

An Assessment of Tax Revenues Generated by Homes Proximate to a Greenway

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EXECUTIVE SUMMARY: In recent years a number of papers have been published validating the positive impact of parks on property values. This paper follows the early precedent established by Olmsted in extending the analysis to calculate the tax revenues that accrue to a community from these value increments and relating them to the cost of the land acquisition.

The analysis was undertaken on the 7.9 mile Barton Creek Greenbelt in Austin, Texas. The cost of acquiring the greenbelt in 2004 dollars was estimated at \$14.89 million, and the annual debt charges were assumed to be approximately \$1.1 million. When the prevailing tax rates were applied to the property value increments attributable to the greenbelt, they generated tax revenues to the city of \$58,677 and \$311,844 to all the taxing entities. Thus, the tax revenues from the incremental tax base values met only 28.4% of the annual debt charges. However, a large majority of the greenbelt area users are likely to come from beyond the proximate neighborhoods, so it is likely that neighborhood residents were paying their "fair share" of the greenway's costs.

KEYWORDS: proximate principle, parks, property values, tax revenues

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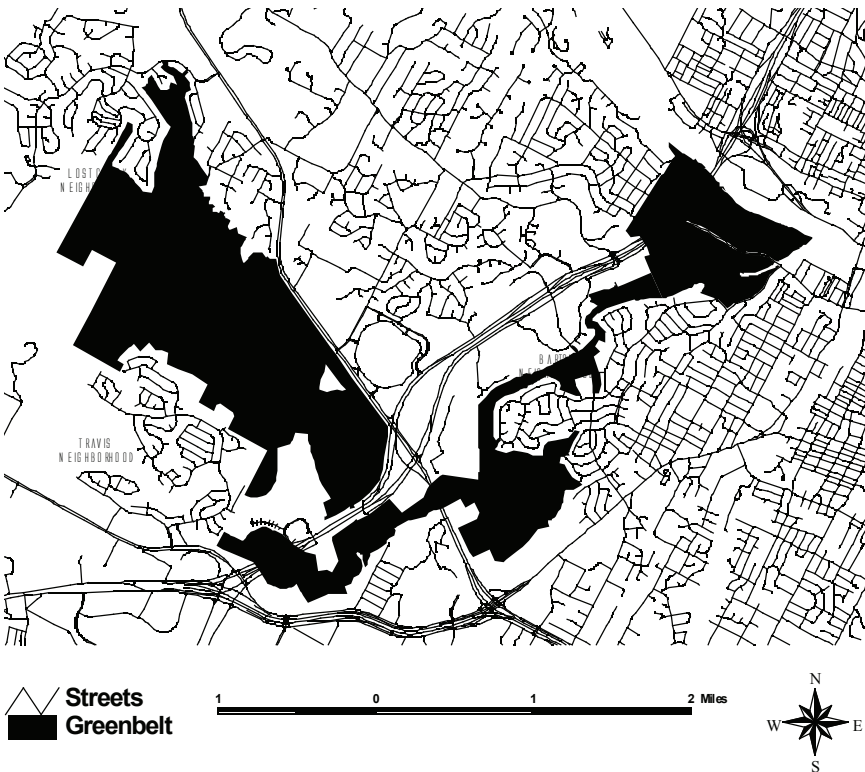
The Context

Barton Creek Greenbelt in Austin, Texas, is a natural area located to the west of Austin's downtown. The Barton Creek trail is 7.9 miles long and there are various park and restroom facilities along it. *Texas Hiking*, a website dedicated to providing information regarding the hiking trails throughout the state of Texas, describes the Barton Creek Greenbelt thus: "The Barton Creek greenbelt is the grand daddy of all hiking trails within the city limits of Austin. While the start of the trail begins not too far from downtown, it winds its way for about 8 miles through sometimes

rough terrain. At times you will be surprised that you are still in Austin” (Barron, 2002, on-line). Bicycles may be ridden on the trails, but no motorized vehicles are allowed.

The trail was acquired in two phases between 1971 and 1991. The first phase consisted of 17 separate parcels of land comprising 368.2 acres in the Barton neighborhood. This was acquired in the period 1971 to 1979 at a total cost of \$1.917 million. The second phase consisted of 16 parcels of land acquired between 1980 and 1982. In aggregate, these parcels comprised 392.4 acres and were purchased for a total of \$3.735 million. The greenbelt is shown on the map in Figure 1.

Figure 1
Barton Creek Greenbelt



Subsequently, an additional 1062.7 acres were purchased for almost \$20 million in the 1990s at the north-end of the trail in the Lost Creek neighborhood. This provided a “buffer” area to the greenbelt. This acreage is known as “The Wilderness Park,” but consideration of its impact is outside the scope of this paper. However, it is worth noting that while the owners of this land agreed to sell the property for approximately \$20,000 per acre, the sellers retained a similar acreage around the park which was

developed as a “high-end” subdivision. Its proximity to the Wilderness Park and greenway was a primary factor in enabling the developer to sell half-acre lots for approximately \$150,000 each.

The Barton Creek trail traverses through the Barton and Travis neighborhoods. In total the trail consists of 760.6 acres. A previous study reported the results of a hedonic analysis which calculated the impact of the greenway on proximate properties’ sales prices (Nicholls & Crompton, 2005). The analyses revealed that adjacency to the greenbelt produced significant property value premiums in these two neighborhoods. In the Barton neighborhood, the average premium per property attributable to the greenbelt was \$45,865, while in the Travis neighborhood the property premium was \$14,842. In the Travis neighborhood where the proximate premium was relatively low, the topography of the land did not allow for non-adjacent properties to enjoy a greenbelt vista, so the premium was primarily a reflection of the value accorded to proximate access.

These analyses provide empirical evidence for the contention that people frequently are willing to pay more for a home located close to a greenway than they are for a comparable home elsewhere. A consequence of the enhanced value is that government entities receive increased property taxes from these homes because of their higher appraised value. In effect, this represents a “capitalization” of the greenway into increased property values for proximate land owners. It adopts the mechanism of market pricing to assess the value of parks. This process of capitalization has been termed “the proximate principle” (Crompton 2004, p.18).

In the formative years of urban park development, in the late nineteenth and early twentieth centuries, it was common practice for park advocates to apply a community’s prevailing tax rate to the proximate premiums to demonstrate that parks frequently paid for themselves. This practice was famously initiated by Frederick Law Olmsted at Central Park. In his 1875 report to the Board of Commissioners, Olmsted demonstrated that while the annual debt charges on the park were \$834,000, the annual additional taxes accruing to New York City from the proximate premiums on surrounding property were \$5.2 million. Subsequently, similar calculations were made for parks in a host of U.S. cities (Crompton 2004).

The early studies calculating proximate premiums were naïve, reflecting the underdeveloped nature of the statistical tools and research designs of that era. The emergence of more sophisticated statistical techniques, computing capacity, G.I.S. techniques, and electronic multiple-listing services produced by realtors have enabled much more accurate and credible estimates of the proximate premiums to be produced, such as those referenced above that were calculated for the Barton and Travis neighborhoods (Nicholls & Crompton, 2005, Crompton, 2001). Among these more contemporary studies, it appears that only one of the studies undertook the further task (which Olmsted pioneered) of assessing the extent to which the annual incremental property taxes generated by

applying the tax rate to the proximate premium, paid for the park.

This study was done by one of the earlier of the more contemporary studies and it examined the effect of greenbelts on property values in three different areas of Boulder, Colorado (Correll, Lillydahl & Singell, 1978). One of the three neighborhoods had been able to take much greater advantage of the open space amenity in its planning than the other two neighborhoods, so the authors initiated further analyses on it. They reported:

The aggregate property value for the neighborhood was approximately \$5.4 million greater than it would have been in the absence of greenbelt. This increment resulted in an annual addition of approximately \$500,000 to the potential neighborhood property tax revenue. The purchase price of this greenbelt for the city was approximately \$1.5 million and, thus, the potential property tax revenue alone would allow a recovery of initial costs in only three years (p. 215).

There is an important caveat to these positive results in that 86% of the \$500,000 proximate increment of property tax revenue accrued to taxing entities other than the city of Boulder, i.e., county, school district, and other independent districts. Thus, the incremental return to the city alone was not sufficient to pay the costs incurred by the city in purchasing the greenbelt. However, since the same taxpayers fund all of these political entities, they are unlikely to be concerned with demarcations among them.

Results and Discussion

The analysis reported here follows Olmsted's early precedent and that of the Boulder study which was reported over a quarter of a century ago in relating revenues derived by applying tax rates to the aggregated proximate property premiums in the Barton and Travis neighborhoods to the capital cost of the greenbelt. The results are summarized in Table 1.

Table 1
Tax Revenues Accruing From Aggregated
Proximate Property Premiums

Neighbor- hood	Number of Adjacent Properties	Proximate Premium per Property	Proximate Total Premium	Total Tax Revenues	City Tax Revenues
Barton	220	45,865	10,090,300.00	255,476.31	48,029.55
Travis	150	14,842	2,226,300.00	<u>56,367.69</u>	<u>10,597.13</u>
		Total Tax Premium Per Annum		311,844.00	58,626.67

The city of Austin's tax rate in 2004 was \$2.57 per \$100 valuation. Of that amount, the city received 18.8%, Travis County 16.7%, the hospital district 2.5%, the school district 60.1% and the community college system 1.9%. Table 1 shows that the aggregated proximate premiums attributable to the greenbelt in the Barton and Travis neighborhoods were \$10.09 million and \$2.23 million, respectively. When the premiums from both neighborhoods are aggregated and the tax rates applied to them, they generate annual property tax revenues to the city of \$58,627 and \$311,844 to all the taxing entities.

The costs of acquiring the Barton and Travis sections of the greenbelt were \$1.917 million and \$3.735 million, respectively. When these costs were transposed to 2004 dollars so they were consistent with the tax rate data, the acquisition costs amounted to \$7.058 million and \$7.832 million, respectively. All of the land was purchased with 25 year general obligation bonds issued by the city of Austin. For the purposes of this analysis it was assumed that the annual debt charges for the greenbelt using the aggregate value of \$14.89 million in 2004 dollars amounted to approximately \$1.1 million.

Unlike the Boulder case described earlier, the annual property tax revenues from the incremental tax base values attributable to the greenbelt of \$312,000 were not sufficient to cover the annual debt payments of \$1.1 million. However, in this case, it is unreasonable to expect such a result because the greenbelt's benefits extend far beyond the two neighborhoods that are proximate to it. Indeed, it would be inequitable if the proximate increments did cover all the greenbelt's costs since most of those who benefit are not the proximate property owners and such beneficiaries would be "free riders."

"Free riders" is a term used to describe people who may receive benefits from the greenway but who do not pay for those benefits. A large majority of the people who use the greenbelt are likely to come from beyond the immediate two neighborhoods. It is a major attraction for hikers and bikers throughout the city and the region, and the benefits accruing to these users, and to the neighborhoods from their spending and economic impact in the area, are not represented in the economic benefit capitalization calculations which constitute the proximate principle. A user intercept study commissioned by the city along the Barton Creek Greenway used probability sampling procedures to interview 579 and 421 users (1000 total) in the months of February and June, respectively (McClung, 1994). The author reported that 81% of users were Austinites, while an additional 10% came from within a 50 mile radius. However, the survey did not identify the proportion of users who came from the two adjacent neighborhoods. The annual proximate premiums account for 28.4% of the annual debt costs ($\$1,100,000 \div \$312,000$). Thus, if no more than 28.4% of the greenbelt's daily visits are from the two neighborhoods, then the neighborhoods' residents have paid their "fair share" of the greenway's

costs.

While “private” benefits accrue to proximate homeowners and to other users of the trail, the greenbelt also generates “public” benefits which are received by the whole community such as alleviating traffic congestion, reducing air pollution, flooding alleviation, wildlife habitat, improved water quality and facilitating healthy lifestyles. Finally, there is evidence to suggest that investment in parks affects the comparative advantage of a community in attracting future businesses and desirable residential relocators such as affluent retirees (Crompton et al., 1997, Haigood & Crompton, 1998).

The Austin Greenbelt is a 7.9 mile downtown amenity and this centrality meant that it appeared to be a relatively expensive purchase when it was acquired. It is a major attraction both to residents from throughout the city and to visitors. Further, there are large sections of it on which there are no adjacent properties because of the proximity of the Capitol of Texas Highway right-of-way. These characteristics differentiate it from the Boulder greenbelt case described earlier and explain why, unlike the Boulder case, the proximate capitalization premium was insufficient to cover the annual debt charges. Hence, the analysis illustrates the importance of context in evaluating the financial impact of the proximate principle. This, in turn, emphasizes the need for those who engage in hedonic analyses to embrace the Olmsted precedent and take their work one step further by applying prevailing tax rates to the derived premiums and relating the resultant tax revenues to the amenity’s debt charges.

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