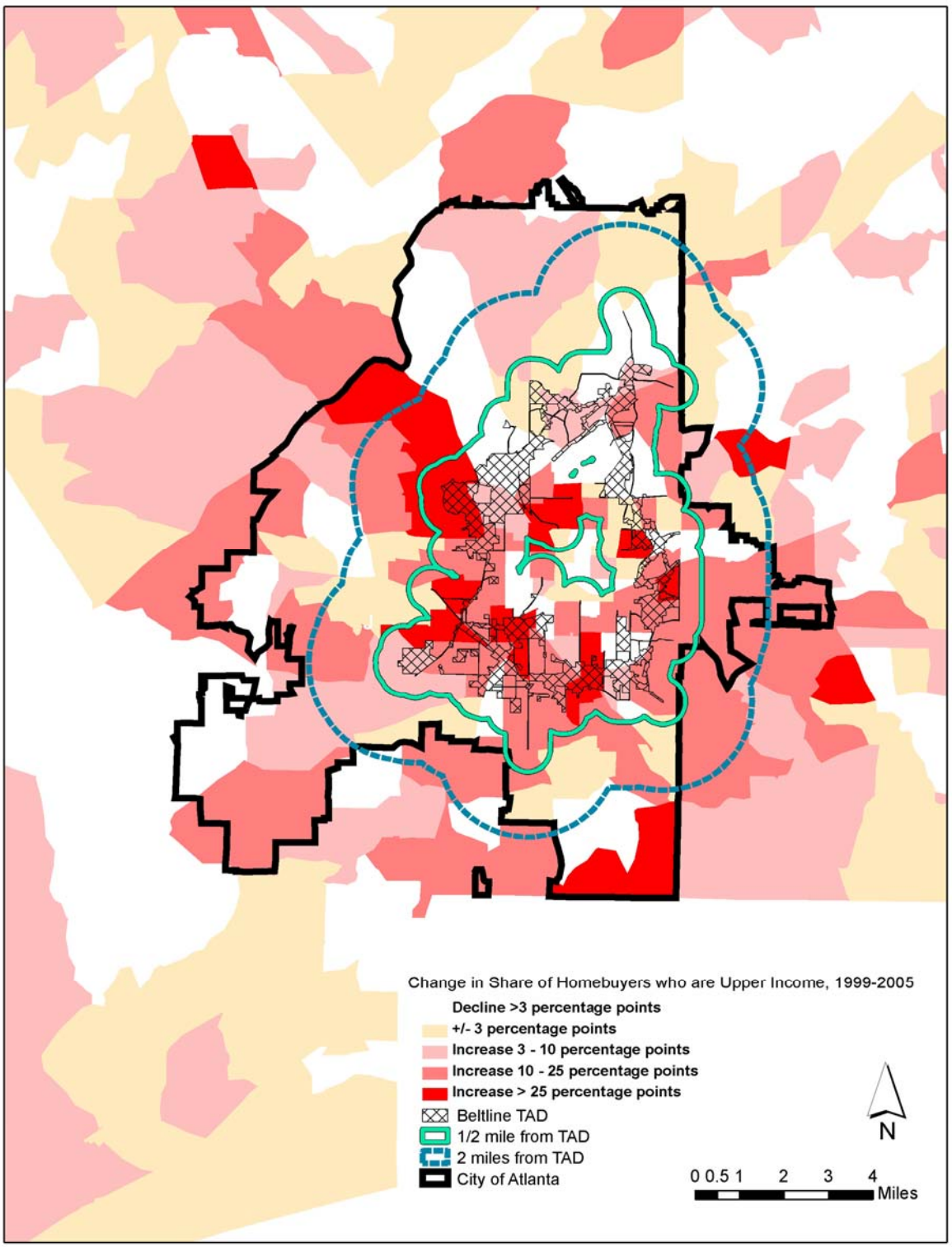
Comparing Home-Buying Patterns in Census Tracts Near Versus Far from the TAD

In addition to examining data on Fulton County home sales, it is helpful to examine data collected by federal agencies on home mortgages.[12] These data provide information on individual home purchase loans, including the income of the homebuyer and the census tract (but not the address) of the mortgaged home.

Figure 6 plots the percentage-point change from 1999 to 2005 (the latest year available) in the proportion of homebuyers in each tract who were upper-income (had incomes of more than 120 percent of the metropolitan median income). For example, if the proportion of buyers who were upper-income in a tract increased from 20 percent in 1999 to 30 percent in 2005, the figure plotted in Figure 6 would be 10 percentage points.

[12] The data are fairly comprehensive and estimated to capture approximately more than 85 to 90 percent of home purchases financed with a mortgage.

Figure 6. Change in Proportion of Homebuyers with Upper Incomes by Census Tract, 1999-2005 Fulton, DeKalb and Cobb Counties *



* Based on federal Home Mortgage Disclosure Act Data; excludes second lien loans in 2005; owner-occupied loans only.

Table 4. Average Increase in Share of Homes Purchased by Upper-Income Buyers by Tract Income and Distance of Tract from Beltline; Tracts in Fulton, DeKalb and Cobb Counties*

	Less than ½ mile from TAD		½ to 2 miles from TAD		More than 2 miles from TAD		Total 3-county	
Median Income Level of Tracts, 2000 Census	Average %-Point Change in Upper-Income Buyer Share	No. of Tracts	Average %-Point Change in Upper-Income Buyer Share	No. of Tracts	Average %-Point Change in Upper-Income Buyer Share	No. of Tracts	Average %-Point Change in Upper-Income Buyer Share	No. of Tracts
< 80% MSA Median	13.4 %-points	52	7.8 %-points	27	3.9 %-points	78	7.7 %-points	157
80 - 120% MSA Median	-14.0 %-points	6	-6.5 %-points	5	-1.2 %-points	89	-2.3 %-points	100
>120% MSA Median	-3.4 %-points	13	1.7 %-points	10	-1.5 %-points	89	-1.5 %-points	112
All Income Levels	8.2 %-points	71	4.7 %-points	42	0.2 %-points	256	2.2 %-points	369

* Includes owner-occupied buyers only; excludes second-lien loans for 2005

Figure 6 indicates that the share of owner-occupied homebuyers who were upper-income increased by more than 10 percentage points in most neighborhoods close to the Beltline TAD and, in some of these tracts, the increases exceeded 25 percentage points.

Table 4 shows that low- and moderate-income tracts (those with incomes below 80 percent of the metropolitan median income) within a half-mile of the TAD experienced an average increase in the share of upper-income buyers of 13.4 percentage points. This compares to an average increase of only 3.9 percentage points in low- and moderate-income tracts more than 2 miles from the TAD. Moreover, this was over a period when middle- and upper-income census tracts in the region experienced a general decline in the share of buyers with upper-incomes.

Conclusions and Policy Implications

The results of the analysis of single family home sales in the city suggest strong trends toward increasing prices and higher income home buyers near the Beltline TAD since 2000. Moreover, the analysis of mortgage data suggests that many neighborhoods around the TAD on the south and west sides are experiencing increases in the share of new homebuyers with high incomes.

More specifically, the analysis of sales suggests that, beginning as early as 2003, homes located very close to the Beltline TAD on the south side experienced very high price premiums, even after adjusting for detailed housing and neighborhood characteristics and distance from downtown Atlanta. Initially, price premiums in 2000 were generally positive and, in the north side TAD buffer areas, statistically significant. However, increases in these premiums generally occurred in the south side locations within ¼ mile from the Beltline TAD from 2003 to 2005, while the premiums declined or did not change significantly in north side areas close to the TAD.

The increases in price premiums for being located within ¼ mile of the TAD on the south side increased on the order of 10 to 20 percentage points over the 2002-2005 period. This increase essentially represents a rise in residential land values *relative to other places in the city, even those similar distances from downtown.* While factors other than the public discussion of the Beltline project could account for some of this appreciation, this study presents substantial evidence that discussion and anticipation of the project helped boost values near the TAD substantially, particularly over the 2003-2005 period.

These findings have a variety of implications not only for the ongoing implementation of the Beltline, but also for policies concerning other TADs and large scale community development projects. I will discuss a few key implications.

First, the findings support some of the concerns over gentrification, and potential displacement due to higher rents and taxes, in neighborhoods close to the Beltline. The price increases found here are quite large. One should keep in mind that these results are essentially averaged over thousands of transactions, suggesting that, for a substantial portion of sales in the impacted areas, the price increases are even greater than those indicated by the aggregate results in Figures 4 and 5 and Table A-2. This means that many modest-income homeowners have probably found -- or will find – that the assessed values of their homes have increased substantially in recent years.

Although the analysis here used data on the sales of detached single-family homes and mortgages, the results have implications for renters as well.[13] First, many single family homes near the Beltline are renter-occupied and, as home values go up, owners are likely to expect higher rents (in part to compensate for higher property taxes, but also because new renters are willing to pay higher rents) or may sell the home to an owner-occupant or investor, who in turn may rent out the property at a higher rate. Moreover, owners of multifamily rental buildings are likely to raise rents at the same time. Thus, there is a direct impact on rents. This analysis is effectively measuring increased demand for residential land near the Beltline TAD. This suggests that all forms of residential land in these areas– including that which is either currently zoned for higher densities or that which could be rezoned for such purposes – should have also experienced similar increases in value compared to other locations.

To address the problems of higher housing prices, and similar pattern in rents, policy-makers should bolster policies aimed at sharing the benefits of the Beltline with current residents of nearby neighborhoods and at minimizing potential displacement. The purpose of this report is not to define a comprehensive set of highly detailed policies that might be used to manage gentrification or mitigate against the potential displacing effects of higher property values. Numerous other studies and reports around the country have offered policy proposals to address these sorts of problems, including some work locally in Atlanta.[14] Some specific recommendations include:

1) The City of Atlanta should revisit recommendations made in the report of the Atlanta City Council's Gentrification Task Force, entitled *A City for All*, published in 2001. The study put forward a substantial set of recommendations, many of which have not been implemented or have not been fully implemented. Among the long list of recommendations made in this report were the following:[15]

    a. Establishing a definition of affordable housing as units affordable to those with incomes below 50 percent of the median for the Atlanta metropolitan area. Despite this definition being formally adopted as a goal in a City Council ordinance in December of 2001, current TADs do not appear to use this definition of affordable housing.[16]

[13] The analysis was restricted to single-family homes to improve the explanatory power and accuracy of the statistical models.

[14] For example, see Levy, Comey and Padilla, 2006; Kennedy and Leonard, 2001; Keating and Alexander, 2001.

[15] The recommendations are paraphrased. The italicized portions are substantive additions to refine or modify the recommendation for application here.

[16] Atlanta City Council ordinance 01-O-2014, December 4, 2001.

b. Create *improved or expanded* programs for deferred or extended payments of delinquent taxes by lower-income owner-occupiers.

c. Impose impact fees for all new construction projects which do not contain affordable units in order to provide funding for affordable housing development.

d. Provide home purchase and loan counseling to homebuyers and owners *to prevent mortgage defaults or tax delinquency, particularly in areas with increasing values and taxes*.

e. Adopt a program of banking parcels of land *or vacant structures* (through the Atlanta Land Bank Authority) for purposes of affordable housing development.

f. Create a housing trust fund that can receive revenues dedicated to it by the City, such as housing impact fees, real estate transfer taxes, and other funds.

2) The City should increase its financial support for rental housing and target some substantial portion of it towards neighborhoods located near the Beltline, particularly on the south and west sides.

3) In addition to increasing support for affordable rental housing, the City and County should promote less traditional forms of land and housing tenure to provide for long-term housing affordability. These include community land trusts (CLTs) and limited equity cooperatives, which have been more widely used in some other cities. (The Beltline Partnership and Beltline Inc. are in discussions with the Institute for Community Economics and Burlington Associates, two consultants with expertise in community land trusts, regarding the potential for CLTs in Atlanta.)

4) The City should seek to expand the property tax deferral program for the elderly to all low-income homeowners. This would allow homeowners to defer taxes until a sale or transfer of the property. This will be more effective at reducing the rate of increase in tax bills than a one-time expansion in exemptions, because as values continue to rise, larger base exemptions may actually result in greater percentage increases in taxable values over time. Another option is to offer a floating exemption to lower-income homeowners, similar to that offered by the County to all homeowners. Such an exemption would essentially limit growth in the taxable value of a covered property to the rate of inflation. Whichever tool is used to provide property tax control for vulnerable homeowners, care must be taken to make it *easy to use* and *widely understood*.[17]

5) The City of Atlanta and Fulton County should initiate a program to increase homeowner education regarding property tax exemption programs and provide funding or resources for such a program. While such education efforts should be citywide, particular focus should be targeted to areas with high appreciation rates. Fulton County should report annually on the utilization of county and city property tax homestead exemption and deferral programs. For properties in the city, such a report might be organized by NPU and should be historical, providing trends in

[17] For example, the basic Atlanta homeowner's exemption is $15,000. If this is increased to $25,000, then the taxable base is reduced by $10,000, and taxes would be reduced by the millage rate times $10,000. However, this means that the remaining taxable base will grow at a higher percentage rate. For example, with the $25,000 city exemption, a house with an assessed value of $70,000 would have a taxable base of somewhere on the order of $37,000 (assuming a state tax relief grant of $8,000). However if the assessed value grew by 50 percent, its taxable base would grow by more than 50%. If the assessed value went from $70,000 to $105,000 (50 percent), the taxable base would grow from $37,000 to $72,000, an 95 percent increase, much greater than the 50 percent increase in assessed value. Thus, merely increasing the base exemption can leave a homeowner vulnerable to reassessment "shock."

utilization over several years. The report should indicate the number and percentage of applications for exemptions or deferrals that are approved and give reasons for denials. This report should be disaggregated by type of exemption or deferral and be clearly displayed on the County Assessor's web site.

6) Lower-income homeowners located close to the Beltline TAD who are considering selling their home should be provided with technical assistance to help them understand the true market values of their homes.

7) The City of Atlanta should develop and secure funding for a Beltline-area "neighborhood investment fund" to provide lower-income homeowners with assistance in paying property taxes or maintaining their homes. Lower-income homeowners often experience pressure from newer, higher-income neighbors to improve or better maintain their properties, but limited resources can make this difficult. For properties located within the TAD, funding could come from the TAD bonds.[18] However, most affected residents are not in the TAD, and alternative sources of funds will be required.

8) To eliminate any erroneous increases in assessed valuations, the Fulton County Tax Assessor should consider developing additional methods for flagging sales in which values have increased greatly between sales occurring within a fairly short period of time (e.g., 3-6 months). These sales should generally be removed from the mass appraisal system unless corresponding improvements are confirmed. (The Assessor's office already utilizes various methods for identifying potentially overvalued or undervalued properties and has been discussing improving such methods, in particular, to identify properties where property flipping or mortgage fraud may have occurred.)

9) Percentage targets used in affordable housing set asides for TADs, city housing programs, or inclusionary zoning initiatives should be established in a less arbitrary fashion. Given that 45 percent of city residents had incomes below 50 percent of the area median in 2000 (Keating and Alexander, 2001), set aside targets of 15 to 20 percent do not appear particularly aggressive. Targets should be established after examining existing income distributions of owner- and nonowner-occupied housing units.

10) Finally, the City should also adopt a "no net loss policy," in which it aims to ensure that there is not a net loss of affordable housing units within a half mile of the Beltline TAD.

[18] In the case of TAD properties, there is precedent for such small scale finding from TIFs in other cities. "NIFs," as they have been called in Chicago, involve the use of some portion of tax district proceeds to capitalize funds which can be used for small-scale homeowner-based projects, including home-improvement grants. The NIF concept is quite different than the Westside TAD Neighborhood Fund, which makes relatively large investments in neighborhood projects (but smaller than other TAD investments) compared to the sorts of small grants to individual homeowners in the Chicago NIF program.

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Glossary of Terms Used in Study

Assessed Value or Assessed Valuation: This is the amount on which a homeowner's property taxes are based. In Fulton County it is set at 40 percent of appraised market value. However, the millage or tax rate is applied to the assessed value less any exemption amounts.

Beltline Tax Allocation District: A 22-mile ring of parcels assembled by the Atlanta Development Authority to be used for a variety of coordinated development projects over a 25-year period. The Beltline follows a string of old, often unused industrial railroad lines that encircle the downtown and Midtown areas of Atlanta. The Beltline runs through or near approximately 45 neighborhoods in the city. The Beltline TAD is approximately 6,500 acres in land area.

Buffers or Buffer Segments: This is a term used to describe geographic areas surrounding some object or area. In this report it refers to various bands of land representing different distances from the Beltline Tax Allocation District. A one-eighth mile buffer is the area lying between zero and one-eighth mile from the TAD. The 1/8th to 1/4th mile buffer is the area lying more than one eighth but less than one quarter of a mile from the TAD. Together, the buffers constitute a series of concentric, noncircular rings around the TAD, as shown in Figure A-1.

Central Business District (CBD): This is another term for "downtown."

Community Land Trust (CLT): A community land trust is a private non-profit corporation created to acquire and hold land for the benefit of a community and provide secure affordable access to land and housing for community residents. Land is taken out of the market so that the impact of land appreciation is removed, therefore enabling long-term affordable and sustainable local development and affordable housing. The value of public investment, philanthropic gifts, charitable endowments, legacies or development gain is thus captured in perpetuity, underpinning the sustainable development of a defined locality or community. The building (or "improvements") portion of a house remains a piece of real property that can bought or sold in the marketplace.

Displacement: There is certainly not a great deal of consensus on what is meant by residential displacement. Typically it is seen as a common outcome associated with **gentrification**, in which higher-income people move into lower-income areas, especially at a fairly rapid pace. Often there is a distinction between "physical displacement," in which urban renewal or revitalization projects involve the clearing of lower-income or public housing, with the result being the physical elimination of their housing and their need to relocate. However, rising housing costs, which also may be caused by gentrification, can result in "effective displacement," in which some lower-income residents can no longer afford to live in a neighborhood, because their property taxes or rents are increasing beyond their ability to afford them.

Homestead Exemptions: A homestead exemption is a reduction from the assessed value of a house, resulting in a lower taxable base on which property taxes are calculated. If a home has a $100,000 assessed value, and the regular homestead exemption is $15,000, taxes are calculated by multiplying the millage rate times $100,000 - $15,000, or $85,000. The exemption is aimed at making the property tax less "regressive," so that lower-income homeowners do not pay more in property taxes as a percentage of their income than higher income homeowners do. In addition to the basic homestead exemption, Fulton County, like many others, has a variety of additional exemption levels for the elderly and the disabled. It also has a **tax deferral** program for the elderly, which allows increased taxes to be deferred until the

property is sold, and a **tax freeze** program for low-income elderly, in which the assessed value is frozen until the home is sold.

Impact Fees: Impact fees are financial contributions (e.g., money or land) imposed by communities on developers or builders to pay for capital improvements within the community which are necessary to service/accommodate the new development.

Limited-Equity Cooperatives (or LECs): Limited-equity cooperatives are corporations in which residents share ownership of a building. Co-op members work together to reach mutual goals based on democratic control and decision-making. LECs offer affordable ownership and relative certainty of occupancy costs to lower income households while limiting the return from resale that they can receive from the housing. They are not the same as market rate cooperatives, where memberships can be transferred at market value.

Neighborhood Planning Unit (NPU): These are official parts of the City of Atlanta that are used for various governance purposes and that typically contain several neighborhoods each. There are 25 NPUs in the City of Atlanta; however only 24 of these are fully or partially contained in Fulton County. The remaining NPU ("O") lies entirely in DeKalb county.

Tax Allocation District (TAD): Tax allocation districts, or tax increment financing districts as they are called in almost every state other than Georgia, are a development finance tool designed to help finance certain eligible improvements to property in designated redevelopment areas (TADs) by utilizing the new, or incremental, tax revenues generated by the project after completion. Under a TAD, property tax liabilities due to the regular recipients (school board, city and county) are essentially frozen for a period of more than 20 years. The incremental revenues are then used to do either two things. First, they are often used to make the payment on a series of **front-funding** bonds, which are issued by the Atlanta Development Authority to fund or subsidize projects within the TAD. Alternatively, the incremental revenues can be used to make payments to developers (a **pay-as-you go** TAD), who in turn may use the funds to pay off private bank loans used to develop buildings, etc.

Technical Appendix

Hedonic pricing models enable the estimation of the impacts of different physical, neighborhood, timing, and location characteristics on property values. A typical hedonic pricing model estimates a fairly standard specification of single family home prices as follows:

$$\ln(p_i) = \alpha + \beta \ln B_i + \chi \ln L_i + \psi Q_i + \zeta G_i + \phi G_i^2 + \delta S_i + \rho T_i + \boldsymbol{\gamma R_i} + \boldsymbol{\eta E_i} + \varphi D_i + \kappa N_i + \varepsilon_i \qquad (1)$$

Where p_i is the price of home i, F_i is the square footage of the home i; L_i is the square footage of land area for the lot for home i; Q_i is a categorical variable indication the quality/condition of the property (ranging from "excellent" to "unsound"); G_i is the age of the property in years at the time of sale; S_i is a transaction variable maintained by the county that describes special conditions of the sale (e.g., involves a nonprofit, value is not typical for the neighborhood, etc.); T_i is a time variable implemented by a set of quarterly dummy variables (from 2 to 28, to account for the 28 quarters in the 7 years, with the first quarter being the omitted dummy); $\mathbf{R}_i$ is a vector of variables describing physical attributes of the property such as the number of bathrooms, bedrooms and stories, as well as exterior construction type and foundation type; $\mathbf{E}_i$ is a vector of variables describing the socioeconomic characteristics of the census block group in which the property is located; D_i indicates the distance of the property from the central business district; and N_i indicates how far north of the CBD the property lies (N is negative if the property lies south of the CBD).

In the analysis in this report, the data came primarily from two principal Fulton County data sets. First was a regular parcel-level data set that includes building attributes for every parcel in the county. Second was a series of records describing the sales of real estate in Fulton County from 2000 to 2006 provided by the Fulton County Tax Assessor. These two data sets were merged by parcel identification number and checked for accuracy. Parcels with detached single-family buildings were extracted. A very small number (<1 percent) of records were omitted due to inability to match building to sale information. After this, screens were used to clean out sales with very low (under $5,000) prices as well as those in which the transaction was of a sort that is expected to have a very substantial impact on price, such as a sale between relatives or a post-foreclosure sale by a bank. (See footnote 5 in main text.)

The model is estimated using the most recent sale for each parcel in which there was at least one sale in the 2000 to 2006 period. Earlier repeat sales were omitted for technical reasons. One of these reasons is the fact that the property characteristic data (size, number of rooms, etc.) was only for one year, 2006. Using earlier sales for such parcels would increase the probability of systematic errors in the independent variables pulled from this static data set. These operations resulted in a data set of more than 25,000 most-recent sales for the same number of parcels from 2000 to 2006.

In order to identify the effect of proximity to the Beltline TAD on price, the specification in equation (1) was expanded to incorporate additional spatial variables that indicate which buffer (if any) surrounding the TAD (described in Table 3 in the text and illustrated in Figure A-1 below) the property is in. In addition to this, the spatial variables, including the buffers and the variables indicating distance from the CBD and distance north of the CBD as well as the buffer variables, are interacted with a variable indicating the year of the transaction. [Interacting the spatial variables with the 27 quarterly dummies would add 432 variables to the right hand side of the regression, which would overtax the statistical power of the sample, leading to likely multicollinearity problems and Type II errors. Interactions using time dummies of longer duration than the original quarters have been employed in similar analyses (e.g., McMillan and McDonald, 2004).]

This approach, sometimes referred to as a "switching" regression, effectively allows the relationship between the spatial phenomenon and housing prices to change over time. This allows us to look at spatial variations in appreciation. By interacting annual dummies with the spatial variables, we can identify annual changes in

cumulative appreciation and therefore changes in the trajectory of appreciation over the 7 years. The new model is described as follows:

$$\ln(p_i) = \alpha + \beta \ln F_i + \chi \ln L_i + \psi Q_i + \zeta G_i + \phi G_i^2 + \delta S_i + \rho T_i + \boldsymbol{\gamma R_i} + \boldsymbol{\eta E_i} + \varphi D_i + \kappa N_i +$$

$$+ \zeta B_i + \Phi D_{i*} A_i + \Psi N_i * A_i + \lambda B_i * A_i + \varepsilon_i \qquad (2)$$

where B_i is operationalized by the 14 dummy variables described in Table 3 indicating which buffer segment property i lies within (the omitted locational category is more than 2 miles from the TAD); and A_i is year of sale, operationalized by a dummy for years 2001 through 2006 (2000 is the omitted year).

This enables us to identify the change in prices each year in each buffer segment. By examining the coefficients of the interaction terms, we can identify whether properties close to the Beltline experienced a boost in sales more or less than farther properties and compare these patterns to the timing of the press and discussion of the Beltline.

The results of the regression in equation (2) are shown in Table A-1. Included in Table A-1 is a column indicating the proportional effect of a unit change in the independent variable on the dependent variable. This column is equal to $\exp(b-1/2*se_b^2)-1$, where b is the coefficient for the variable and se_b is its standard error. Kennedy (1981) first proposed this estimate and Van Garderen and Shah (2002) show that this estimate is highly accurate and more robust than the commonly used exp(b)-1.

Key results from the estimation described in Table A-1 are described in Figures 4 and 5 and Table A-2 below.

Table A-1. Results of Hedonic Pricing Model, Including Beltline Proximity Variables, Pre-Post Beltline Announcement, and Interactions[a]

Dependent Variable = Natural log of Price Explanatory Variable	Coefficient	Std. Error	Beta	Effect of Unit Change in IV on Price[b]	t-stat	significance	
Constant	8.417	0.091			92.473	0.000	**
log of building square feet	0.360	0.010	0.207		34.646	0.000	**
log of square feet of land	0.140	0.006	0.107		24.626	0.000	**
number of bedrooms	-0.008	0.004	-0.008		-1.932	0.053	*
number of bathrooms	0.085	0.005	0.102	0.089	17.392	0.000	**
quality=very good	-0.139	0.009	-0.071	-0.130	-16.024	0.000	**
quality=good	-0.258	0.011	-0.119	-0.227	-24.042	0.000	**
quality=average/fair	-0.408	0.011	-0.218	-0.335	-37.075	0.000	**
quality=poor	-0.586	0.027	-0.068	-0.444	-21.503	0.000	**
quality=very poor	-0.689	0.062	-0.034	-0.499	-11.199	0.000	**
quality=unsound	-0.626	0.065	-0.029	-0.466	-9.658	0.000	**
age of house	-5.42E-03	4.49E-04	-0.155	-5.41E-03	-12.069	0.000	**
age of house squared	5.26E-05	4.65E-06	0.141	5.26E-05	11.326	0.000	**
more than 1 story	0.087	0.010	0.036	0.091	8.855	0.000	**
brick exterior	0.053	0.006	0.029	0.055	8.788	0.000	**
full basement	0.021	0.007	0.010	0.021	3.113	0.002	**
trans=public/nonprofit involved	-0.412	0.019	-0.064	-0.338	-21.419	0.000	**
trans=remodeled	-0.201	0.018	-0.034	-0.182	-11.380	0.000	**
trans=additional property	0.389	0.080	0.015	0.471	4.889	0.000	**
trans=not typical of local area	-0.111	0.008	-0.046	-0.105	-13.894	0.000	**
trans=incomplete	0.221	0.040	0.017	0.246	5.587	0.000	**
trans=split parcel	1.626	0.294	0.016	3.867	5.527	0.000	**
block group, proportion Black	-0.608	0.016	-0.287	-0.456	-36.939	0.000	**
block group, proportion Hispanic	-1.008	0.054	-0.068	-0.636	-18.608	0.000	**
block group, proportion poor	-0.261	0.031	-0.046	-0.230	-8.388	0.000	**
block group, prop. owner-occupied	-0.180	0.018	-0.047	-0.165	-9.802	0.000	**
block group,median household income	1.85E-06	1.56E-07	0.079	1.85E-06	11.851	0.000	**
distance to CBD in miles	0.016	0.006	0.037	0.016	2.435	0.015	**
distance north (south <0) of CBD in miles	0.032	0.004	0.134	0.032	9.126	0.000	**
quarter 2	0.009	0.023	0.002	0.009	0.394	0.694	
quarter 3	0.016	0.025	0.003	0.016	0.645	0.519	
quarter 4	0.042	0.027	0.007	0.042	1.551	0.121	
quarter 5	0.104	0.045	0.017	0.109	2.318	0.020	*
quarter 6	0.201	0.044	0.035	0.222	4.528	0.000	**
quarter 7	0.188	0.045	0.031	0.205	4.193	0.000	**
quarter 8	0.223	0.045	0.034	0.248	4.940	0.000	**
quarter 9	0.271	0.053	0.050	0.310	5.162	0.000	**
quarter 10	0.310	0.053	0.056	0.362	5.898	0.000	**
quarter 11	0.323	0.053	0.056	0.379	6.096	0.000	**
quarter 12	0.307	0.052	0.052	0.358	5.937	0.000	**
quarter 13	0.311	0.055	0.056	0.363	5.641	0.000	**
quarter 14	0.316	0.055	0.063	0.370	5.751	0.000	**
quarter 15	0.353	0.055	0.069	0.422	6.433	0.000	**
quarter 16	0.338	0.054	0.064	0.401	6.303	0.000	**
quarter 17	0.415	0.055	0.091	0.512	7.525	0.000	**
quarter 18	0.441	0.055	0.103	0.552	8.030	0.000	**
quarter 19	0.468	0.055	0.104	0.595	8.497	0.000	**
quarter 20	0.540	0.054	0.125	0.714	10.034	0.000	**
quarter 21	0.561	0.055	0.140	0.751	10.229	0.000	**
quarter 22	0.579	0.055	0.154	0.781	10.557	0.000	**
quarter 23	0.577	0.055	0.154	0.779	10.525	0.000	**
quarter 24	0.611	0.054	0.159	0.839	11.241	0.000	**
quarter 25	0.593	0.056	0.161	0.807	10.587	0.000	**
quarter 26	0.587	0.056	0.170	0.796	10.489	0.000	**
quarter 27	0.563	0.056	0.159	0.752	10.055	0.000	**
quarter 28	0.501	0.057	0.110	0.647	8.848	0.000	**
North side – in the TAD	0.129	0.089	0.016	0.133	1.449	0.147	
North side – from TAD to 1/8 mile from TAD	0.193	0.041	0.069	0.212	4.688	0.000	**
North side – from 1/8 to ¼ mile from TAD	0.276	0.046	0.075	0.316	6.009	0.000	**
North side – from ¼ to ½ mile from TAD	0.123	0.044	0.035	0.130	2.780	0.005	**
North side – from ½ to 1 mile from TAD	0.170	0.045	0.045	0.184	3.797	0.000	**
North side – from 1 to 1.5 miles from TAD	0.062	0.049	0.015	0.063	1.278	0.201	
North side – from 1.5 to 2 miles from TAD	-0.116	0.050	-0.029	-0.111	-2.338	0.019	*
South side – in the TAD	0.118	0.068	0.019	0.123	1.727	0.084	*
South side – from TAD to 1/8 mile from TAD	0.087	0.040	0.038	0.090	2.188	0.029	*
South side – from 1/8 to ¼ mile from TAD	0.075	0.051	0.020	0.077	1.476	0.140	
South side – from ¼ to ½ mile from TAD	0.000	0.050	0.000	-0.001	-0.002	0.999	
South side – from ½ to 1 mile from TAD	-0.026	0.052	-0.006	-0.027	-0.503	0.615	
South side – from 1 to 1.5 miles from TAD	0.016	0.061	0.003	0.014	0.262	0.793	
South side – from 1.5 to 2 miles from TAD	0.082	0.055	0.015	0.083	1.483	0.138	

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Explanatory Variable	Coefficient	Std. Error	Beta	Effect of Unit Change in IV on Price[b]	t-stat	significance
LOCATION*TIME INTERACTIONS						
distance to CBD in miles * 2001	-0.015	0.006	-0.023	-0.015	-2.519	0.012 *
distance to CBD in miles * 2002	-0.022	0.007	-0.036	-0.022	-3.144	0.002 **
distance to CBD in miles * 2003	-0.024	0.007	-0.042	-0.023	-3.291	0.001 **
distance to CBD in miles * 2004	-0.027	0.007	-0.056	-0.027	-3.793	0.000 **
distance to CBD in miles * 2005	-0.034	0.007	-0.076	-0.034	-4.811	0.000 **
distance to CBD in miles * 2006	-0.032	0.007	-0.077	-0.032	-4.448	0.000 **
distance north (south <0) of CBD in miles * 2001	0.000	0.005	-0.001	0.000	-0.100	0.920
distance north (south <0) of CBD in miles * 2002	-0.007	0.005	-0.010	-0.007	-1.504	0.133
distance north (south <0) of CBD in miles * 2003	-0.003	0.005	-0.004	-0.003	-0.600	0.549
distance north (south <0) of CBD in miles * 2004	-0.008	0.004	-0.013	-0.008	-1.829	0.067 **
distance north (south <0) of CBD in miles * 2005	-0.004	0.004	-0.008	-0.004	-1.020	0.308
distance north (south <0) of CBD in miles * 2006	-0.008	0.004	-0.016	-0.008	-1.950	0.051
NORTH SIDE BUFFER * TIME INTERACTIONS						
North side – in the TAD * 2001	0.008	0.115	0.000	0.002	0.074	0.941
North side – in the TAD * 2002	0.083	0.117	0.003	0.079	0.708	0.479
North side – in the TAD * 2003	-0.100	0.110	-0.005	-0.101	-0.906	0.365
North side – in the TAD * 2004	-0.063	0.107	-0.003	-0.066	-0.584	0.559
North side – in the TAD * 2005	-0.131	0.102	-0.008	-0.127	-1.278	0.201
North side – in the TAD * 2006	0.080	0.103	0.005	0.077	0.772	0.440
North side – from TAD to 1/8 mile from TAD * 2001	-0.017	0.047	-0.002	-0.018	-0.367	0.714
North side – from TAD to 1/8 mile from TAD * 2002	-0.011	0.049	-0.001	-0.013	-0.234	0.815
North side – from TAD to 1/8 mile from TAD * 2003	-0.054	0.049	-0.008	-0.054	-1.115	0.265
North side – from TAD to 1/8 mile from TAD * 2004	-0.060	0.048	-0.009	-0.060	-1.260	0.208
North side – from TAD to 1/8 mile from TAD * 2005	-0.057	0.047	-0.010	-0.057	-1.215	0.224
North side – from TAD to 1/8 mile from TAD * 2006	0.019	0.048	0.003	0.018	0.403	0.687
North side – from 1/8 to ¼ mile from TAD * 2001	-0.084	0.056	-0.007	-0.082	-1.488	0.137
North side – from 1/8 to ¼ mile from TAD * 2002	-0.149	0.057	-0.014	-0.140	-2.611	0.009 **
North side – from 1/8 to ¼ mile from TAD * 2003	-0.115	0.057	-0.011	-0.110	-2.008	0.045 *
North side – from 1/8 to ¼ mile from TAD * 2004	-0.121	0.055	-0.014	-0.116	-2.217	0.027 *
North side – from 1/8 to ¼ mile from TAD * 2005	-0.165	0.053	-0.022	-0.153	-3.103	0.002 **
North side – from 1/8 to ¼ mile from TAD * 2006	-0.010	0.054	-0.001	-0.011	-0.186	0.853
North side – from ¼ to ½ mile from TAD * 2001	-0.032	0.053	-0.003	-0.032	-0.594	0.552
North side – from ¼ to ½ mile from TAD * 2002	-0.005	0.055	0.000	-0.006	-0.084	0.933
North side – from ¼ to ½ mile from TAD * 2003	0.062	0.054	0.007	0.063	1.146	0.252
North side – from ¼ to ½ mile from TAD * 2004	-0.016	0.053	-0.002	-0.017	-0.299	0.765
North side – from ¼ to ½ mile from TAD * 2005	-0.008	0.051	-0.001	-0.009	-0.160	0.873
North side – from ¼ to ½ mile from TAD * 2006	0.099	0.052	0.013	0.102	1.900	0.057 *
North side – from ½ to 1 mile from TAD * 2001	-0.113	0.058	-0.009	-0.108	-1.941	0.052 *
North side – from ½ to 1 mile from TAD * 2002	-0.102	0.057	-0.010	-0.099	-1.803	0.071 *
North side – from ½ to 1 mile from TAD * 2003	-0.098	0.056	-0.010	-0.095	-1.754	0.079 *
North side – from ½ to 1 mile from TAD * 2004	-0.115	0.055	-0.012	-0.110	-2.106	0.035 *
North side – from ½ to 1 mile from TAD * 2005	-0.128	0.053	-0.016	-0.121	-2.423	0.015 *
North side – from ½ to 1 mile from TAD * 2006	0.015	0.052	0.002	0.013	0.284	0.776
North side – from 1 to 1.5 miles from TAD * 2001	-0.043	0.066	-0.003	-0.044	-0.652	0.515
North side – from 1 to 1.5 miles from TAD * 2002	-0.065	0.062	-0.006	-0.065	-1.039	0.299
North side – from 1 to 1.5 miles from TAD * 2003	0.009	0.061	0.001	0.007	0.145	0.885
North side – from 1 to 1.5 miles from TAD * 2004	-0.015	0.059	-0.001	-0.017	-0.256	0.798
North side – from 1 to 1.5 miles from TAD * 2005	-0.033	0.058	-0.004	-0.034	-0.576	0.564
North side – from 1 to 1.5 miles from TAD * 2006	0.028	0.056	0.003	0.026	0.494	0.621
North side – from 1.5 to 2 miles from TAD * 2001	0.171	0.065	0.014	0.184	2.629	0.009 **
North side – from 1.5 to 2 miles from TAD * 2002	0.117	0.065	0.009	0.122	1.804	0.071 *
North side – from 1.5 to 2 miles from TAD * 2003	0.131	0.063	0.012	0.138	2.094	0.036 *
North side – from 1.5 to 2 miles from TAD * 2004	0.091	0.060	0.009	0.093	1.523	0.128
North side – from 1.5 to 2 miles from TAD * 2005	0.152	0.058	0.017	0.162	2.610	0.009 **
North side – from 1.5 to 2 miles from TAD * 2006	0.109	0.057	0.013	0.113	1.912	0.056 *

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Explanatory Variable	Coefficient	Std. Error	Beta	Effect of Unit Change in IV on Price[b]	t-stat	significance
SOUTH SIDE BUFFER * TIME INTERACTIONS						
South side – in the TAD * 2001	0.002	0.107	0.000	-0.003	0.021	0.983
South side – in the TAD * 2002	0.090	0.102	0.004	0.089	0.887	0.375
South side – in the TAD * 2003	-0.004	0.090	0.000	-0.008	-0.041	0.967
South side – in the TAD * 2004	0.146	0.085	0.009	0.153	1.719	0.086 *
South side – in the TAD * 2005	0.228	0.079	0.018	0.252	2.873	0.004 **
South side – in the TAD * 2006	0.167	0.079	0.014	0.178	2.124	0.034 *
South side – from TAD to 1/8 mile from TAD * 2001	0.066	0.042	0.009	0.067	1.569	0.117
South side – from TAD to 1/8 mile from TAD * 2002	0.063	0.046	0.009	0.064	1.370	0.171
South side – from TAD to 1/8 mile from TAD * 2003	0.125	0.047	0.018	0.132	2.659	0.008 **
South side – from TAD to 1/8 mile from TAD * 2004	0.181	0.045	0.035	0.198	4.004	0.000 **
South side – from TAD to 1/8 mile from TAD * 2005	0.239	0.045	0.056	0.269	5.357	0.000 **
South side – from TAD to 1/8 mile from TAD * 2006	0.292	0.045	0.074	0.338	6.488	0.000 **
South side – from 1/8 to ¼ mile from TAD * 2001	0.078	0.062	0.006	0.079	1.262	0.207
South side – from 1/8 to ¼ mile from TAD * 2002	0.071	0.063	0.006	0.071	1.130	0.258
South side – from 1/8 to ¼ mile from TAD * 2003	0.105	0.064	0.009	0.108	1.637	0.102
South side – from 1/8 to ¼ mile from TAD * 2004	0.196	0.060	0.021	0.214	3.272	0.001 **
South side – from 1/8 to ¼ mile from TAD * 2005	0.236	0.058	0.031	0.264	4.075	0.000 **
South side – from 1/8 to ¼ mile from TAD * 2006	0.236	0.057	0.036	0.265	4.131	0.000 **
South side – from ¼ to ½ mile from TAD * 2001	0.221	0.064	0.016	0.245	3.478	0.001 **
South side – from ¼ to ½ mile from TAD * 2002	0.162	0.066	0.012	0.174	2.456	0.014 *
South side – from ¼ to ½ mile from TAD * 2003	0.198	0.063	0.017	0.217	3.150	0.002 **
South side – from ¼ to ½ mile from TAD * 2004	0.224	0.061	0.022	0.249	3.693	0.000 **
South side – from ¼ to ½ mile from TAD * 2005	0.200	0.058	0.025	0.220	3.469	0.001 **
South side – from ¼ to ½ mile from TAD * 2006	0.278	0.057	0.039	0.318	4.890	0.000 **
South side – from ½ to 1 mile from TAD * 2001	-0.044	0.069	-0.003	-0.045	-0.634	0.526
South side – from ½ to 1 mile from TAD * 2002	0.043	0.069	0.003	0.042	0.626	0.531
South side – from ½ to 1 mile from TAD * 2003	0.093	0.068	0.007	0.095	1.359	0.174
South side – from ½ to 1 mile from TAD * 2004	0.030	0.063	0.003	0.029	0.478	0.633
South side – from ½ to 1 mile from TAD * 2005	0.065	0.061	0.007	0.065	1.065	0.287
South side – from ½ to 1 mile from TAD * 2006	0.127	0.059	0.016	0.133	2.147	0.032 *
South side – from 1 to 1.5 miles from TAD * 2001	0.114	0.088	0.006	0.117	1.295	0.195
South side – from 1 to 1.5 miles from TAD * 2002	0.005	0.083	0.000	0.001	0.055	0.956
South side – from 1 to 1.5 miles from TAD * 2003	0.088	0.083	0.005	0.088	1.058	0.290
South side – from 1 to 1.5 miles from TAD * 2004	0.108	0.074	0.009	0.111	1.460	0.144
South side – from 1 to 1.5 miles from TAD * 2005	0.051	0.072	0.005	0.050	0.714	0.475
South side – from 1 to 1.5 miles from TAD * 2006	0.093	0.070	0.009	0.095	1.332	0.183
South side – from 1.5 to 2 miles from TAD * 2001	-0.055	0.079	-0.003	-0.056	-0.691	0.490
South side – from 1.5 to 2 miles from TAD * 2002	-0.055	0.077	-0.003	-0.056	-0.708	0.479
South side – from 1.5 to 2 miles from TAD * 2003	-0.042	0.075	-0.003	-0.044	-0.555	0.579
South side – from 1.5 to 2 miles from TAD * 2004	-0.005	0.070	0.000	-0.008	-0.076	0.939
South side – from 1.5 to 2 miles from TAD * 2005	-0.038	0.066	-0.003	-0.039	-0.567	0.571
South side – from 1.5 to 2 miles from TAD * 2006	0.005	0.066	0.000	0.003	0.077	0.938

R-square 0.777
N = 25,599

** significant at less than 0.01 (99% confidence)
* significant at less than 0.10 (90% confidence)

[a] Includes only most recent sale per parcel in the 2000-2006 period; also excludes sales under $5,000, those involving relatives, multiple parcels, etc. See footnote 5 in main text.

[b] This estimate is equal to $\exp(b-1/2*se_b^2)-1$. See Kennedy (1981) and Van Garderen and Shah (2002) for more information.

Table A-2. Cumulative Appreciation in Different Buffer Segments with Statistical Significance*

North side Buffer Segments
(By Distance from Beltline TAD)

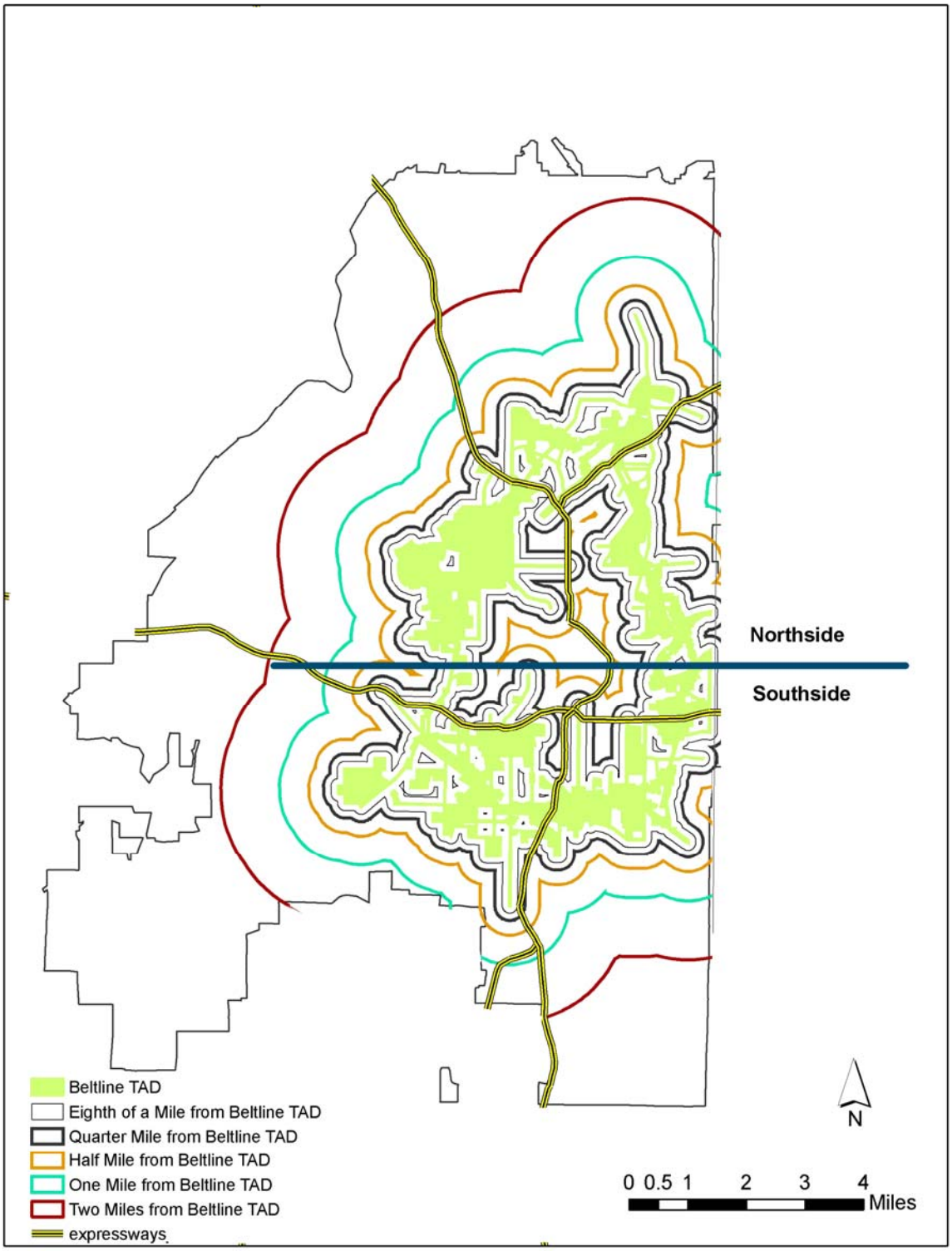
	In TAD	Within 1/8 mile	1/8 to 1/4 mile	1/4 to 1/2 mile	1/2 to 1 mile	1 to 1.5 miles	1.5 to 2 miles	More than 2 miles
2001	11.9%	9.7%	2.6%	8.1%	-0.3%	6.8%	32.3%	11.7%
2002	31.4%	20.3%	4.7%	21.0%	9.8%	13.9%	36.6%	21.8%
2003	11.8%	17.7%	10.7%	32.1%	12.6%	25.2%	41.5%	24.4%
2004	30.5%	31.4%	23.6%	37.3%	24.4%	37.4%	52.7%	39.7%
2005	32.7%	43.4%	28.7%	50.5%	33.6%	46.8%	76.6%	52.0%
2006	61.4%	52.6%	48.2%	65.2%	51.9%	53.8%	66.8%	49.9%

South side Buffer Segments
(By Distance from Beltline TAD)

	In TAD	Within 1/8 mile	1/8 to 1/4 mile	1/4 to 1/2 mile	1/2 to 1 mile	1 to 1.5 miles	1.5 to 2 miles	More than 2 miles
2001	11.4%	19.3%	23.3%	39.1%	6.7%	24.8%	5.5%	11.7%
2002	32.6%	29.6%	31.5%	42.9%	26.8%	21.9%	15.0%	21.8%
2003	23.4%	40.8%	36.0%	51.3%	36.1%	35.3%	18.9%	24.4%
2004	61.1%	67.3%	65.4%	74.6%	43.7%	55.2%	38.7%	39.7%
2005	90.3%	92.9%	91.4%	85.4%	61.9%	59.5%	46.1%	52.0%
2006	76.6%	100.5%	94.6%	97.6%	69.8%	64.1%	50.3%	49.9%

*Assumes miles from CBD and distance north of CBD are set at mean values.

Figure A-1. The Beltline TAD, with Buffers, Fulton County Only



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