

## **APPLYING VALUE CAPTURE IN THE SEATTLE REGION**

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The four-county central Puget Sound region enters the 21<sup>st</sup> century with a profusion of ambitious development plans. VISION 2020, mandated by Washington state's Growth Management Act, calls for most new growth to be contained within existing urban areas—in compact communities and vibrant mixed-use centres. The Metropolitan Transportation Plan calls for a wide range of programs and projects designed to integrate land use and transportation, with an emphasis on high capacity transit. As the Seattle region enters the implementation phase of its numerous plans, the arduous task of finding adequate financial resources has begun to perplex local elected officials. Public agency managers struggling with the complexities of plan implementation are also coming around to the view that capital funding alone will not achieve the desired outcomes, but that built-in financial incentives will be needed.

### ***Transit Oriented Development***

The Central Puget Sound Regional Transit Authority (Sound Transit) recently completed its environmental review of 26 stations along the proposed 21-mile “Link” light rail route, connecting SeaTac airport with Seattle city center and the University District. An 82-mile “Sounder” train system has begun to provide inter-urban commuter service on an existing rail network. The RTA and constituent local jurisdictions are firmly committed to the currently popular concept of “TOD”, the creation of transit station communities, or compact, mixed use activity areas, centred around stations, that by design encourage residents, workers and shoppers to walk and ride transit.<sup>1</sup>

Planning for compact land uses around new high volume transit stations is a useful way to counter the effects of urban sprawl. A mix of multifamily residences with nearby shopping and neighbourhood services and convenient transit access is beneficial because it makes more efficient use of existing urban infrastructure, is convenient to residents, consumes less land, and ultimately preserves open space, farms and forests at the urban fringes. Reduced automobile dependency leads to lower household costs, and a quieter, less congested neighbourhood environment. The transit-land use relationship is symbiotic, in that TOD is likely to increase transit ridership and increase pedestrian trips - which in turn support the nodal type of commercial development (a cluster of contiguous storefronts with zero setback and minimal surface parking).

It is one thing to designate TOD communities, but quite another to implement them. The re-zoning of station areas for higher density development is the most expedient regulatory mechanism available. But experience has shown that desired development will not occur simply on the basis of its classification as an allowable use. Financial incentives are

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<sup>1</sup> Sound Transit Wave Newsletter, Vol. 2, No. 2, Summer 1999.

needed to induce timely development. At the same time, it should be recognized that up-zoning and the installation of station improvements brings added site value to affected properties, which could result in little more than windfall gains to the owners and the tendency to speculate on real estate holdings. Seattle City councilman Richard Conlin made this comment on transit station area planning: “Development should be encouraged; speculation should be discouraged. We should consider ideas such as a tax on the turnover of property that varies with how long the property is held.” [a land capital gains tax]<sup>2</sup>

Another issue related to plan implementation is the financing of station area improvements. Sound Transit planners found that the estimated costs of building the light rail system are increasing beyond expectations. Unanticipated inflationary trends in the real estate market, especially rising land prices along the designated rail corridor, have driven acquisition costs beyond the project’s total \$1.8 billion capital budget. Some officials are now inquiring as to whether there are legal but painless ways of tapping into these escalating land values to find supplemental funding.

### ***The Case for Capturing Land Value Gains***

Implementing the region’s transportation plans will require substantial public investments in new infrastructure and amenities, and sizable increases in neighbourhood program funding. These public sector commitments, in the form of approved detailed plans, land use regulations, and capital funding, will stimulate private sector investments in business activity and housing. This economic activity will result in the growth of “land rents”, or rising land values in designated locations. Site value increases are experienced generally, that is, independent of capital investments in building improvements that individual owners may undertake. Land rent is surplus value, and is the product of natural amenities, locational advantages, government actions, and collective private capital investments in the nearby vicinity. In the course of real estate transactions, owners and purchasers make investment decisions based upon their expectations of local government performance. Thus, government actions coincidentally “give” property added value.

This surplus value, reflected in land value assessments, can either be retained by individual owners as a capitalized asset, or captured by the public sector to be redistributed as public benefits. A basic principle in liberal economic theory holds that legitimately created value belongs to the creator of that value. Hence, government in its role as steward of publicly created value is justified in collecting what the community has given. In practical terms, public jurisdictions have the legitimate right to recapture incremental land value increases, either through property taxation, or “set-asides” requiring developers to make direct contributions to a prescribed public purpose such as the provision of below market rate dwellings. On the other hand, improvement value, the remaining component of property assessments, is attributable to private capital

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<sup>2</sup> The Seattle Times, February 25, 1997.

investment in individual parcels. Owners have the intrinsic right to retain most of the building value which they themselves have created.

### **Land Value Taxation**

A tax on land values produces economic and social affects very different from a tax on improvements.<sup>3</sup> Any tax tends to diminish the base upon which it is levied. Hence, what in the public's interest is desirable should be taxed less—commerce, job growth and investment. What is undesirable should be taxed more—pollution, traffic congestion, land consumption (urban sprawl), and energy resource depletion. Yet, as the nation's tax codes demonstrate, the reverse is often the case. "Our tax system is brilliant in its perversity," claims green tax advocate Alan Durning, of Northwest Environmental Watch.<sup>4</sup>

Because buildings comprise most of the aggregate value in real estate, the prevailing equal tax rate on land and improvements results in a relatively high burden on improvement values—the capital investment of owners. In this way the current tax system discourages private investments in planned transit station areas, commercial centers, and neighborhoods where land and building values are rising. In fact, the system amounts to an inducement to monopolize and speculate on land, that is, to hold onto property without improving or selling it, thus reaping windfall gains as land prices rise. How can these tax incentives be reversed so as to encourage new private investment in neighbourhood centres and transit-oriented communities?

The land value tax (LVT) as a reform measure has several advantages. As a result of placing a higher tax rate on land values, it would become more costly to hold onto vacant or under-utilised sites. Proportionately lowering the tax rate on improvement values would engender private capital investment in building improvements. Coincidental with the reformed tax system would be a gradual trend towards infill development, as owners realize the tax benefits of making substantial capital investments. The marginal tax shift onto sites having a high ratio of land-to-building value would effectively be capitalised into lower resale prices. Because a land value tax is applied uniformly to all properties, the general effect would be a restraint on rising land prices and housing prices.

### **LVT and TOD**

Joint development of station areas is based on the premise that transit investments improve regional accessibility, and lead to higher land values in transit station communities. Higher values, in turn, give owners the potential for higher commercial rents, larger scale construction and the rapid absorption of building space. It is hoped that market forces combined with supportive government actions will lead to more intensive development of the kind that supports pedestrian activity and transit ridership. Yet,

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<sup>3</sup> Francis K. Peddle, *Cities and Greed*, Ottawa, Ont.: Canadian Research Committee on Taxation, 1994, p.34.

<sup>4</sup> Alan Durning, *Tax Shift*, Seattle, WA: Northwest Environmental Watch, April 1998, p.28.

landowners, regardless of whether or not they respond to these inducements, stand to reap large benefits from rising land values in the form of windfall gain.

Faced with the realization that land speculation is likely to occur in designated station areas, Sound Transit planners are now giving thought to new incentives to encourage TOD, including the land value tax. If the reformed tax system were to be adopted, what would be the economic incentives that could actually be expected? Would the incentives in the form of tax shifts operate in positive ways, and would the tax burdens be fair?

### **Simulation Model**

The tax shift effects accompanying a conversion to a differential or 2-rate property tax can be simulated by finding the split rate that produces the same jurisdiction-wide revenue as derived under the present tax regime. The split rate adopted for this model is a 95% LVT; that is, 95 percent of the total tax rate is applied to the land assessment and 5 percent to the improvement assessment. The aggregate citywide ratio of land-to-total value (.42) determines the point at which tax shift occurs in the change to a differential rate system.

The Broadway/John Street station area within Seattle's Capitol Hill business district affords a static analysis of the incentive/disincentive effects of land value taxation. Because the set of 458 parcels within a half-mile radius of this intersection contains a higher building assessment ratio than the city as a whole, the land-based tax would produce a slight downward shift in tax liability. But when the station area parcels are divided into fully utilised and under-utilised sites (based on assessment ratios and floor area threshold ratios), differences emerge. See Table 1 for model assumptions and outcomes.

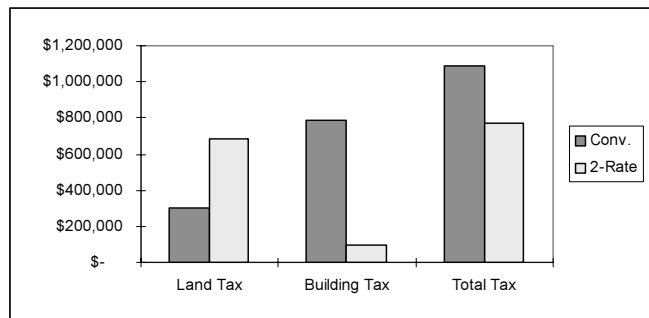
More intensively utilized sites including retail stores and apartment buildings (301 parcels) would experience a negative 21% tax shift under the 2-rate system, about \$431 thousand less than the annual conventional tax yield. On the other hand, the under-utilised subset which includes surface parking lots and vacant lots (157 parcels), would see a positive tax shift of about 93 percent. Thus, owners of intensively used parcels (consistent with TOD objectives) would be rewarded with lower taxes. Unlike the conventional tax effects, the LVT would not expropriate owners' capital investments. Conversely, land owners whose interim economic activity is the accumulation of potential windfalls from rising site values would be required to give back a more reasonable portion of their annual gain. The 2-rate tax incentives are simultaneously negative and positive.

Table 1

**A SIMULATION MODEL OF 2-RATE INCENTIVE PROPERTY TAXATION:  
E BROADWAY & JOHN STATION AREA - TRANSIT ORIENTED DEVELOPMENT**

<b>MODEL ASSUMPTIONS:</b>	Value	Notes:
<b>Property Characteristics</b>		
Station Area	1/2 sq. mi.	radius from station
No. taxable parcels	458	
Sum land value	\$ 78,012,300	1996 Assessment
Sum improvement value	\$ 118,795,357	1996 Assessment
Land-to-total value ratio	0.40	aggregate LTV ratio
Floor Area Ratio	1.21	aggregate FAR (building floor area / lot area)
<b>Redevelopment Potential</b>		
Underutilized parcels	157	LTV ratio > .66, and FAR < overall land use class mean
Mean FAR	0.39	
Fully developed parcels	301	balance of properties
Mean FAR	1.59	
<b>Taxation Methods</b>		
Conventional tax rate	\$12.50	mill rate (___\$ per \$1000 assessed value)
2-rate land value tax (LVT)	95%	of total tax rate applied to land value; revenue neutral at Seattle city level
<b>Redevelopment Scenario</b>		
Conversion to multifamily use		underutilized properties converted to multifamily and mixed use residential
Standard FAR	2.04	mean FAR in multifamily class, fully developed properties
Building floor area		multiply lot square footage by standard FAR
Unit floor area	842	mean square feet per dwelling unit in existing multifamily buildings
Additional dwelling units		additional building floor area / unit floor area
Building value factor	\$ 38.00	building value per internal square foot (based on mean MF = \$29 and mean MU = \$43)
<b>OUTCOMES:</b>		
<b>All Parcels</b>		
Revenue from conventional tax	\$ 2,460,096	
Revenue from 2-rate LVT	\$ 2,359,311	
Tax shift	-4.1%	
<b>Fully Developed Parcels</b>		
Revenue from conventional tax	\$ 2,104,466	
Revenue from 2-rate LVT	\$ 1,673,142	
Tax shift	-20.5%	
<b>Underdeveloped Parcels</b>		
Revenue from conventional tax	\$ 355,630	
Revenue from 2-rate LVT	\$ 686,169	
Tax shift	92.9%	
<b>Redevelopment Scenario</b>		
Sum land value	\$ 24,278,600	
Sum improvement value	\$ 63,049,203	
Land-to-total value ratio	0.28	
Revenue from conventional tax	\$ 1,091,598	
Revenue from 2-rate LVT	\$ 772,683	
Tax shift	-29.2%	
Additional dwelling units	1,590	

**COMPARATIVE TAX BURDEN EFFECTS: All Parcels**



Suppose that owners of under-utilised sites responded to the positive incentive of lower taxes on fully developed properties. If these sites were all redeveloped into multifamily and mixed-use buildings at the same intensity as existing fully developed properties, the collective building value would increase 14 times. This would tip the land-to-total value ratio to the other side of the scale, where building values comprise over 70% of the assessment. Now, the same properties redeveloped would experience a reduction in taxes of nearly 30%, compared to what the conventional tax would take annually. Again, owners are rewarded for investing their own capital or releasing land for new development consistent with TOD objectives. An added bonus is the nearly 1,600 new

dwelling units that could be built on these parcels at the development intensity normal for this area.

**VALUE CAPTURE EFFECTS:** Is the land-based tax fair to all classes of property owners? Would it impose an unduly high tax on single-family residents, whose homes happen to be located in a designated station area where land values are expected to appreciate rapidly. One measure of tax equity is ability-to-pay. Another measure is cost-benefit. This restates the principle of ability-to-pay *in proportion to benefits received*. Those benefiting from government actions are responsible for returning a fair proportion of community-generated gain.

It is possible to simulate the comparative value capture effects of both tax systems by projecting land value growth over a period of time. A 12-year period represents the estimated time it takes for all Seattle area properties to turn over in the housing market. A rapid growth scenario could conceivably see land values increasing at the annual rate of 14 percent in station areas, compared with the historic 8 percent rate experienced in the region as a whole. This high rate of growth is not an unreasonable estimate, as median home prices in the city's inner neighbourhoods have been experiencing increases of ten percent annually over a 15-year period.<sup>5</sup> During a hypothetical holding period, rapidly rising land values will yield a cumulative gain which would in turn manifest in higher resale prices - in effect a windfall. The LVT is designed to capture a larger portion of this speculative gain, that is, leaving a smaller portion of residual land value. At the same time, it should leave a larger portion of building value untaxed.

Four typical classes of property in the Broadway/John station area are chosen to illustrate comparative tax recapture effects. Mean land and building values in each land use class are used to represent typical properties. For the purpose of simulating conventional tax effects, land values are projected at the full 14% annual growth rate; building values are projected to increase at the general inflation rate of 4 percent. When simulating 2-rate tax effects, the full growth rate would not be used. This is because a heavy land tax, applied uniformly throughout the region, is expected to have a dampening effect on land price inflation. Here, it is assumed that the marginal increase in annual tax yield from the LVT on properties with high site values will diminish land values by a corresponding amount. In effect, the additional tax burden on any given property is capitalized into a lower resale price. In the aggregate, the initial 14% growth rate gradually decreases, resulting in a 9% annual growth rate by the twelfth year.

Without the dampening effect of LVT, the land value on a typical single-family parcel could be expected to rise at the full annual growth rate, from \$91,000 to \$385,000 at the end of the 12-year holding period. This results in a cumulative gain of \$294,000. Assuming that a 2-rate tax were in effect, the same initial land value rises at a decreasing rate to \$305,000, for a cumulative gain of \$214,000. At current equivalent tax rates, both tax systems would leave a residual of untaxed land value. Table 2 shows how much of the cumulative 12-year land value gain (land rent, or return on the initial land investment) is appropriated in taxes.

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<sup>5</sup> The Seattle Times, series: "Sticker Shocked?", March 5-12, 2000.

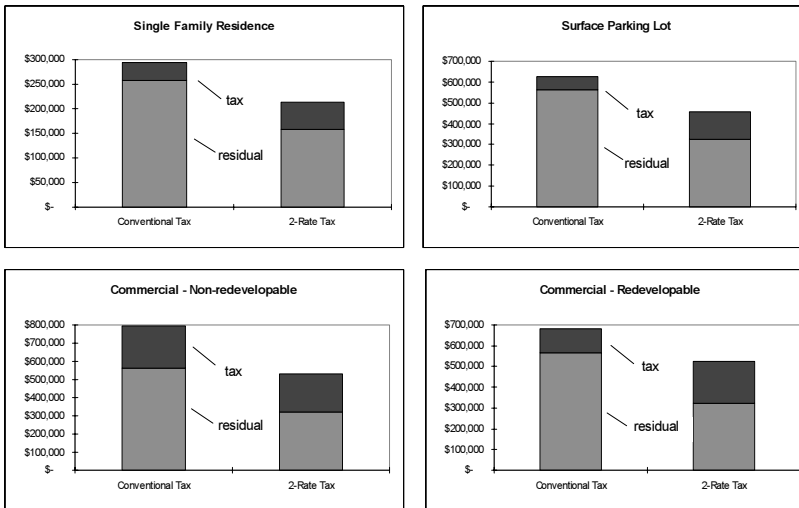
On all four typical sites in the station area, the revenue neutral LVT captures a higher proportion of speculative gain; nevertheless, it leaves nearly three quarters of the total gain in untaxed residual. It is the difference in capture rates across property classes that reveals the disincentive effects of the conventional tax, and the incentive effects of the land value tax. On the two under-utilised sites, the conventional tax captures only about one tenth of the cumulative gain in land value. These sites represent a surface parking lot and a redevelopable commercial site, typically a fast food outlet with drive-in parking, located on the Broadway commercial ribbon. By way of contrast, the LVT captures more than a quarter of the total land rent.

Unlike the under-utilised site, the fully developed commercial site is taxed more heavily by the conventional tax than by the LVT, creating a disincentive to develop at higher intensities. The LVT consistently captures land value gain at the rate of about 28 percent, while leaving building value largely untaxed.

**Table 2**  
**BROADWAY & JOHN STATION AREA**  
**COMPARATIVE TAX RECAPTURE RATES ON TYPICAL PROPERTY TYPES**  
**CUMULATIVE LAND VALUE GAIN CAPTURED BY CONVENTIONAL AND 2-RATE TAX**

	Single Family	Surface Parking	Commercial - Non-redevelopable	Commercial - Redevelopable
<b>Full Trend Growth Rate</b>				
Cum. Land Value Gain	\$ 293,930	\$ 628,259	\$ 1,030,452	\$ 1,058,052
Conventional Tax	\$ 36,147	\$ 64,089	\$ 230,615	\$ 117,617
Pct. of cum. gain captured	12%	10%	22%	11%
<b>Declining Trend Growth Rate</b>				
Cum. Land Value Gain	\$ 213,902	\$ 457,203	\$ 749,891	\$ 769,977
2-Rate Tax - 95%LVT	\$ 56,977	\$ 134,335	\$ 211,267	\$ 203,712
Pct. of cum. gain captured	27%	29%	28%	26%

**CUMULATIVE 12 YEAR LAND VALUE GAIN, AND TAX RECAPTURE**



Over the projected property-holding period, the conventional tax captures a consistently low proportion of land rent. As the annual land value inflation rate gradually diminishes to the 9% level under the LVT scenario, the capture rate increases; but, in no single year does the tax capture more than 40 percent of the land rent. Under these circumstances, it would appear that the land-based tax is fair and equitable.

### ***Financing Transit Improvements with Geo-bonds***

The concept of value capture appeared many decades ago in the form of special assessments. The City of New York drew up a proposal for financing its 1930s subway extension through property assessments, showing that increased land values along existing lines amounted to more than four times the cost of constructing them.<sup>6</sup> Lately, a keen interest in transportation - land use linkages and TOD has refocused attention on this potential funding device. A 1987 Washington state statute authorized the formation of local "transportation benefit districts", although no TBD has ever been formed due to unresolved legal issues.<sup>7</sup>

Special assessment districts circumscribing transit station areas are an application of the "benefit principle". That is, some portion of the benefits of a public transit project derived by property owners should be recaptured. Because the project causes nearby properties to increase in land value, the aim is to appropriate this publicly created value. The rate at which land values will increase beyond general inflation in the property market is by no means certain. However, it is now widely accepted that the increases will be significant if two conditions are met: (i) the region's economy is growing, and (ii) supportive government regulatory and investment programs are in place.<sup>8</sup>

The capture of incremental land value, whether through general taxation or special assessment districts, produces two socially desirable effects: (i) reducing the temptation for land owners to speculate on sites by keeping them out of productive use, and (ii) raising the holding costs to a level at which owners will seek a better return on their property investment by reinvesting in building improvements.<sup>9</sup>

The principle is easy to put into practice due to the fact that benefits are closely tied to *ad valorem* assessments and ordinary property taxes. The governing agency need only estimate the revenue needed to support the planned project improvements in each station area, define an assessment district, and set a special tax rate. Two qualifications, however must be stated. First, the assessment is not based on total annual land value (as is the general property tax), but rather on the *change* in land value, from year to year. This coincides with land rent, or annual unearned economic gain. Secondly, the capital costs

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<sup>6</sup> Donald Hagman, and Dean Misczynski (Eds.), Windfalls for Wipeouts: Land Value Capture and Compensation, Washington, DC: APA Planners Press, Chapter 12.

<sup>7</sup> Creating Transit Station Communities in the Central Puget Sound Region, Seattle, WA: Puget Sound Regional Council, June 1999.

<sup>8</sup> Robert Cervero, "Rail Transit and Joint Development," Journal of the American Planning Association, Winter 1994, p.83-93.

<sup>9</sup> William Batt, Value Capture as a Tool in Transportation: An Exploration in Public Finance, Albany, NY: The Central Research Group, Inc., December, 1997.



of transit improvements to be recovered through value capture cannot exceed the increase in land values projected to occur over a reasonable cost recovery period.

### **Simulation Model**

First, the present equal rate *general property tax system* should be changed to a 2-rate method, where the tax rate on land values is higher than the rate on improvement values. This effectively shifts the tax off of private investment capital onto the speculative value of real estate. It also helps to spur infill development in maturing urban activity centres, including the region's LINK station areas.

Next, a *value capture mechanism* is set up to appropriate land rent attributable to station improvements, commensurate re-zoning, and evolving building-intensive development. A transit improvement district centred on a station is delineated, incorporating taxable parcels within a half-mile radius. Tax allocation bonds are issued after the construction of improvements begins. The term "geo-bond" is used to distinguish the capture of land rent as a bond financing mechanism from other capture devices that may include the building component of assessed value. Two options are available to finance the bonded debt. A radical approach would be to set a land value gains tax rate high enough to capture the anticipated balance of annual total gain in land values within the redevelopment districts; a more modest approach is to set the tax rate sufficient to capture only the incremental increase in land values beyond the growth levels which are generally occurring without the transit improvements.

Again the Broadway/John station area is selected, this time to illustrate how the tax allocation method of bond financing could work to help fund station area improvements. The simulation model required for this analysis is dynamic rather than static as in the previous model (one point in time). It describes a growth period over which land values are expected to increase, and over which annual values are captured and allocated to a debt retirement fund.

**LAND VALUE GROWTH SCENARIOS:** The historic trend rate at which assessed land values have been increasing in the taxing jurisdiction of King County is an average of 8% per year. Because land values near transit stations are expected to rise at a relatively high rate, the projected "rapid" annual growth rate is set to 14 percent over a 12 year period. Again, this rate would be effective only if the current tax system were to remain in place. If the LVT were adopted, the rapid growth rate would not be sustained, due to the price-dampening effects of the tax. Thus, it is assumed that over the simulation period, the annual growth rate would decline from 14% to about 9 percent. The model does not account for any changes in land use within the station area over the projection period.

**LTV EFFECTS:** First, it is possible to calculate the annual revenue outcomes of a general 2-rate property tax, comparing the rapid-declining growth rates with the countywide trend rate. Over the 12-year period, the LVT yields \$51 million in taxes, \$11.3 million more than what would be collected under the regionwide trend growth rate. This 11-million balance is the amount attributed to the presence of station area

improvements. As the ratio of land-to-building value assessments rises during the growth period, the land-based tax captures a larger proportion of land value than does the conventional tax using the unrestrained 14% growth rate. (See Table 3.)

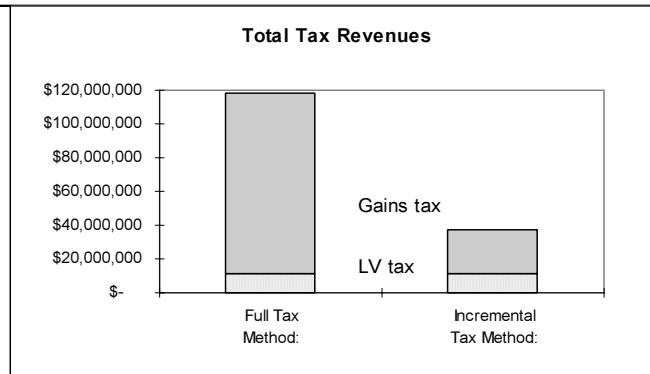
**Table 3**

**A SIMULATION MODEL OF TAX ALLOCATION BOND FINANCING:  
E BROADWAY & JOHN STATION AREA - TRANSIT ORIENTED DEVELOPMENT**

<b>MODEL ASSUMPTIONS:</b>	Value	Notes:
<b>Property Characteristics</b>		
Special Taxing District	1/2 sq. mi.	radius from station
No. taxable parcels	459	
Sum land value	\$ 78,228,300	1996 Assessment
Sum improvement value	\$ 118,796,357	1996 Assessment
<b>Growth in Values</b>		
Land value trend rate	8% annual	historic 10 yr. trend for King County
Building value trend rate	4% annual	historic 10 yr. trend in CPI - King. Co.
Land value rapid rate	14% annual	after LRT station designation
Simulation period	12 years	
Land value rapid-declining rate	14% >>> 9% ann.	land values in successive yrs. discounted by amt. of difference between LVT and conv. tax
<b>General Property Tax</b>		
Conventional tax rate	\$12.50	mill rate; use trend land value growth rate
2-rate land value tax (LVT)	95%	of total tax rate applied to land value; revenue neutral at Seattle city level
<b>Full Gains Tax</b>		
1. Apply 2-rate property tax		all properties in county affected; use declining land value growth rate
Incremental land value increase		annual full LV gain (yr.2 - yr.1,...)
Residual land value		incremental LV increase less 2-rt. tax liability
Allowable return on land	12%	of incremental LV increase
Recapturable residual		residual LV less allowable return
2. Max. land value gains tax	\$582.52	per \$1000 AV; reaches no more than capturable residual in any one year
<b>Incremental Gains Tax</b>		
1. Apply 2-rate property tax		all properties in county affected; use declining land value growth rate
Differential land value		annual difference in LV growth between trend and rapid growth rates
Incremental land value gain		annual incremental gain in differential LV (yr.2 - yr.1,...)
Recapturable residual		incremental LV gain less 2-rt. tax liability
2. Incr. land value gains tax	\$305.80	per \$1000 AV; reaches no more than capturable residual in any one year
<b>Bond Financing</b>		
Interest rate	6%	of principal amount
Bond financing fee	2.50%	of principal amount
Issue date	3rd year	of taxing district designation (or first year of construction)

**OUTCOMES:**

<b>LVT</b>	
Revenue from trend rate	\$ 39,387,585
Revenue from rapid-declining rate	\$ 50,660,821
Balance attributable	\$ 11,273,236
<b>Full Gains Tax</b>	
Revenue diverted from LVT	\$ 11,273,236
Revenue from LV gains tax	\$ 106,988,499
Total revenue from district	\$ 118,261,736
Supportable bond principal	\$ 109,000,000
Total debt	\$ 118,265,000
<b>Incremental Gains Tax</b>	
Revenue diverted from LVT	\$ 11,273,236
Revenue from LV gains tax	\$ 26,069,273
Total revenue from district	\$ 37,342,510
Supportable bond principal	\$ 34,000,000
Total debt	\$ 36,890,000



**GAINS TAX EFFECTS:** In addition to the general property tax, a land value gains tax would be imposed on properties within the designated transit improvement district. In practice, one could conceive of two methods of taxing land value increases. A *maximum gains tax* would capture the full amount of annual land value gain. An *incremental gains tax* would capture only the increment of value which is attributable to transit improve-

ments, that is, the difference between the 8% regional trend rate and the 14%-declining growth rate. The following procedures apply to each method:

1. The maximum gains tax targets the residual land value, that is, the difference between the full annual increase and the tax derived from the general property tax. As a fairness principle, a certain amount of gain is left untaxed, in this instance 12% of the full annual increase in land value. Subtracting this allowable return from the residual land value, what remains is recapturable residual. By setting up an iteration problem, one can calculate the land tax rate that would be required to appropriate the recapturable residual for each year. Simplified, the problem is solved by finding the single tax rate of \$582 per thousand of incremental increase in assessed land value—for all years. This rate produces a maximum land tax which is roughly equivalent to the recapturable residual. Over the 12-year period, the maximum total revenue produced in the Broadway/John district is \$107 million.

Assuming a tax allocation bond were to be issued in the amount of \$100 million, at 6% interest over a 20-year term, the total debt payment including bond financing fees would amount to \$108.5 million. Under this maximum gains tax scenario, the capital debt could be nearly retired within 12 years. If, in addition, the general LVT tax increment of \$11.3 were diverted to the taxing district (similar to the concept of tax increment financing), then total revenue from the district could support either an increase in the bond principal or an earlier debt retirement.

2. The maximum gains method may be a bit too radical for the political climate in this region. An alternative method, the incremental gains tax, would use the differential land value as previously described, less the general property tax, to calculate the recapturable residual on each parcel. In this instance, the land tax rate of \$306 per thousand is found. This yields a total of \$26 million in land value gains tax, and would support a bond principal of \$24 million - assuming the general LVT tax increment is not included - or a principal of \$34 million if the LVT increment were diverted to the taxing district.

In essence, this simulation shows that, given the anticipated rapid increase in land values attributed to transit improvements in this station area, a land value gains tax combined with a hypothecated general LVT can raise as much as \$118 million to support the necessary public improvements. At a minimum, about \$24 million could be raised from an incremental gains tax alone.

## **Conclusion**

A property tax reform adopting a differential rate would tax mainly the value created by the community at large (land values), not the capital invested by individual owners (improvement values). As a result of placing a higher tax rate on land assessments, it could become too costly to hold onto under-utilised sites. Likewise, a proportionately lower tax rate on improvement assessments would encourage owners to upgrade or replace obsolete buildings. The widespread response to the fiscal inducement to reduce

the land-to-building value ratio would lead to the development of infill sites and the upgrading of commercial districts into compact, mixed use activity centres.

As for the highly articulated public commitment to transit oriented development in this region, planners might be encouraged by the recent inclusion of LVT as a proposed financial incentive in the Metropolitan Transportation Plan update. The few national examples of successful TOD show that public investment in transit improvements does not induce development as much as shape it. Only market forces provide the necessary catalyst to create high-density transit station communities. Incentive taxation may indeed be the most effective tool for guiding and propelling these market forces. In addition, value capture applied to transit benefit districts may be viewed as the most equitable resolution to capital budget constraints.

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