BUILDING INDUSTRY ASSOCIATION: PHILADELPHIA TAX ABATEMENT ANALYSIS

Final Report Submitted to:

Building Industry Association
1735 Market Street
Philadelphia, PA 19103

Submitted by:

Econsult Corporation
3600 Market Street, 6th Floor
Philadelphia, PA 19104

June 2006

TABLE OF CONTENTS

TECHNICAL APPENDICES

LIST OF TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

In an effort to encourage real estate development, the City of Philadelphia offers extensive property tax abatements for most new construction, and significant improvements to existing buildings. The City's property tax abatement program, begun in the late 1970s (three years) and expanded in 1998 (conversions to commercial-residential rental only — ten years) and again in 2000 (all new construction or substantial rehab, sales and rental — ten years), has been credited with spurring considerable investment in the City's commercial and residential infrastructure.

As any public policy program should be, the tax abatement program is being critically examined to determine if any adjustments are warranted. Some have argued that the program be curtailed, or may no longer even be needed. Others have argued that the program is inequitable, in that it favors wealthy property owners over the less wealthy.

Our analysis of the Philadelphia housing market demonstrates that the current abatement program is highly beneficial, in both efficiency and fairness terms, to Philadelphia residents and the overall economy of the City and region, as well as to the fiscal health of the City government and the school district. Our analysis yields the following conclusions:

- We find the program has generated a wide variety of new and improved housing (condos, single family homes, rental apartments) and that these new investments have been made throughout the City.

- We find that the abatement program is responsible for generating approximately two-thirds of the residential development since 2000, representing a huge amount of investment and construction that otherwise would not have occurred in the City.

- We estimate that the incremental construction attributable to the abatement program has, and will (1997 through 2008) generate over $4 billion in additional economic activity, including over $700 million in increased earnings supporting over 16,000 jobs.

- We find that the abatement program has generated significant market spillover, creating hundreds of millions of dollars of increased property wealth for City property owners and residents.

- On the fiscal side, we forecast that over time the property tax revenue impact of the current abatement program is significantly positive: a cumulative gain from the abatement program of $285 million over 25 years (net present value = $53.4 million when discounted at a rate of 4.0%). The net benefit is even greater when non-property taxes, generated by the induced construction activity, are factored in: a cumulative gain from the abatement program of $778 million (net present value = $329 million when discounted at a rate of 4.0%). In other words, over time, the additional tax revenues generated more than compensate for the short-term tax revenues foregone.

- We find that the abatement program, if continued, will lead to an equilibrium housing market approximately 20% larger (in total square feet) than the City would have had in the absence of the program.

Finally, we conclude that reducing or eliminating the current abatement would lead to a substantial reduction in new housing production and rehab of existing structures; to begin with, current projects in the pre-construction phase would have a significantly diminished probability of coming to fruition. **Ultimately, if the current abatement program were reduced or eliminated, the City's equilibrium housing stock would be lower, and the City would generate less tax revenues than it would if it is continued. This would mean that, if the abatement program is curtailed or eliminated, the City government would have to choose between reduced expenditures and higher tax rates in order to balance future budgets.** Such a negative impact could only hurt the City's residents, with the poor being hurt disproportionately.

Our findings provide a firm basis for continuing the City's current abatement policy.

INTRODUCTION

In an effort to encourage real estate development, the City of Philadelphia has offered extensive property tax abatements for almost all new construction and significant improvements to existing buildings. The City's property tax abatement program, begun in the late 1970s (3 years) and expanded in 1998 (conversions to residential only — 10 years) and again in 2000 (all new construction or substantial rehab — 10 years), has been credited with spurring considerable investment in the City's commercial and residential infrastructure, in the latter case after decades of disinvestment.

While casual empirical observation (as well as conventional wisdom) supports the notion that the presence of the abatements is a non-trivial factor in the current property and building boom, less is known about the exact extent to which abatements have spurred construction, and have contributed to increased property valuations throughout the City. In this report, we empirically estimate and document the magnitude of the abatement's effect on the real estate market, for the purpose of informing further policy debate about the abatement's impacts on the City.

Table 1 lists the six City ordinances that define the extent and eligibility of property tax abatement:

Table 1: Philadelphia Property Tax Abatement Ordinances

Ordinance Number	BRT Exemption Code	Description
961[1]	M	10-year abatement for existing residential rehabilitation, capped at $50,400 of total value.
	1	10-year abatement for existing residential rehabilitation, uncapped.
1456	N	10-year abatement for new residential construction, uncapped.
970274	6	10-year abatement for conversion of existing buildings to commercial residential use.
1130	8	10-year abatement for either improvements or new construction of commercial, industrial or other business properties.
175	2	30-month abatement granted to developer of residential property until properties are sold or otherwise transferred.

Source: Board of Revision of Taxes (BRT)

[1] Note: Ordinance number 961 covers both exemption codes "M" and "1". This is because this ordinance was more recently amended to remove the cap on the abatement.

The tax abatement(s) offered by the City of Philadelphia are limited to the value added by improvements to the site. In the case of new construction, the abatement applies to 100% of the value of the structure. In the case of improvements to and/or conversions of existing structures, the abatement applies only to the new improvements. In both cases, the land remains fully subject to taxation, while in the case of improvements/conversions, taxes are still paid on the value of the (pre-improved) structure.

Eligibility for abatements is determined by the Board of Revision of Taxes of the City of Philadelphia (BRT). In most circumstances surrounding new construction, an applicant must file for an abatement within sixty days of the issuance of the building permit. These permits are issued by the City's Department of Licenses & Inspections (L&I). The BRT and the ordinances governing the abatement program allow abatements to be transferred from owner to owner during the entire 10-year abatement period (i.e. the abatements run with the land itself).

These programs have proved enormously popular, as new development has sprung up around the City at a rate not seen since the City's last real estate building boom of the late 1980s. Notably, most of these new developments prominently promote the presence of this abatement in their advertising and marketing materials. There are currently over 3,000 properties in the City with some official, BRT-classified form of abatement; including new condominium high-rises and neighborhood residential development. There are also thousands of additional housing units under construction (or approved for development) that have either not yet applied for tax abatement but will, or are in the BRT pipeline awaiting values, so they do not yet appear on BRT records. Despite recent concern about a slowdown in the national housing market, property development in the City remains robust, with many projects, both new construction and renovation, on the drawing boards.

As with any public initiative, it is healthy to periodically review the performance of this incentive program, to assess whether it has achieved its objectives, and to determine whether it should be continued, modified or scrapped. Such a review is currently underway in Philadelphia. While most agree the program has been successful to date, and only a few have suggested that the current abatement program be scrapped, some have suggested that the program should be modified in a variety of ways.

Three basic arguments have been made for eliminating or modifying the abatement program:

(1) The extent of the subsidy may be excessive relative to what is necessary to induce additional supply given the current (improved) market conditions,

(2) The abatements are unfair, in that owners of similar properties may pay different taxes, and,

(3) The abatement program benefits only the rich, and does not help lower and moderate-income households.

As a result, some have proposed different adjustments or modifications, each effectively reducing the current market value of the subsidies. How the market might react to any changes is a concern to many.

We believe that these arguments are in error because they are based on misunderstandings and incorrect premises regarding several issues, which are listed here along with the sections of the report in which they are addressed:

(1) How urban housing real estate markets work, in general and in Philadelphia, including the nature of cyclical vs. structural changes in investment cycles (See Section A),

(2) Philadelphia's experience with abatement to date (See Section B),

(3) How tax abatement works and influences the production of housing (See Sections C, D, E, and F),

(4) Who "pays" for the abatements and who benefits, including the importance of wealth creation and property tax impacts, especially for poorer City residents (See Sections G and H),

(5) The potential net fiscal impacts of abatements (See Sections I and J).

Our analysis of the Philadelphia housing market demonstrates that the current abatement program is highly beneficial, in both efficiency and fairness terms, to Philadelphia residents and the overall economy of the City and region, as well as to the fiscal health of the City government and the school district. We find that the abatement program is responsible for approximately two-thirds of the residential development since 2000, and has generated hundreds of millions of dollars of new property wealth for City residents. Furthermore, we conclude that the net fiscal impact of the current abatement is significantly positive, especially so when non-property taxes generated by the induced construction are considered.

We also conclude that reducing or eliminating the current abatement would lead to substantial reduction in new housing production and rehab of existing structures. If the current abatement program were reduced or eliminated, the City would generate less tax revenues than if it is continued. This would mean that, to balance future budgets the City government would have to choose between reduced expenditures and higher tax rates. Such a negative impact could only hurt the City's residents, with the poor being hurt disproportionately. Our findings provide a firm basis for continuing the City's current abatement policy.

This report presents a series of analyses, which taken together, provide a thorough assessment of the impacts of the abatement, and the potential impacts associated with any type of curtailment of the current abatement program. Most of the analysis focuses on the residential real estate market because this has been the most dynamic sector of the City's real estate market. To set the stage for the discussion of impacts of the abatement, we begin with three commentaries that are the key underlying mechanics of abatement policy.

A. HOUSING MARKET OVERVIEW

A.1 How Housing Markets Work: The Supply and Demand for Housing

We start with a brief overview of how urban housing markets work. Houses are produced at a location if demand for locating there is sufficient to support a price at which housing producers can earn a competitive rate of return, relative to other investment options (both residential and non-residential). Otherwise, no housing investment (new or renovation) will occur. Note that, as with any production, it is NOT accurate to assert that if *any* profits can be made there will be supply. Supply will be forthcoming only if expected profits exceed the expected profits of the other investment options.

Housing markets are peculiar (and important) due to certain characteristics of the product: the house itself and the housing services it provides to the resident(s). Clearly, housing is something we all need, and it represents a huge portion of our expenditures. In fact, few of us can purchase a home outright, and as a result, housing finance is one of the biggest and most important components of the capital markets. Since we essentially arrange to pay for our house as we consume the housing services (via a mortgage), market interest rates play a key role (see next section).

Housing is also heterogeneous, in that it can differ in quality and size, and since it is typically fixed on the land (non-mobile homes), the attributes or the surrounding neighborhood are inextricably linked to the quality of, and hence the attractiveness of and the demand for the house. Importantly, some of the neighborhood characteristics include the government services and taxes associated with the jurisdiction(s) in which the house is located. All of these characteristics lead to some housing being more attractive than other housing, and this is reflected in housing demand, and the market price.

Our preferences for, and ability to pay for, different housing services change over time and over different household conditions. At the same time, as we consume housing, we "use it up," i.e. it deteriorates. Combined with the fact that housing technology advances continually, any existing stock of housing deteriorates over time. Deterioration can be offset by additional capital investment in repairs, upgrades, etc. Over time, without new investment, the worst of the lot becomes unfit for human habitation, is abandoned, and is no longer part of the housing supply.

This dynamic leads to a process called filtering, whereby people move UP in housing stock by purchasing used housing from people who have moved UP from those houses. Since the housing stays in the same place, we have neighborhoods "changing" as housing, deteriorating in quality, moves DOWN the income ladder (lower quality houses don't MOVE to a poor neighborhood). Therefore, the ability of ANY income group to purchase higher quality housing depends upon the aggregate supply of housing AND the continuous introduction of higher quality houses to the jurisdiction, either via new construction or via rehabilitation. An increase in the overall supply of housing, especially in a market that has seen little or no new production in decades, must help those who, for various reasons (including income), have their housing choices constrained.

Finally, we both consume housing services and invest (save) in housing assets. This combination makes the housing market fundamentally different than commodity markets and from standard financial investment/capital markets. Evidence suggests that as incomes grow, people want to consume "more" (size and quality) housing services. For decades, higher quality housing product has been supplied mostly in suburban areas.

A.2 Macro Conditions in the Housing Markets Today

Riding an incredible boom over the past several years, the housing market is one of the most closely watched (and highly speculated upon) markets in the United States today. For years, many observers have forecasted the imminent collapse of the housing market -- "bursting the bubble". They have cited reasons such as an expected upturn in mortgage interest rates, frenzied speculation pushing prices up to unsustainable levels, and a resurgence of the stock market that will siphon off capital from the real estate sector. Every day, we see some forecasts of the national housing market "bubble" bursting, or more commonly, predictions that certain specific housing markets are overbuilt and will crash. The February 2006 national new housing sales numbers, indicating a 10.5% decline from January,[2] are seen by many as the first step of this impending crash.

In the short run, market imbalances (excess demand or excess supply) are common. It is rare that conditions will exist for the demand and supply to remain in perfect equilibrium, as factors influencing demand and supply are always changing.

Nationally, demand and supply fundamentals, as well as expectations about future housing supply and demand, determine current housing prices. House prices appreciate when growth in demand exceeds supply, or when market participants believe that future demand will exceed supply. Local market conditions vary significantly, but still are determined by the same supply and demand factors characterizing the local area.

The key demand factors are population and household growth rates (influencing quantity of units), and income (influencing quality of units). Both of these factors are growing and will continue to grow. Since the ability of a housing developer to earn a sufficient profit on building the house determines the supply of raw housing, key supply factors are those that determine the production costs of housing. Some of these cost factors are national (material costs such as steel and concrete and capital costs) and some are local (land, site prep and labor costs, taxes and regulatory restrictions). All of these are influenced by supply and demand in their respective markets, and some of these can be further influenced by local regulations or other market restrictions (which manifest themselves via changes in supply or demand).

[2] U.S. Census Bureau and HUD, Joint Release, March 24, 2006:

> NEW RESIDENTIAL SALES IN FEBRUARY 2006
>
> Sales of new one-family houses in February 2006 were at a seasonally adjusted annual rate of 1,080,000, according to estimates released jointly today by the U.S. Census Bureau and the Department of Housing and Urban Development. This is 10.5 percent (±12.4%)* below the revised January rate of 1,207,000 and is 13.4 percent (±12.5%) below the February 2005 estimate of 1,247,000.

Local experts continue to debate whether Philadelphia "can support all of the new and proposed condos," reflecting different opinions not only on current supply and demand conditions but also the anticipated growth in demand into the future.

A.3. Philadelphia's Housing Market: A Recent History

Philadelphia's housing market has, until recently, been characterized as a mature market with net disinvestments leading to a declining aggregate stock of housing, both in number and quality of units. The bottom line has been that it has not been profitable for the better part of five decades to build homes inside the City limits. After a brief increase in new housing construction and reinvestment in the 1980s (during the national real estate bubble of the middle 1980s), most of the new housing developed in the City during the 1990s was government subsidized.

As a result, the quality and quantity of the City's housing infrastructure declined almost every year for nearly half a century. On the quantity side, the City's housing stock declined as annual housing abandonment outpaced new construction for most of that period. On the quality side, the City's housing stock is smaller, older and less energy efficient than housing found in the suburbs. This older stock also means the residential infrastructure is more technically obsolete than in other parts of the metro area (a common story for older central cities). This directly influences demand, as people's preferences have evolved to include more advanced and efficient housing technologies.

Well documented is the fact that construction costs in Philadelphia are significantly higher than those in the surrounding suburbs. These higher costs have led to lower supply of new or improved housing in Philadelphia than would have occurred if the production costs were more in line with the regional averages.

One result of this disinvestment phenomenon was the change in the 1990s of the City's historically high level of home ownership, as described in a recent Brookings report:

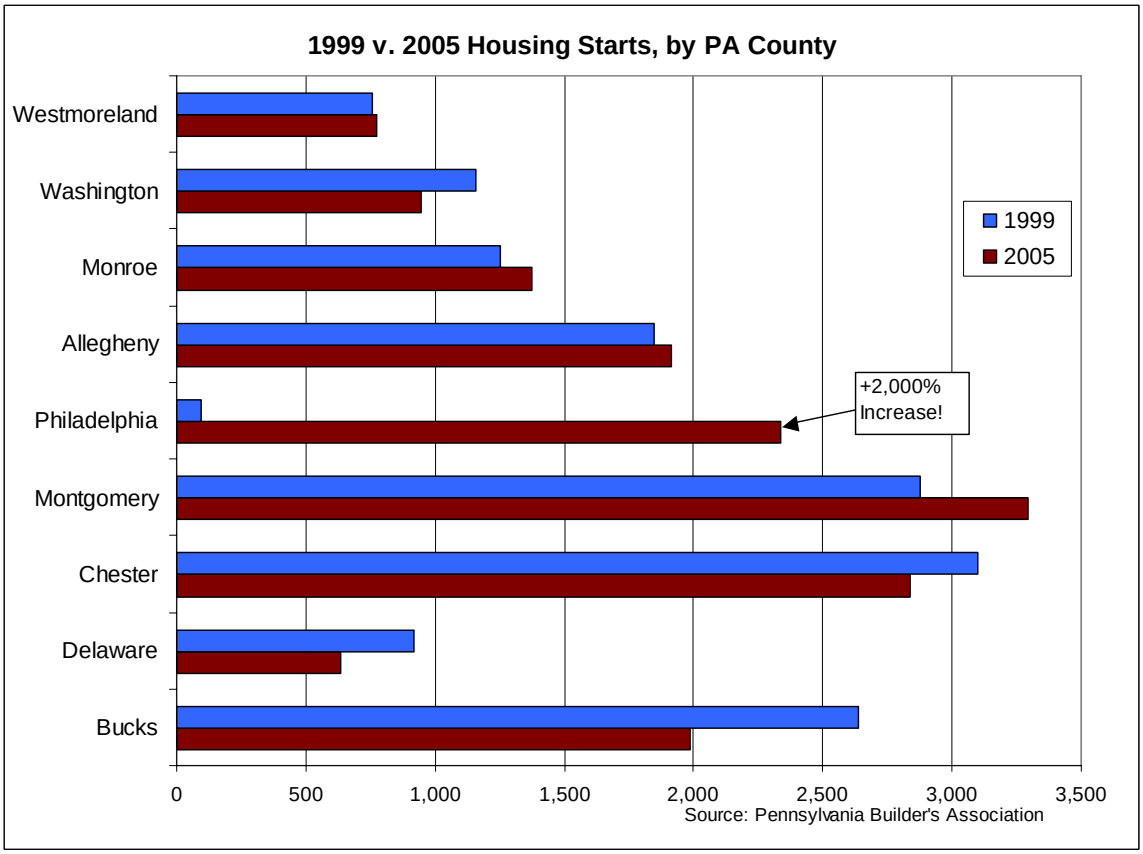
> **Philadelphia remains a high-homeownership city, although the rate declined significantly over the decade.** Nearly 60 percent of Philadelphia households owned their own homes in 2000, the second-highest rate among the Living Cities. Yet, this rate dropped considerably during the 1990s, in contrast to the trend of rising homeownership in cities and the nation over the decade. The weak housing market in many inner-city Philadelphia neighborhoods may also have limited the economic benefits of homeownership. And while rent prices in Philadelphia actually declined over the decade, 100,000 Philadelphia renters have incomes low enough that they pay more than 30 percent of their income on housing. [3]

[3] From a November 2003 Brookings report on Philadelphia based on 1990-2000 Census trends:
(http://www.brookings.edu/es/urban/livingcities/Philadelphia.htm)

As noted above, this pattern of disinvestment was interrupted briefly in the mid-1980s, but for the most part only in certain parts of the City, and mostly applying to single family residences, or townhouses. Only a handful of multi-unit residential towers were built during that period, and those were mostly rental projects.[4]

This pattern began to change in the late 1990's, corresponding to the ten-year tax abatement for conversions to apartments. This activity has been credited with reviving the Center City residential market, and spawning the increased demand for housing, first in Center City, and then throughout the City. Over the last seven years, there has been a significant increase in housing investment in Philadelphia. Figure A.1 below shows the rates of housing starts in Philadelphia compared to selected Pittsburgh and Philadelphia metro area counties in Pennsylvania.

Figure A.1



The striking feature of Figure A.1 is the dramatic increase in housing starts from 1999 to 2005 for Philadelphia, compared to the relative stability of starts in the four suburban counties, as well as

[4] The biggest impact of the 1980's real estate boom was the significant transformation of Center City's commercial office market.

Pennsylvania's other major urban county (Allegheny). Selected counties outside of the Philadelphia and Pittsburgh areas also displayed relatively stable starts from 1999 to 2005, in contrast to Philadelphia.

Also important is another change in the pattern of housing investment in Philadelphia: the increased reinvestment in existing residential structures. This reinvestment improves the quality of the aggregate housing stock, by extending the useful lifetime of the buildings, and it increases the long-term quantity of housing too.[5] In addition, the upgrading of the existing housing stock, combined with new production, allows Philadelphia to benefit from its rich and historic variety of housing options. A key question, then, is the extent to which the property tax abatement program is responsible for this recent investment.

[5] Some of the reinvestment is captured by abatement data, but a large portion of smaller property upgrades are not measured by any city statistics.

B. PATTERNS OF ABATEMENT ACTIVITY IN PHILADELPHIA

In this section of the report, we describe the patterns of use of the tax abatement in Philadelphia. The BRT maintains data that allow the identification of all abated properties and their characteristics. These data allow us to identify the extent to which abatements have been used, the purpose of the abatement including new construction, conversion and renovation, property type that is abated, total amount of tax revenue abated, and the geographic distribution of the abatement.

It is important to note that many projects that are currently under construction, but have either not applied for abatement or their applications are still in the pipeline, are not yet listed as abated properties, even though they certainly will enter the rolls as abated properties, once they are completed. Thus, the BRT data only captures abatements of properties that have been approved, not those that have merely applied for abatement. For example, the BRT data for March 2006 do not include abatements associated with large-scale residential projects under construction, including but not limited to:

New construction

- **Symphony House**
- **Murano**
- **1919 Market**
- **Waterfront Square**
- **Liberties Walk**
- **Western Union Building**
- **23 Condominium**
- **1532 Lofts**
- **Edgewater**
- **Tivoli**
- **Marina View**
- **Naval Square**
- **22 Front**
- **101 Walnut**
- **The Pearl**

Significant renovation

- **2200 Arch**
- **Lewis Tower (Aria)**
- **Ayer**
- **Lofts at Bella Vista**
- **Kennedy Skills Center**
- **School District of Philadelphia headquarters**

Likewise, it does not include hundreds of smaller-scale and single-residential developments under construction in neighborhoods throughout the City. Nor does it include, on the commercial side, One Pennsylvania Plaza, or retail centers under construction. Finally, the data do not include projects that have obtained approvals but have not yet begun construction. We have therefore augmented the BRT data with estimates of units and values for major projects under construction.

B.1 Use of Abatements by Purpose and Property Type

Table B.1 displays the number of properties by purpose and property type that have been granted property tax abatements, as provided by BRT through March 2006. As noted above, the figures in Table B.1 *do not* include properties currently under construction that have not yet applied for abatement.

Table B.1: Properties With Abatements by Purpose and Property Type

Abatement Type	Property Type	Number of Projects	Square Footage (1000s)	Property Market Value ($000)
New Construction	Single-Family Home	1,554	1,847	$453,645
	Condos	200	308	$56,786
	Hotels/Apts	6	7	$1,041
	Commercial	3	2	$1,206
	Industrial	0	0	$0
	Subtotal	1,763	2,164	$512,678
Improvements and Conversions	Single-Family Home	420	746	$78,350
	Condos	730	756	$130,639
	Hotels/Apts	205	7,869	$790,961
	Commercial	190	3,939	$521,432
	Industrial	50	2,003	$112,289
	Subtotal	1,595	15,313	$1,633,670
Total		3,358	17,477	$2,146,348

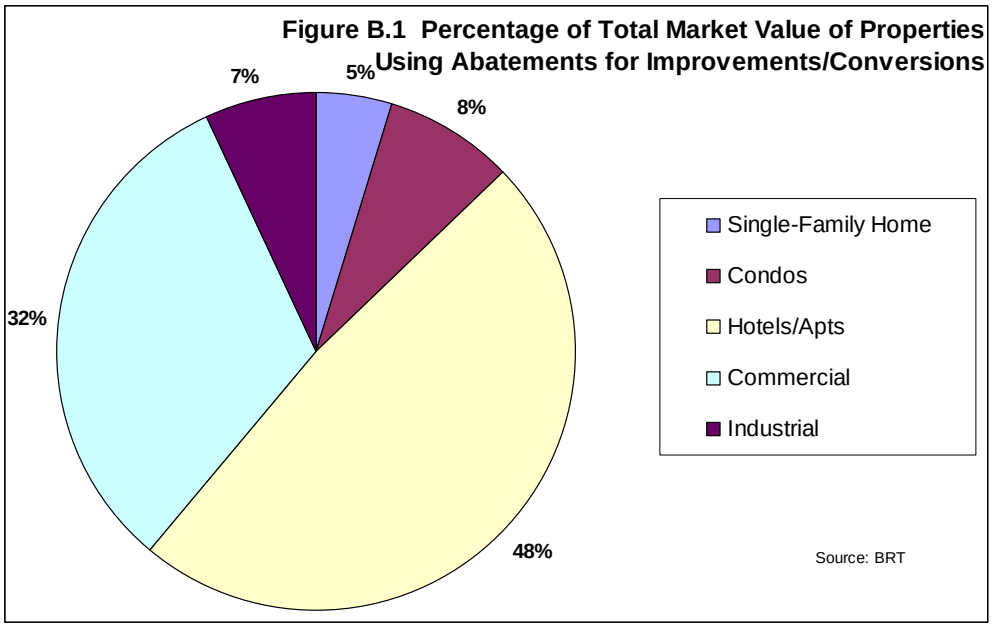
Source: Board of Revision of Taxes (BRT)

As of March 2006, 3,358 properties in Philadelphia had current property tax abatements.[6] The total market value of these projects is over $2.1 billion. In terms of number of projects, the largest numbers of abatements have been for new construction, but, in terms of either square footage or market value, improvements and conversions are much larger.

[6] This figure does not include any of BRT's "under construction" abatements that are limited term abatements sometimes used during construction. They do not reflect the overall construction activity because many developers do not seek the short-term abatement.

Focusing on improvements and conversions, the most common use of abatements is condominiums with 730 projects. This figure is somewhat misleading because each condo is viewed as a project, whereas a hotel or apartment building will be considered one project, but have many units. In terms of either square footage or market value, by far the greatest use of abatements has been for hotels and apartments.[7] Nearly half of the total market value of properties using abatements for improvement and conversion is in hotels and apartments (Figure B.1).

Figure B.1



Source: Board of Revision of Taxes (BRT)

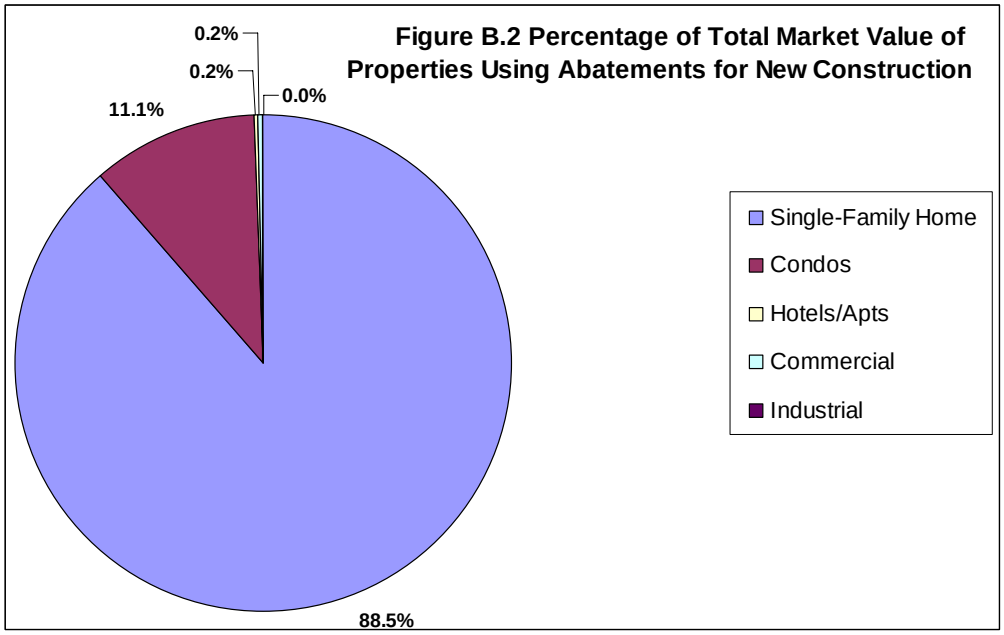
The next largest property types using abatements for improvements and conversions are commercial and industrial properties. These properties comprise nearly 39% of the market value of properties receiving conversion abatements. Although large in number, single-family dwellings and condos using abatements for improvements and conversions account for only about 13% of the total value of property receiving abatements. Note that for improvements and conversion, property market value does not equal the amount abated, since only net new value is abated.

In the new construction category, single family home construction is by far the dominant use for the abatements — receiving over 85% of all new construction abatements, whether measured in terms of

[7] The BRT data do not allow us to separate hotels and apartments, but we know that the majority of these abatements are apartments, as the hotel conversions of the mid-to-late 1990s typically received direct public subsidies.

number of projects, square footage, or market value. (Figure B.2 below shows the distribution of abatements by property type based on market value.)

Figure B.2

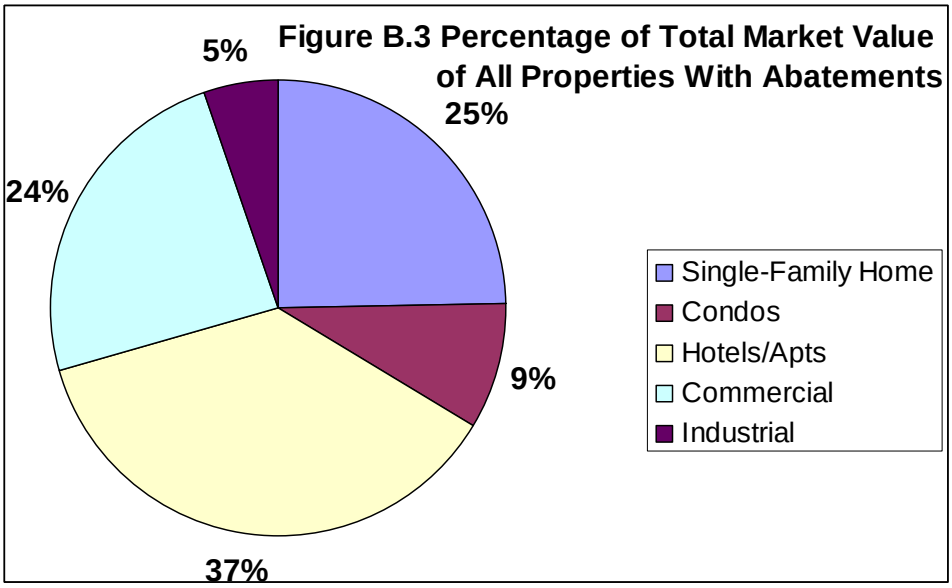


Source: Board of Revision of Taxes (BRT)

This may be surprising to some, given the high profile of new condominium construction in the City. So far, new condominium construction totals only 200 units or about 11% of all new construction abatements.

Including both new construction and improvements/conversions, over 73% of the market value of projects receiving abatements were for residential uses: 25% for single family, 9% for condominium, and 37% for hotel/apartment units (Figure B.3 below).

Figure B.3



Source: Board of Revision of Taxes (BRT)

B.2 Tax Revenue Foregone (to-Date) Due to Abatements

Table B.2 shows the property market value, the abated value, hypothetical annual property tax revenue without the abatement, annual tax revenue with the abatement, and foregone annual tax revenue for each use and property type. Before examining tax revenues foregone as a result of the abatement, it is useful to examine the aggregate net new investment associated with the abatement, which is shown in column 3 of Table B.2. First note that for new construction, the abated value is about 78% ($400,659/$512,678) of total property value, implying 22% of property value is unabated land value. For improvements and conversions, the abated value is a smaller fraction of total value, roughly 33%. The percent abated is smaller because the unabated component includes land and previously existing structures.

Table B.2: Tax Revenue Analysis of Properties With Abatements

Abatement Type/Property Type	Property Market Value (1000s)	Abated Value Added (1000s)	Tax Revenue without Abatement (1000s)	Tax Revenue With Abatement (100s)	Foregone Tax Revenue (1000s)
New Construction					
Single-Family Home	$453,645	$389,166	$8,398	$1,194	$7,204
Condos	$56,786	$10,361	$1,051	$92	$959
Hotels/Apts.	$1,041	$185	$19	$2	$17
Commercial	$1,206	$947	$22	$5	$18
Industrial	$0	$0	$0	$0	$0
Subtotal	$512,678	$400,659	$9,490	$1,293	$8,198
Improvements and Conversions					
Single-Family Home	$78,350	$39,770	$1,450	$714	$736
Condos	$130,639	$19,096	$2,418	$651	$1,767
Hotels/Apts.	$790,961	$100,285	$14,642	$5,360	$9,282
Commercial	$521,432	$315,815	$9,652	$3,806	$5,846
Industrial	$112,289	$73,438	$2,079	$719	$1,359
Subtotal	$1,633,670	$548,404	$30,241	$11,250	$18,991
Total	$2,146,348	$949,063	$39,732	$12,543	$27,189

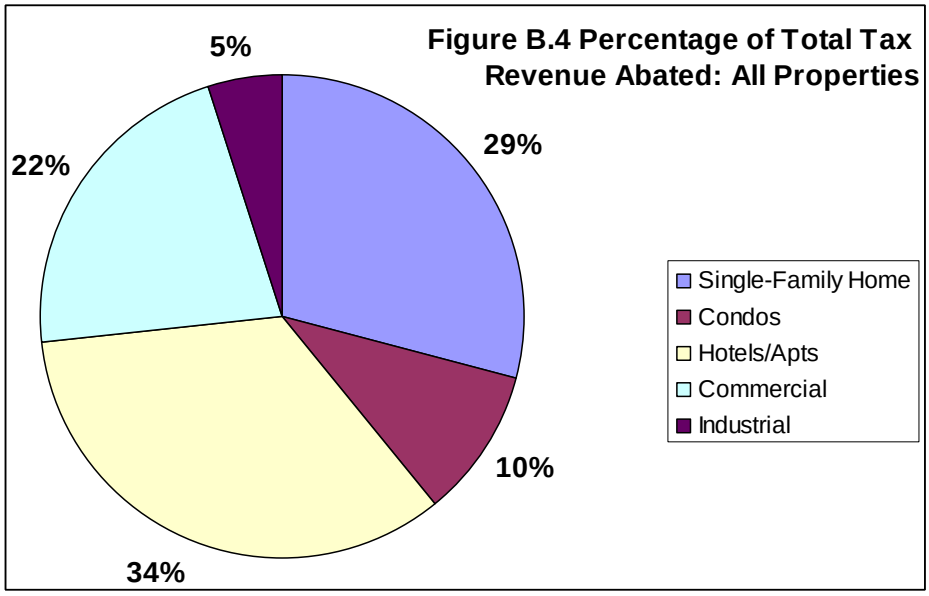
Source: Board of Revision of Taxes (BRT)

Columns 4 and 5 of Table B.2 show the property taxes that would prevail without and with the abatement, respectively. Column 6 contains the differences between columns 4 and 5 and represents the foregone tax revenue associated with the abatement *assuming that all of the investment would have occurred without the abatement.* The abated taxes on the new investment total $27.1 million for the tax year 2005. Over two thirds are for improvements to and conversions of existing structures.

The primary residential uses of the abatements in these years have been for single-family homes and hotel/apartments. Only 10%, or $2.7 million, of the total abated tax revenue during the period has been for condominium construction. Figure B.4 shows the breakdown of foregone revenue by property type (combining improvements and new construction). This is perhaps a surprising result to some, because high-rise condo towers have been the most high-profile new developments taking advantage of tax abatements in Philadelphia. But timing is important here; we know the condo developments have been a more recent phenomenon, and most of the high profile projects under construction have not yet been granted official tax abatements, and are therefore not currently included in these figures.

These numbers suggest that the abatement program has been far more extensive, both geographically and by type of real estate product, than its critics or opponents might assert. According to these numbers, it is not only developers of new, downtown high-rise condominiums that benefit from this program; property owners of all types throughout the city have taken advantage of the tax abatement and have invested significant capital into the city's housing and commercial infrastructure

Figure B.4

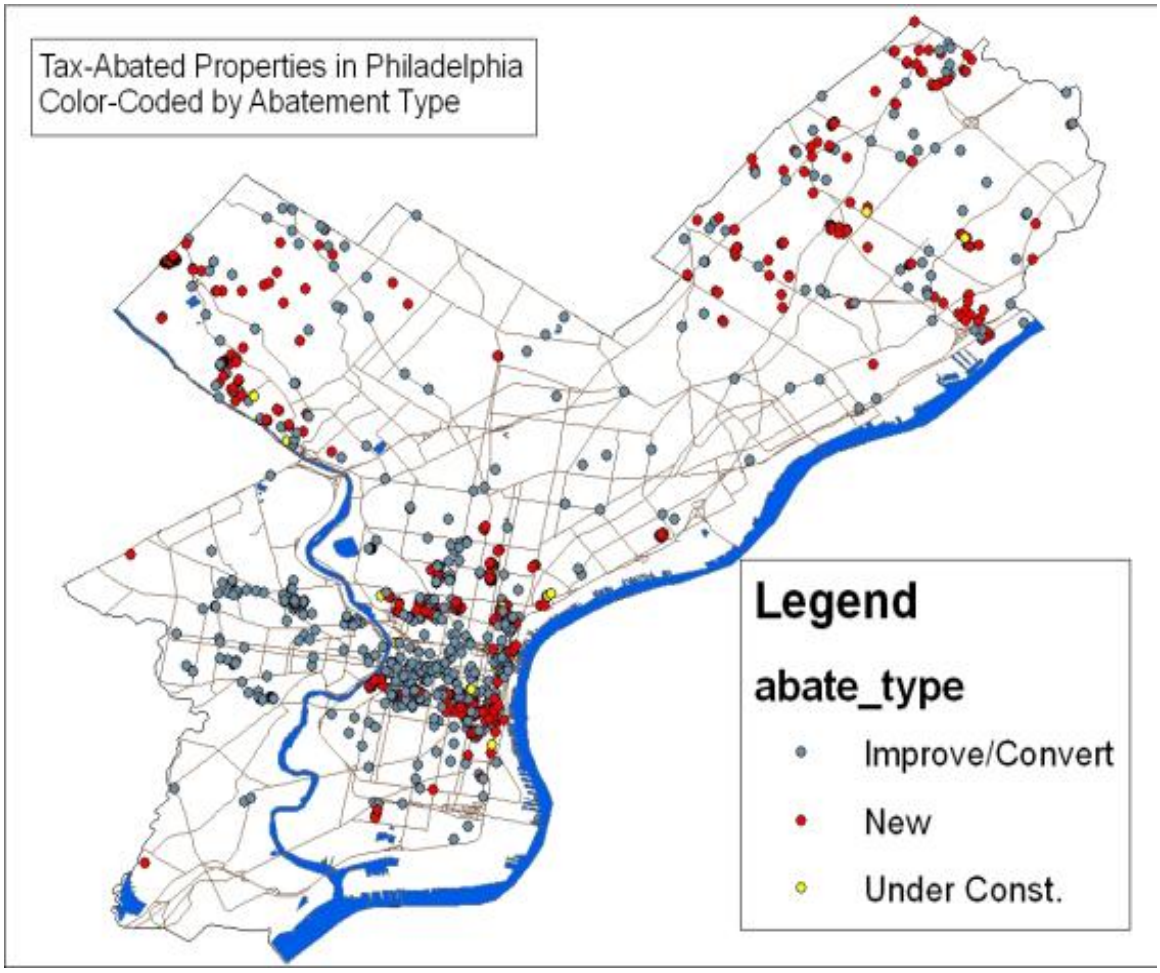


Source: Board of Revision of Taxes (BRT)

B.3 Geographic Distribution of Property Tax Abatements

To further examine how true this diversity of use may or may not be, each abated property was geo-coded according to its street address (i.e., assigned a unique latitude and longitude). The following maps show the location of abated properties in Philadelphia; Figure B.5 is color-coded by abatement classification, and Figure B.6 is color-coded by their property type classification:

Figure B.5

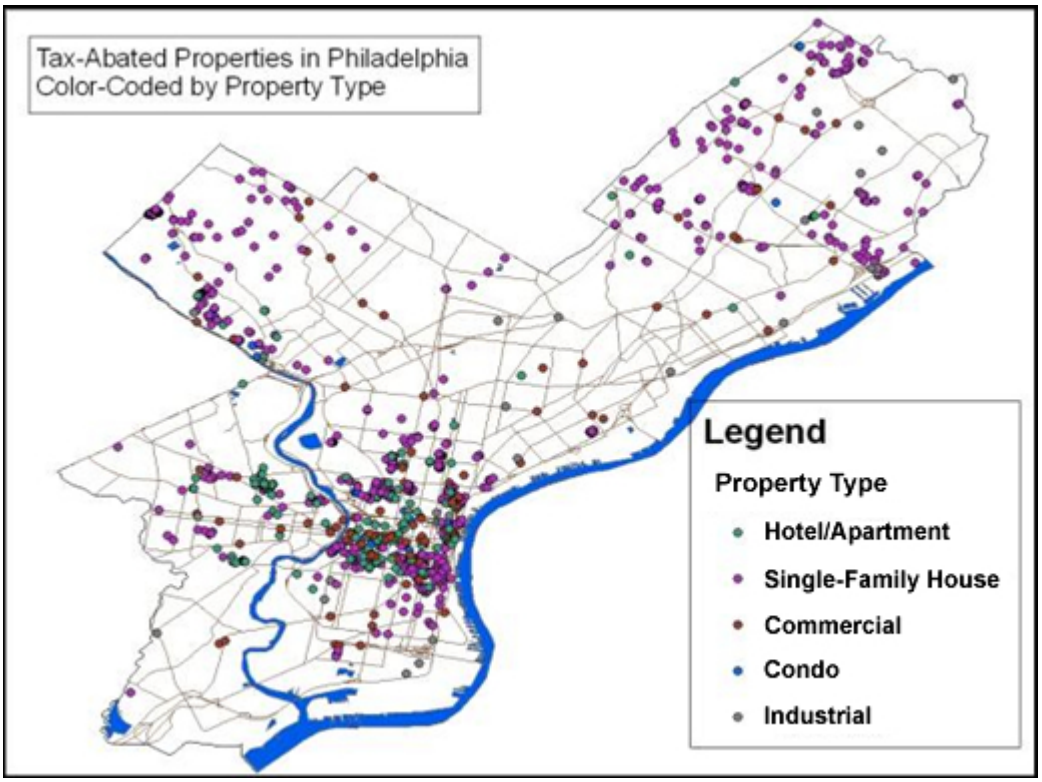


Source: Board of Revision of Taxes (BRT)

Although the greatest clustering of abated properties is in Center City and its adjoining environs, this is also the area of the City with the greatest density of ***all*** property.[8] There are significant numbers of abated properties in northeast, northwest, south, west and even north Philadelphia. The latter two have less new construction than the others, but even northeast and northwest Philadelphia have significant percentages of new construction abatements.

[8] While we do not have the geographic distribution of the units currently under construction, anecdotal evidence suggests the distribution of current construction throughout the city should not be significantly different.

Figure B.6



Source: Board of Revision of Taxes (BRT)

As this map indicates, properties with abatements are overwhelmingly concentrated in the residential sector: homes, apartments and condominiums. Within this sector, however, there does not appear to be any visually self-evident geographic bias. That is, the bias of abatements towards residential properties seems consistent across all areas of the City, and the intra-residential composition of different types of residences also appears essentially uniform across City neighborhoods.

However, if this map were scaled by the square footage of properties, a significantly different picture would result. As Table B.1 indicates, although single-family homes and condos compose the overwhelming majority of "new construction" abatements (measured as both number of properties and square footage), they are the clear minority of "improvement/conversion" abatements, when measured as the percent of total square footage of abated properties. That is, the percent of abated square footage in the "improved/converted" category belonging to single-family residences (SFRs) and condos is quite small; the majority goes to hotels, apartments, and commercial and industrial properties.

However, these results again strongly counter the notion that well-connected downtown condo developers are the primary (much less sole) beneficiaries of the City's tax abatement program.

B.4 Future Abatements: The Construction Pipeline

As noted above, the BRT data only includes properties that have officially been certified for abatements, and this is typically only done once the property is put into service (or back into service). BRT also has a sizeable list of projects pending approval, which could include recently completed projects, projects under construction and projects not yet underway.

> BRT notes, as of March 2006: currently pending in the BRT system, but not yet approved, are approximately 2,650 abatement applications. These applications consist of 957 new residential construction applications, 536 Commercial, Industrial and other Business Property applications, 1,037 existing residential rehabilitation applications, and 119 State Act Applications for developers of residential properties.[9]

Based on various sources of information, we further estimate that at least 3,000 residential units are currently beginning or are under construction throughout the City, representing new abatements in the 2006-2008 period. If we conservatively assume an average market value of $450,000 per unit, this represents another $1.35 billion of market value in the construction pipeline. In addition, we conservatively assume an additional 2000 units (2/3 of the new construction number) residential conversion projects are beginning or under construction, with average market values of $300,000. This represents another $600 million of new aggregate market value in the City.

On the commercial industrial side, we note BRT's figure of 536 commercial applications pending. Abated non-residential properties to date have averaged 25,000SF, with BRT market value of $134/SF.[10] If we conservatively assume these averages would be 20,000SF and $100/SF for new projects, we have approximately $1.1 billion of construction in the pipeline:

- 536 applications x 20,000SF x $100/SF = $1.1 Billion

[9] Provided by BRT.

[10] There is significant variation around these averages, but we have no information to suggest using higher or lower averages for the forecasts.

C. TAX ABATEMENTS AND HOUSING INVESTMENT DECISIONS

As noted above, there are six City ordinances that currently define the extent and eligibility of property tax abatement in Philadelphia:

Table C.1: Philadelphia Property Tax Abatement Ordinances

Ordinance Number	BRT Exemption Code	Description
961[11]	M	10-year abatement for existing residential rehabilitation, capped at $50,400 of total value.
	1	10-year abatement for existing residential rehabilitation, uncapped.
1456	N	10-year abatement for new residential construction, uncapped.
970274	6	10-year abatement for conversion of existing buildings to commercial residential use.
1130	8	10-year abatement for either improvements or new construction of commercial, industrial or other business properties.
175	2	30-month abatement granted to developer of residential property until properties are sold or otherwise transferred.

Source: Board of Revision of Taxes (BRT)

In the two subsections that follow, we discuss the implications of the tax abatement program for housing investment decisions. In particular, we examine how the tax abatement program is likely to affect the financial pro-formas used by developers in evaluating projects.

C.1 Pro Forma Analysis of the Effect of the Abatement on New Housing Construction

How does the tax abatement influence demand and supply? A simple residential development pro forma illustrates the mechanism whereby the tax abatement induces housing (or other building) production by increasing the return on investment relative to what it would be without the abatement.

In the simplest case, tax abatement alters a residential rental development pro forma by reducing above-the-line expenses (for the period the abatement is in effect), thereby increasing the bottom line operating

[11] Note: Ordinance number 961 covers both exemption codes "M" and "1". This is because this ordinance was more recently amended to remove the cap on the abatement.

income. This increase in operating income means the projected operations can support additional equity or debt, and thus the return to any level of investment is higher than it otherwise would be.[12]

As an example, consider two very simplified hypothetical pro-formas for a $6,000,000 project. In both pro-formas:

- Current property value is $4,000,000; $3,000,000 of which is the value of the land
- $6,000,000 is invested
- Initial Rental income is $1,500,000
- Initial Non-tax operating expenses are $600,000
- Depreciation is straight-line over 20 years
- Market value, rental income, and operating expenses increase 3% per year
- The property is taxed according to the City's statutory fractional assessment formula:
    - $ tax bill=(Property Value)*0.7*0.32*0.08264
- The property's initial total value is $4,000,000; thus, its tax bill should be:
    - $4,000,000*0.7*0.32*0.08264=$74,045.

Note that the abatement program increases the annual return on investment in the first 10 years by 1.6 to 1.9 percentage points. Beginning in Year 11 and continuing thereafter, the annual return is the same with or without the program because the abatement (if any) ends in Year 11.

That increased return could lead to a larger or higher quality housing unit being produced, or it could also be the amount necessary to induce the investment at all. In this latter case, the investment (production) would be solely due to the abatement. Note, however, that in either case, *more* housing is produced, because investors would increase their investments until the increased supply would reduce profitability of investments back to its pre-abatement level.[13] In the case of for- sale housing (whether multi-unit condo or single family homes), the basic math works the same way, but the increased value created by the abatement is generated by potential buyers willing to pay more for the house.

It is important to note that the overall tax abatement impact is the sum of impacts from three separate but related channels. Each essentially turns a housing production project investment with an insufficient rate of return (hence NO new building investment) into one with a positive rate of return (potential for investment).

[12] Note that lower mortgage rates have this same effect, which is why they stimulate the overall housing market, but that effect is considered the same across various housing submarkets. Abatements, by their nature, apply to only some geographically determined subset of housing units.

[13] Excess returns to investment generate additional investment and the increase in supply drives the returns down to equilibrium levels. This is because competition among suppliers would lead to higher quality units being offered and downward pricing pressure.

First, by reducing what would otherwise be part of the all-in "price" of a house, the abatement essentially lowers the overall "price" of housing services, and hence raises the price that a consumer is willing to pay to the supplier/owner for the new or renovated home. This increases the developer's return on investment for that particular property. *(This is reflected by a movement downward along the current housing market demand curve.)*

Second, by inducing additional investment in neighborhoods, the abatement may have spillover effects that make the neighborhood more attractive, hence raising demand for housing (abated and non-abated alike) in the neighborhood. *(This is reflected by a rightward shift of the housing demand curve due to increased preferences for city housing.)*

These first two channels tend to increase the value of housing. A third channel works in the opposite direction. Because the abatement makes housing more profitable for developers by raising the price of abated units, the abatement also increases the overall supply of housing, which in turn, tends to make unabated housing more affordable. *(This is reflected by a rightward shift of the supply curve in the market.)*

However, the increase in demand leads to an increase in both quantity of units and the price of units. If supply is constrained, the impact will be mostly via an increase in prices. The first indication of an increase in demand is an increase in the price of developable land.

C.2 Pro Forma Analysis of the Effect of the Abatement on Renovation/Reinvestment in the Existing Housing Stock

Likewise, the ten-year tax abatement program, following on the ten-year abatement for conversion program, has led to a tremendous increase in the amount of reinvestment in existing housing stock, upgrading its quality significantly. This is very important to the City since the vast majority of the City's existing housing stock of over 400,000 units is far older and of much lower quality than exists elsewhere in the metropolitan area. Since the housing stock's attractiveness is a direct function of its quality at any given point in time, rehabilitation and upgrading is crucially important.

The investment decision-making process for reinvestment in existing structures is essentially the same as for new construction, whether the rehabbing is for sale by a developer or for increased consumption of an existing homeowner. Both involve deciding whether the risk-adjusted return on investment is sufficient to induce the capital reinvestment. This can be a little more intangible for a current resident, since some of that return can be in the form of higher valued (personal) consumption of the housing services.

We have modeled this development decision-making process as the first step to looking at the impact of the tax abatements. Detailed in the Technical Appendix is a model of the real estate market that incorporates the presence of the abatement.

D. IMPACTS OF THE ABATEMENT ON HOUSING PRICES

A key driver in the pro formas discussed in Section B is the price of property. In particular, tax abatements induce additional construction because they increase the market price of real property.

There is a large body of research literature on the extent to which property taxes affect property values. The consensus research finding is that one hundred percent of property taxes is "capitalized" into land values. That is, holding services constant, if taxes on a property are increased, the value of a property falls by an amount equal to the present value of the increase in taxes.

In our analysis, we have examined data on all residential sales transactions in the City of Philadelphia over the last nine years. We use standard econometric techniques to estimate the extent of capitalization of abatements into house prices.

D.1 Econometric Model

To measure the degree to which tax abatements are capitalized into the value of abated properties in Philadelphia, we estimated a "hedonic" pricing equation using all "arms-length" home and condo[14] sales in Philadelphia from 1997 to 2005.[15] In the econometric model that we use to estimate the impacts tax abatements have on house prices, we attempt to control statistically for differences in property location and characteristics so that the differential impacts of abatements can be measured. The particular econometric model that is used is a regression of the natural log of house price on a vector of control variables, plus the abatement, tax, and density variables of interest.[16]

We created the following variables that allow us to measure the impact of property taxes and abatements on the price of houses in the City:

[14] Non-residential properties were not included in the sample because they rarely transact with sufficient frequency or under arms-length conditions to make these observations utilizable. In addition, the income or replacement cost approaches—rather than the sales comparables approach implicit in a hedonic regression—are generally considered the more appropriate approach for valuing non-residential properties.

[15] See the Technical Appendix for a complete discussion of the hedonic estimation methodology.

[16] The control variables include the dwelling's tangible attributes (e.g. physical condition, presence of a garage or central air, type of exterior, condo or noncondo, square feet divided by lot area, etc.), its locational attributes (distance to CBD, corner location, geographic submarket), year and quarter of sale, number of years since its last sale, and season of the year. At nearly 80 variables, this vector of control variables is quite extensive, and it represents our best attempt to effectively control for all other factors that affect a property's value so that the true effect of the presence of a tax abatement is effectively identified and measured.

$$\text{Time left on "Imp./Conv." Abatement} = \begin{cases} \#\text{ of years left on the abatement,} \\ \text{if the abatement classification is "Improved/Converted"} \\ \\ 0 \text{ otherwise} \end{cases}$$

$$\text{Time left on "New Construction" Abatement} = \begin{cases} \#\text{ of years left on the abatement,} \\ \text{if the abatement classification is "New Construction"} \\ \\ 0 \text{ otherwise} \end{cases}$$

These two variables measure the number of years left on the abatement, if the property is abated. For example, if an "improved/converted" property received an abatement in 2002, but the sale of the unit is in 2004, then the variable *Time left on "Imp./Conv." Abatement* equals 8, since two years of the ten-year abatement have already passed.

Since previous research[17] has indicated that Philadelphia tax assessments have not kept up with rising property values, a variable measuring the dollar amount by which a property is under-taxed was created as follows:

$$\$\text{Tax Difference} = \begin{cases} (\$\text{under - taxed})/100, \\ \text{if a property's tax bill is less than what is implied by its sales price} \\ \\ 0 \text{ otherwise} \end{cases}$$

This variable is simply the dollar difference (in hundreds) between what a property's tax bill actually is, and what it would be, based upon its sales price and the City's taxation formula.[18]

Since the tax treatments of assets affect their value, it is reasonable to expect any erroneous or lagging assessments, as well as abatements, to be at least partially capitalized into property values. In the case of a property that is abated, the amount a property is under-taxed is computed to measure the extent of any under-taxation, *above and beyond* the tax breaks conferred by the abatement itself.

D.2 Price Impacts of Tax Abatements

These three variables described above, along with the vector of controls, collectively form the independent variables on the right-hand side of (9). The parameters of the pricing equation were estimated by weighted

[17] See Final Report, Vol.1. Philadelphia Tax Reform Commission. Nov. 2003.

[18] The City's taxation formula can be stated as follows: $ tax bill=Value×0.7×0.32×0.08264

least squares (WLS) regression using over 160,330 actual sales in Philadelphia.[19] Overall, the regression model performs very well. All of the variables of interest are correctly signed and almost all of them are statistically significant at the 5% level. Nearly 71% of the variation in residential dwelling prices are explained by the variation in the variables in the regression; a considerably strong number by the accepted conventions of the housing economics profession. Estimates of the key parameters of the regression model are shown in Table D.1. The implications of the regression estimates are discussed below.

Table D.1: Pricing Regression Results

Variable	WLS Regression	
	Coefficient	t-value
Intercept	5.52188	313.21
time_left_imp_conv	0.00845	3.73
time_left_new	0.02554	20.64
tax_diff	0.00934	202.06
Condo	-0.03346	-1.74
FAR	-0.04004	-14.38
Hedonic Vars?	Yes	
Location Vars?	Yes	
Sample Selection Vars?	Yes	
Time Vars?	Yes	
Adj. R-Sq.	0.7141	
Estimation Method	WLS	

Source: Econsult

[19] Although the control variables are included in the regression, their estimated coefficients and t-values are omitted from the table for the sake of space. The full regression output is available from the author upon request. To control for heteroskedasticity, a weighted least squares (WLS) was used to estimate the model. Details of this regression, and an ordinary least squares estimation (OLS) of the model, are presented in the Technical Appendix.

D.3 Implications for New Construction

The positive, statistically significant coefficients of the abatement variables indicate that the presence of the abatement contributes strongly to a property's value. For example, the estimated coefficient of 0.0255 for the number of years left on the abatement for new construction indicates that each year of abatement adds an additional 2.55% to a property's overall value. Multiplying these numbers by 10 implies that a new building, with 10 years left before the abatement's expiration, trades at a 25.5% premium relative to other, similar buildings.

To examine the reasonableness of these estimates, let's take a simple example. Consider a 1,000 square foot new condominium in a neighborhood adjacent to Center City, which is selling for $300,000. Since the building is brand new, there are 10 years left on its abatement. According to the regression results, 25.5% ($76,500) of the condo's sales price is attributable to the presence of the abatement. Absent the abatement, the condo would instead sell for $223,500; a considerable difference.

By contrast, the true value of the abatement is the total value of foregone taxes that the owner is alleviated from paying. Assuming that land composes 15% of the property's total value (a reasonable assumption for new construction), then the remaining value of the structure is $255,000. If the property is accurately assessed, then according to Philadelphia's tax code, the year 1 tax bill on the (structure component of the) property is equal to $255,000×0.7×0.32×0.08264=$4,720. With the aid of a spreadsheet and using the assumptions that the dwelling experiences a modest annual appreciation rate of 6% and an appropriate discount rate of 5%, the present value of this tax bill for 10 years is $46,569. Based on this calculation, the abatement adds roughly 15% ($46,569/$300,000) to the value of the property, rather than the 25% implied by our regression estimates.

Since this number is significantly less than the $76,500 that was "paid" for the abatement, these results imply that the typical Philadelphia owner/investor is paying nearly an extra $1.64 in purchase price for every $1.00 saved in property taxes! The most likely explanation of this phenomenon is that newer, abated properties are compared to somewhat older, unabated properties, and the higher estimated impacts reflect unmeasured quality differences in the units that have not adequately been captured by the other controls in the regression.

D.4 Implications for Improvements and Conversion

Because the fraction of total property value that is abated in improvements and conversions is lower than in new construction, the estimated impact of abatements on home prices are smaller. The estimates shown in Table D.1 show that each year of an abatement on an improved/converted property contributes an additional 0.85% to its overall price, compared to the estimated impact of an additional 2.55% for new construction.

Unlike the case for new construction, it is difficult to compute the intrinsic value of the improvement/conversion abatement. To compute the intrinsic value of an abatement on an

improved/converted building would either require access to information on the actual property-level improvements (to which we do not have access) or an assumption about the extent of the improvements (which is likely to be highly variable from one property to another).

However, it is reassuring to see that the actual price paid for abatements on improvements is indeed less than the value of abatements on new construction. And, the fact that this price is both statistically and economically different from zero is also reassuring, since owner/developers are unlikely to go through the time and resource-consuming process of obtaining the abatement designation if the value of improvements is small relative to the overall value of the property.

D.5 Other Implications: The Value of Under-Assessment, Condominiums, and Density

Some other results worth noting:

- The capitalization of being under-assessed is quite large: every $100 savings in property taxes imparts an additional 0.934% of value to a property.
    - It's also worth noting, that with a t-value of 202**,** this under-taxation variable was by far the most statistically significant variable in the regression.
    - In the case of our $300,000 condo example, this translates into a purchaser paying an additional $2,800 for this benefit.
    - Such a large disparity would seem to imply that buyers are seriously mis-pricing this benefit, but this would seem contrary to the evidence that they're not seriously mis-pricing the benefits of the abatement.
    - An alternative explanation is that buyers expect this under-taxation to persist into the future. At a discount rate of 5%, the present value of a $100 payment in perpetuity is worth $2,000 (=$100/0.05).
    - Since the price paid for this under-taxation exceeds this amount by $800, this raises the question of whether buyers not only expect this under-assessment to continue in perpetuity but also hold unrealistic expectations about the appreciation rate of their house. That is, they expect the difference between their home's assessed value and its market value will not only persist in perpetuity, but will actually grow over time!
- The fixed effect of being a condo is initially quite large, but it declines considerably as other variables correlated with being a condo are added to the specification: e.g. being in Center City, having a view, being a high-rise, having a new construction abatement, etc.

- But when density is added to the OLS specification, the benefit of being a condo shoots back up again (exp(0.52324)-1=+68.7%). This is likely due to the estimated effect of density being so large and negative.

- Since condos, on average, have much higher densities than single-family homes, the fixed effect of "condo" on price/SF—net of density—is quite large because of the benefits of new construction, tax abatement and central location.

- The estimated effect of density is, as expected, negative and significant. According to the regression, each unit increase in density is associated with a 4% decrease in property values, controlling for other factors.

D.6 Implications of the Price Impacts of Tax Abatements

In theory, tax abatements induce new supply into the marketplace by increasing the price any consumer (high or low income) would be willing to pay for the property. The greater the positive impact on price, the more new supply will be induced. Our econometric estimates of the price impact of tax abatements imply that they are, in fact, related to higher prices for houses. The fact that the average price paid for abatements on new construction exceeds their intrinsic value remains something of a concern; however, the estimation results are clearly consistent with the idea that abatements have had a significant, positive impact on both prices and housing investment. In the next two sections, we address the following two questions:

- In the long run, how much would the stock of housing grow as a result of the tax abatement?

- How much of the recent construction activity is attributable to the tax abatement?

E. ABATEMENTS AND THE EQUILIBRIUM STOCK OF BUILDING IN THE CITY

Based on the discussion so far, we would expect that the abatement should result in more construction and hence more total residential and commercial space than there would be without the abatement. In the long run, how much more developed real estate space should we expect as a result of the abatement? One way to answer this question is to use a standard model of real estate development to assess optimal scale of construction on individual parcels and draw inferences about the overall scale of development from the aggregation of those choices. We do this by evaluating the effect of increased prices, resulting from abatement, on the optimal density of development.[20]

There are two key features of this approach:

- The cost of construction increases with density
- The willingness of consumers to pay for space declines with density. (Note this is consistent with the estimation results presented in Section D.)

E.1 Costs

The Technical Appendix provides details on the link between density of development of a site and the cost per square foot. In essence, different qualities of construction and different densities of development result in different costs, with higher quality and higher density resulting in higher costs. Based on the discussion of construction costs presented in the appendix, the construction cost as a function of the density of construction is given by:

- Construction Cost/SF = Q + 2.5x F

Where:

- Q is a fixed cost per square foot of construction that depends on construction quality
- F is the floor area ratio, or the square footage of the building relative to the land area.

For illustrative purposes, suppose that a typical developer, who owns a third of an acre of vacant land in Center City (14,375 SF), decides to build a luxury-class condominium. Since this parcel is relatively small, the footprint of the building can be built out to the dimensions of the lot size, while still allowing all units to have access to at least some natural light.[21] When the building's footprint exactly matches the lot

[20] The Technical Appendix presents a full discussion of the approach used in this section.

[21] This condition has important implications for the density of the building because it's a stylized fact of high-density architecture that all units (and their occupants) require at least some access to natural light. For a larger lot size (e.g. several acres), the

dimensions, the density parameter F has the intuitively convenient interpretation of simply being the number of stories in the building.

The developer compares his construction costs with his expected price per square foot and decides what number of stories is most profitable.

E.2 Price

The price of such a condo -- absent the presence of an abatement — can be computed from the regression results by inserting the mean values of luxury-class condos into the pricing equation described in Section D. This gives the following pricing equation:

- Price/SF = exp (6.75 - 0.04004×F)

The developer wants the F that maximizes profits. In other words, he wants to choose F, the floor area ratio, to make revenues (F*Price/SF) minus costs (F*Cost/SF) as large as possible.

E.3 Optimal Density With and Without the Abatement

The equation for cost and price per square foot can be solved for the profit maximizing density, which turns out to be F* = 10.[22] At this density, a building with a footprint that exactly matches the lot dimensions implies that the developer should build a 10-story condo. Since the lot size is fixed at 14,375 square feet, the building would have a total square footage of 143,750 (=10×14,375) square feet.[23] Since the industry standard is that 20% of all square footage is common space, and since the average Center City condo size is 1,050 square feet, this implies that the building would contain 110 units (=143,750×0.8/1,050).

The developer's price and costs are computed by plugging F*=10 back into the equations for price and cost. At this density, the developer's costs are $325/SF and the condo's sales price is $572/SF. Not including land cost, taxes or other soft costs (A&E, marketing, etc.), the developer would take a profit of $247/SF for a total profit of $35.5 million (=$247/SF × 143,750SF).

How does this scenario change if the developer applies for and receives a ten-year abatement designation on the structure? Because the abatement doesn't affect construction costs, the developer still faces the same cost schedule. But, since the empirical results indicate that the presence of the abatement adds to the price an owner/investor is willing to pay for a condo, the pricing schedule is affected by shifting it

footprint of the building—and thus its density—will often be substantially less than the lot dimensions because the necessary inclusion of airshafts, light wells and interior courts will shrink the building's footprint.

[22] The reader can verify that this is the optimal density F* by simply setting up the cost and price equations in a spreadsheet, and varying the levels of F to explicitly compute the profit-maximizing F*.

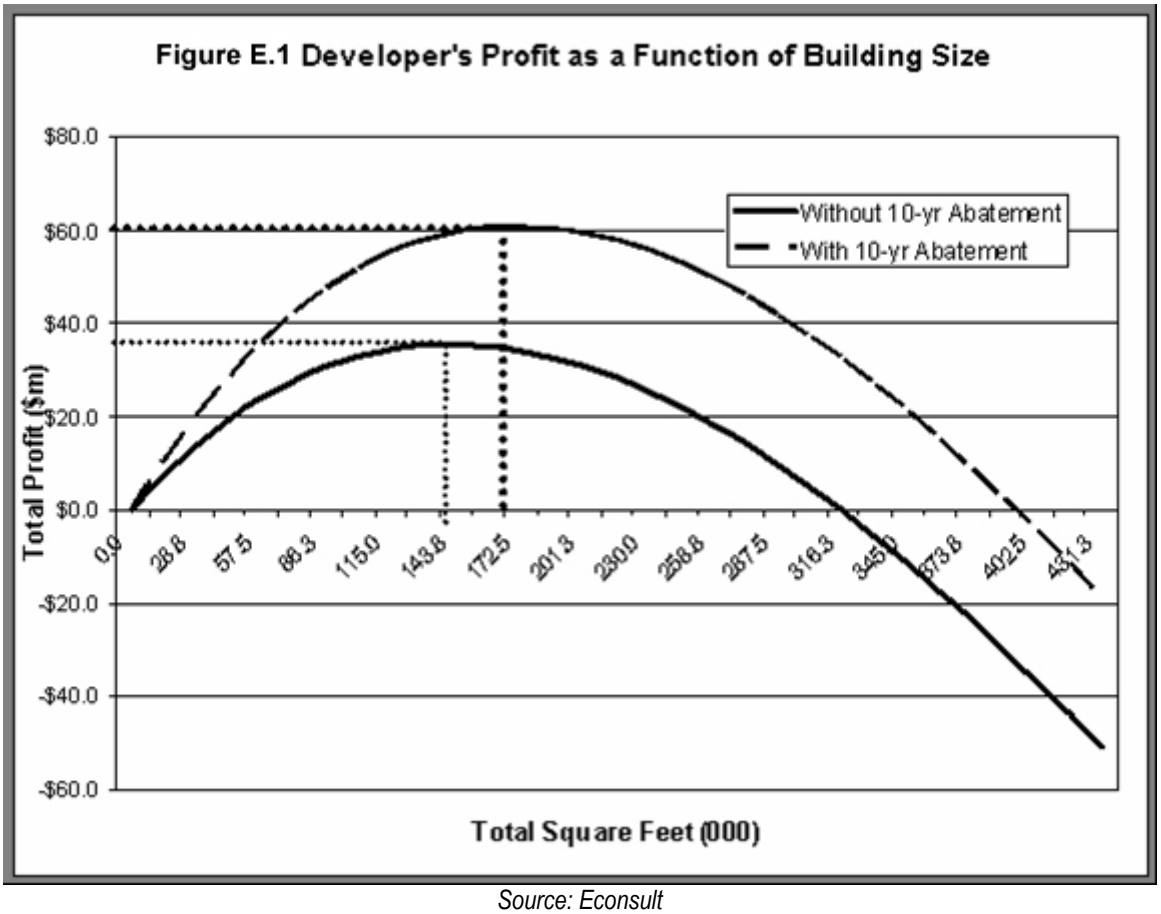
[23] Note: some rounding is present in the analysis.

upwards. This can be computed by adding the abatement coefficient from the regression results in Table D.1 to the pricing equation. Now, the new pricing equation that describes how much the owner/investor is willing to pay if she takes ownership in year 1 of the abatement (right after the building's construction is completed and it's certified for occupancy) is given by:

- Price/SF = exp(6.75-0.04004×F+0.02554×10)

The effect of this change is to shift the pricing schedule upwards, as indicated in Figure 3. Now, since the developer's building can command a higher price regardless of which density he chooses, the new optimal density F* is 12 stories; 2 stories higher than without the abatement. At this density, the developer builds a 172,500 square feet structure to the site, or 131 units. This structure costs $330/SF to build, but sells for a price of $682/SF, for a profit of $352/SF. Figure 6 illustrates how total profit varies with total square footage (density), with and without the presence of the abatement:

Figure E.1



Source: Econsult

As the model in Section II predicted, the presence of the abatement increases the value (price) of the building, which in turn increases both the profit-maximizing building size and the developer's profits. However, the increase in the former appears relatively small compared to the increase in the latter. While the building's optimal size increased by only 2 stories, or 20% over the original building size, the developer's profits jumped by $105/SF, or 42.5%.

What does this mean for the Philadelphia real estate market in general? One way to investigate this would be to simply scale up these results to the aggregate market (i.e. increasing overall density and prices by the same percentages as in this one-building example). However, this would assume that "high-rise luxury condos" are the highest and best use of all abated sites in Philadelphia and that the supply of Center City high-rise luxury condos is small relative to the overall demand in the condo market.

A more thorough approach would be to undertake a site-by-site application of the model to all eligible parcels in Philadelphia. However, this would not only be extraordinarily time-consuming and computationally intensive, but would also require modeling of (and making assumptions on) the highest and best use of every parcel in the market; i.e. single-family vs. commercial vs. condo, and new vs. improved/converted. For practical reasons, this exercise is simply not tractable.

But this still does not entirely prevent us from making any inferences at all about the model's implications for the larger market. In particular, note that the percentage difference in the number of units is the same for the building-level vs. market-level analysis: that is, the presence of the abatement seems to lead developers to add about 20% more condo space to their projects. If this is true across all projects, then this result should be essentially true for the market as a whole.

In general, the model suggests that the abatement will result in a new equilibrium supply that is significantly larger than would occur without the abatement. The analysis, does not, however, provide insight into the impact of the abatement on the *rate* of construction activity. For example, if the long-run equilibrium were 20 percent larger, but if it took 2 years to reach the new equilibrium, the impact on the rate of construction would be much greater than if equilibrium were reached only after 10 years. In the next section, we examine data on building permits in the City and the suburbs to estimate the impact on the rate of new construction.

F. ESTIMATED IMPACTS OF ABATEMENT ON CONSTRUCTION ACTIVITY

In this section of the report, we assess the extent to which abatements have fundamentally altered the amount and rate of construction throughout the City. To determine the impact of abatements on housing investments, we use comparisons between city and suburban housing growth before and after the investment. For commercial construction, we assume all of the activity is the result of the abatement program since demand for city office space has not been increasing, unlike residential demand.

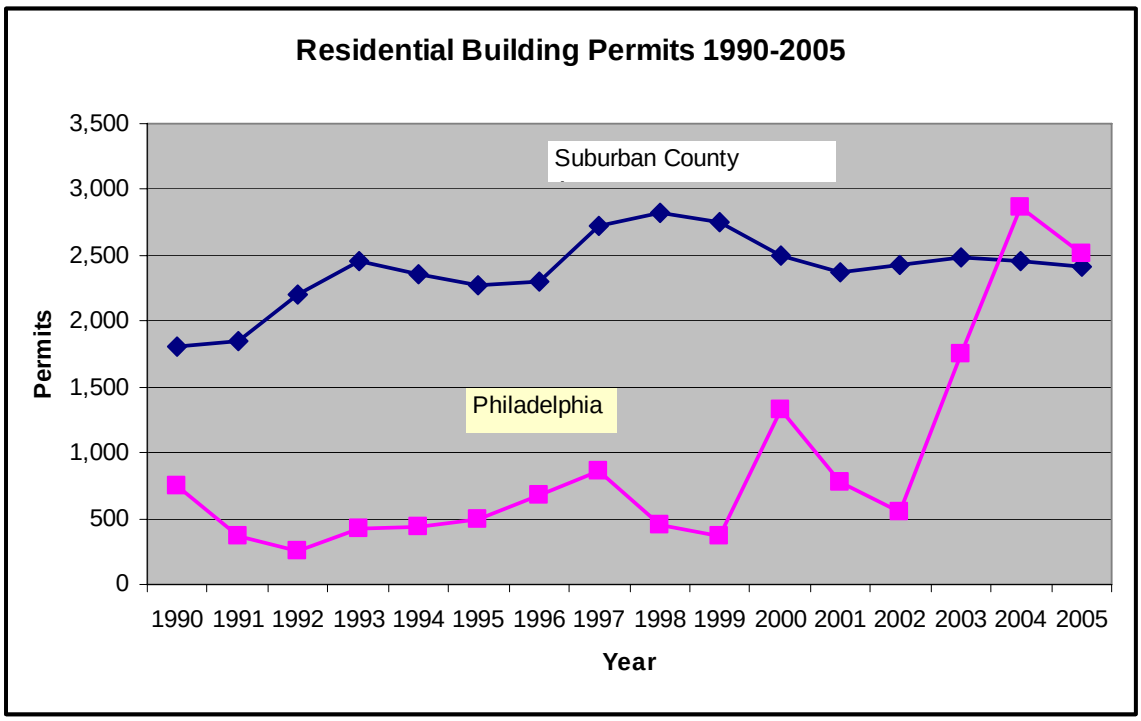
F.1 Estimates of the Impact of Abatements on Housing Investments

The development model presented in section D suggests that the ten-year abatement should, in the long run, increase the amount of developed residential and commercial space by about 20% percent. Unfortunately, this information provides no insight into the rate at which this additional residential and commercial space will be developed, or how long it will take to reach the long-run equilibrium. To evaluate the investment impacts of the abatement, we need to be able to estimate the share of new construction that would not have occurred in the absence of the abatement. We do this by comparing housing investment patterns over time in the City compared to those in the suburbs.

Figure 9 displays Philadelphia's per capita housing permits compared to the per-county average of its suburban neighbors housing permits from 1990 to 2000. The figure shows a dramatic change in the rate of housing permits and investment, which coincides with the expansion of abatement programs in 2000. Despite weak permitting in 2001 and 2002, permits averaged over 1,631 units per year in the City from 2000 to 2001, up from an average of only around 507 per year in the period 1990 to 1999.[24] This represents more than a threefold jump in the issuance of residential permits in the City. This jump is a sharp contrast to the suburban experience. From 1990 to 1999, permits per county averaged 2,356 per year but, unlike the City, did not see a jump in permitting in the 2000-2005 period. The suburban rate of permit issuance averaged 2,442 per year from 2000-2005. The bottom line is that while the rate of housing permit issuance was basically unchanged in the suburbs in the 2000-2005 period compared to the 1990-1999 period, permits in the City tripled during the same time period.

[24] Many of the housing permits in issued in the City of Philadelphia from 1990-1999 are likely to have been for non-market rate, subsidized housing construction. During this period, the Philadelphia housing authority was aggressively rebuilding its public housing stock. Thus, from the perspective of market rate housing, the permit data probably overstate the level of Philadelphia activity in the earlier period.

Figure F.1



Source: US Census Bureau

For the purposes of this analysis, we assume that the City would have continued on its pre-abatement pace of construction, since the suburban rate of housing permits has remained unchanged over the entire period. *Because the post abatement rate of permitting in the City was three times as large as in the pre-abatement period, we estimate that the two-thirds of the post abatement housing investment was a result of the abatement.*

Based on the calculation that two-thirds of all residential housing investment during the abatement period, Table F.1 shows the total value added housing investment, the hypothetical housing investment, and the housing investment induced by the abatement. The total investment in housing using abatement is $559 million. Without the abatement, we estimate that $184 million in housing investment would have occurred. Thus, the abatement resulted in an additional $374 million in housing investment through March 2006.[25]

Column 5 of Table F.1 shows the estimated foregone revenues resulting from abatement taking into account the fact that the abatement induces additional investment. Foregone tax revenue totals $6.6 million.

[25] These values are based on BRT assessments of market values, and are appropriate when examining property tax implications of abatement. However, when we examine the value of construction activity, we have to adjust these numbers to account for BRT's 70% market value adjustment made before applying the 32% assessment ratio.

Table F.1: Increased Housing Investment From Abatement (to March 2006)

Abatement Type	Abated Value Added (1000s)	Hypothetical Investment without Abatement (1000s)	Investment Resulting from Abatement (1000s)	Estimated Tax Revenue Foregone from the Abatement
New Construction				
Single-Family Home	$389,166	$128,425	$260,741	$2,377
Condos	$10,361	$3,419	$6,942	$316
Hotels/Apts	$185	$61	$124	$6
Subtotal	$399,712	$131,905	$267,807	$2,699
Improvements and Conversions				
Single-Family Home	$39,770	$13,124	$26,646	$243
Condos	$19,096	$6,302	$12,795	$583
Hotels/Apts	$100,285	$33,094	$67,191	$3,063
Subtotal	$159,151	$52,520	$106,631	$3,889
Total	**$558,863**	**$184,425**	**$374,438**	**$6,589**

Source: Board of Revision of Taxes (BRT)

G. MARKET SPILLOVER AND WEALTH IMPACTS

G.1 Spillovers

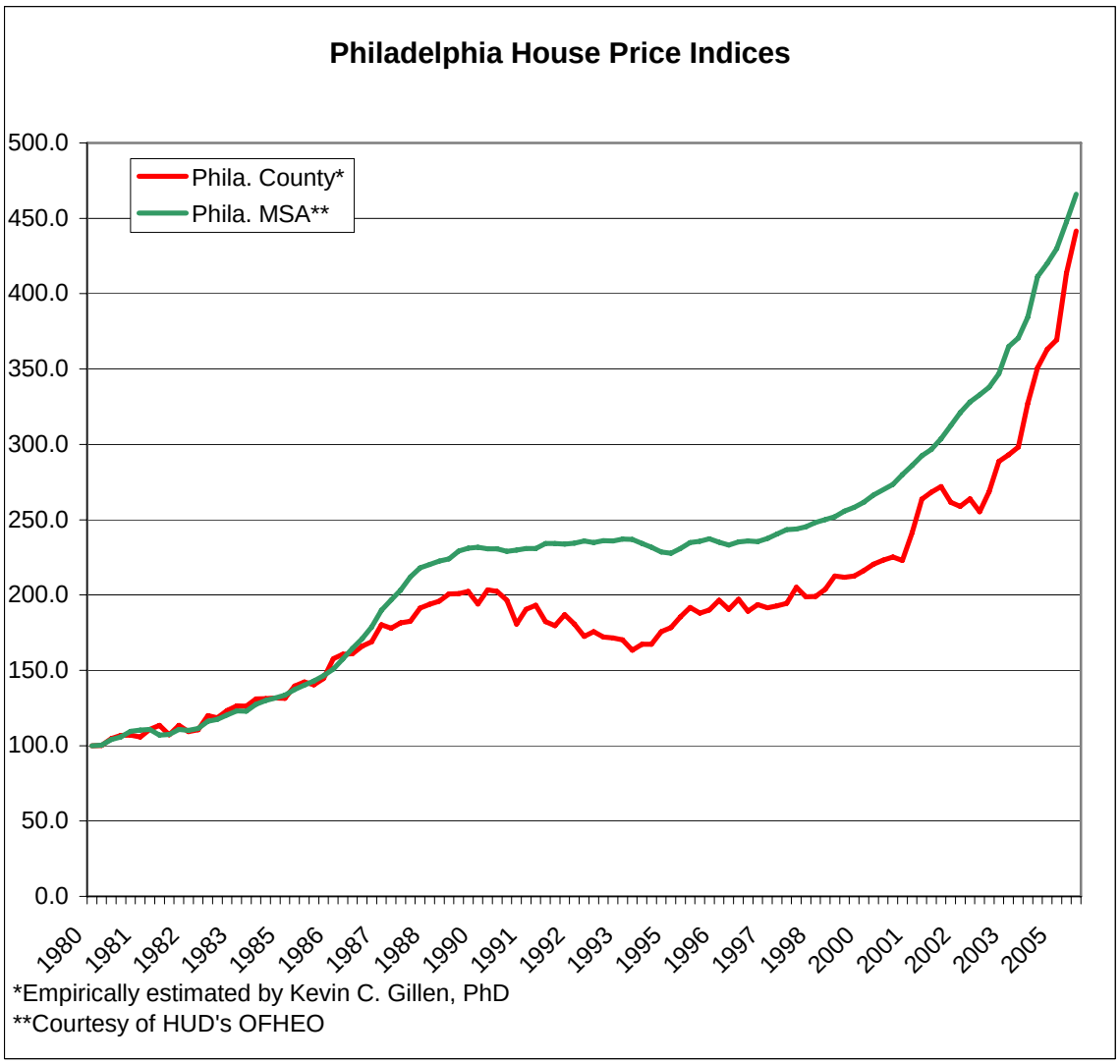
Increased investment in housing markets may have spillover effects that extend to adjacent and nearby properties. Individual investments signal that the neighborhood is worth investing in, and furthermore, results in a potentially improved overall urban environment. For example, increased population, wealth, and income in neighborhoods, and in the City as a whole, will attract more retailers, restaurants, and service providers, which in turn reinforce the attractiveness of the neighborhood. Additionally, if people invest in their private property, they are also likely to invest money, time, and energy improving the public environment in which their property is located. These actions will tend to improve not only their own property values (and return on investment), but also the property values of their neighbors. Increased personal investment in property can thus lead to a "virtuous cycle" of improvement. In this way, abatements are likely to have positive spillovers beyond their effects on abated properties.

One way to evaluate the potential spillovers is to examine the impacts of abatement on the overall prices of properties in the City. One way to do this, which is beyond the scope of this study, is to examine whether properties in close proximity to abated properties command higher prices than otherwise similar properties that are not close to other abated properties.[26] Instead, we compare the paths of city house prices with their metropolitan counterparts in the ten years prior to the abatement and in the 2000-2005 period, during which the full abatement has been in effect.

Figure 10 shows quality-adjusted house price indexes for Philadelphia and the metropolitan area overall from 1980 through the third quarter of 2005.

[26] Econsult has conducted this type of analysis to evaluate the spillover effects of other localized events, including the effects of low-income tax credit investments on urban neighborhoods in New Jersey, and the impacts of clustered mortgage foreclosures on neighborhood property values in Philadelphia.

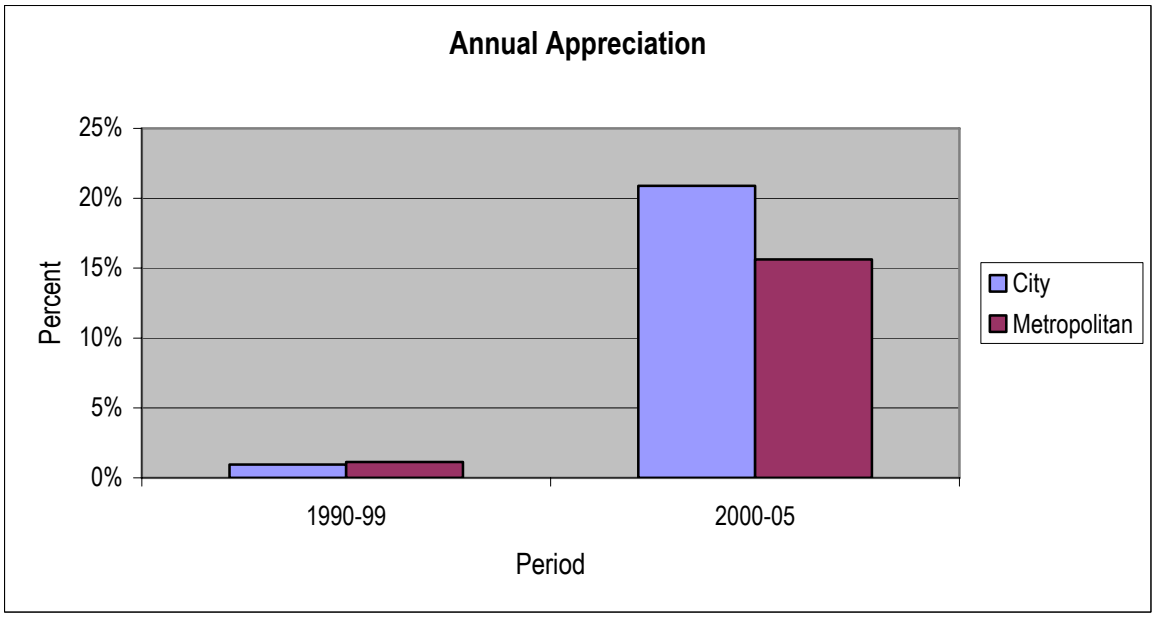
Figure G.1



In 1990, the metropolitan index was 16.8 percent higher than the city index. In 1999, the percentage difference in the indexes was slightly greater than in 1990. During this period, suburban prices increased slightly faster (1.15 percent per year) than in the city (0.95 percent per year). The picture changes considerably when we focus on the period from 2000-2005. During this period, the gap between the city and metropolitan indexes narrows considerably because city house prices (20.89 percent per year) rise

considerably faster than do suburban prices (15.63 percent per year.[27] These differences across city and metropolitan areas are shown graphically in Figure G.2.

Figure G.2



Source: Econsult

It is clear that the housing market in Philadelphia, in terms of price appreciation, performed much better than that of the metropolitan area as a whole during the abatement period, while performance was essentially the same for both during the earlier period. While it is not appropriate to ascribe all of the improved performance to the abatement, even if the abatement program were responsible for just 10% of the improvement in the market place, the aggregate value of the spillover effects would be very large.[28]

If the city had grown at the same pace as the suburbs in the 2000-2005 period, prices would have been 26% lower in the city than current prices. We estimate that the aggregate residential market value in the

[27] Note that the comparison of the city indexes with the metropolitan index inherently underestimates the difference between city and suburban because the metropolitan index includes the city. Thus, when city house prices rise faster than the metropolitan index, they must be rising even faster relative to suburban prices.

[28] In addition to the tax abatement program, there have been a number of factors that may have changed the competitive position of the city relative to the suburbs. On the plus side, city wage and business privilege taxes have continued to fall, the schools have shown clear signs of improvement, the city as made significant investments in neighborhoods through the Neighborhood Transformation Initiative, demographic patterns are currently favorable for urban locations, and nationwide the image of urban living has improved. On the negative side, employment growth has been relatively weak in the city, crime rates have increased some, and security concerns after 9/11 seem to have disproportionately and negatively affected the city in 2002.

city in 2005 to be approximately $50-60 billion, so without the abatement program, they might be $37-$44 billion, or $13-16 billion lower. If only 10 percent of the improvement in performance, relative to the metropolitan area as a whole, were attributable to the abatement, then the estimated spillover benefit would be $1.3-$1.6 billion. In terms of aggregate impacts on wealth of city property owners, this is a considerable jump, and is equal to $2,200-$2,700 per household on average.[29]

G.2 Wealth

Almost forgotten amidst the policy discussions is the fact that the recent increase in housing prices has led to substantial increases in the wealth of City residents. Since the abatement went into full effect, the aggregate wealth of City homeowners has increased by nearly $15 billion.[30] Even with very conservative assumptions, the abatement is likely to have contributed substantially to that increase in wealth.

Even with the relatively recent explosion of 401(k) deferred compensation plans spreading stock and bond ownership, equity value in a house remains the single biggest form of wealth for Americans, and is one of the driving reasons for important public policies encouraging home ownership. Unfortunately, this form of wealth creation and store of value is lowest among the urban poor and minorities. Robust evidence suggests that the distribution across races and ethnicity of wealth is far more unequal than income disparities, and this is especially true in large American cities like Philadelphia. This disparity has been highlighted in Claud Anderson's "Black Labor, White Wealth" and other studies.[31] A major objective of public policy has been to reduce such disparities not by leveling at the top, but rather by encouraging opportunities for those unable to acquire and build wealth. Increases in the value of urban residential properties are one of the most significant ways for low and moderate-income homeowners to increase their wealth..

Unfortunately, too much political discussion has focused not on this opportunity for residents (of all races and colors) to build wealth, but on scaring people into thinking that they are somehow worse off, and that the abatement program only benefits the wealthy at their expense. The source of the increased wealth is the increased demand for assets held by City residents, and, as noted above, Philadelphia home ownership rates are higher than rates in comparable cities.

A frequently expressed concern is that rising real estate prices create financial hardship for some Philadelphia residents. A careful assessment of this concern leads to the conclusion that all homeowners benefit financially from rising prices, but some homeowners may have to use innovative financial tools to realize their financial benefit. Further, a small number of homeowners may suffer hardship because they do not have adequate access to capital markets to realize the benefits of their increase in wealth. Finally, renters may be adversely affected by real estate price rises. These issues are discussed in more detail below.

[29] Based on U.S. Census Bureau 2004 estimate of 590,000 occupied housing units.

[30] This is the amount we estimate is attributable to the abatement program.

[31] Anderson, Claud, Black Power, White Wealth: the Search for Power and Justice. Powernomics Corporation of America, 1994. ISBN: 0966170210

To examine the effect of house price appreciation, we examine the net tax outflows with and without appreciation relative to the change in house values. Table G.1 displays two scenarios: one in which a homeowner's house does not appreciate over a ten-year period and one in which the house appreciates 5% annually. In the second scenario, real estate taxes paid appreciate 5% annually as well.

Table G.1
Wealth Impact of House Price Appreciation

Description	Scenario 1	Scenario 2	
Initial House Value	$100,000	100,000	
Annual Appreciation	0.0%	5.0%	
Interest Rate	7.0%	7.0%	
Taxes			
Year 1	-$1,851	-$1,851	
Year 2	-$1,851	-$1,944	
Year 3	-$1,851	-$2,041	
Year 4	-$1,851	-$2,143	
Year 5	-$1,851	-$2,250	
Year 6	-$1,851	-$2,363	
Year 7	-$1,851	-$2,481	
Year 8	-$1,851	-$2,605	
Year 9	-$1,851	-$2,735	
Year 10	-$1,851	-$2,872	
Total Taxes Paid	-$18,511	-$23,283	
House Value, Year 10	$100,000	$155,133	+55%
Net Cash Flows	$81,489	$131,849	+62%
Net Present Value	$37,833	$65,866	+74%

Source: Econsult

As is evident from Table G.1, homeowners experience dramatically greater wealth increases, despite higher tax payments, when house prices appreciate. After ten years with no appreciation, homeowners have the $100,000 invested in their house less tax payments of $18,511 for a net total of $81,489. In the appreciating scenario, tax payments increase to a total of $23,283, but the house value increases to $155,133, implying a net total of $131,849. From an economic perspective, the appropriate way to evaluate the impact of increased home prices and their associated increase in real estate tax payments is to compute the net present value of the flow of tax payments and the net present value of the house. The net present value of the homeowner's wealth ten years forward is nearly 75% greater than it would be without the house price appreciation.[32] The

[32] Note that the net present value is less than the original house value, even in the appreciating scenario for two reasons: 1) homeowners must pay property taxes on the home and 2) the assumed rate of appreciation is not as great as the interest rate.

dramatically higher wealth accumulation in the appreciating scenario means that homeowners could borrow against the equity in their house to pay their higher taxes *and still have greater wealth.*

While homeowners are typically better off, some homeowners on fixed incomes may find it challenging to meet the higher tax payments. Based on the calculations shown in Table G.1, senior citizens will clearly have greater total wealth in an appreciating scenario, even if they use a fraction of that wealth increase to pay the higher tax bill through a reverse mortgage. Very low-income residents who are not old enough to use a reverse mortgage, and /or who do not qualify for mortgage loans, could be put in a position of being forced to move if they cannot pay the higher taxes. There could be a legitimate role for public policy to bridge such an event.[33]

Finally, it is clear that those that do not currently own homes will not benefit from the gains in housing prices, and in fact may end up paying higher rents. This is an unavoidable phenomenon of improving living conditions in the City, which could be ameliorated with a subsidy to low-income renters.

[33] One approach would be for the City to hold a lien for the amount of the tax increase that would be settled when ownership of the house is transferred.

H. EFFICIENCY AND EQUITY IMPACTS OF THE ABATEMENT PROGRAM

H.1 Efficiency Considerations

Since denser residential development encourages the highest and best use of existing infrastructure, the tax abatement program fosters more efficient development and land use than would otherwise have occurred in the City and in the region. Not only does this decrease the land-using pressure of exurban sprawl, but it could also allow for more efficient delivery of public services, such as fewer police officers and firefighters, and reduced road construction. This increased efficiency should lower future taxpayer costs, a benefit that would be spread across income levels.

The abatement program also addresses one of the main findings with regard to tax efficiency: it is not efficient to tax marginal investment when that investment can easily move across jurisdictions. Instead, fixed assets should be taxed, since such assets can't leave the jurisdiction and therefore would not enjoy less reinvestment. Potential buildings (physical capital investments) are NOT geographically fixed; they can be built anywhere. Therefore, the local government should encourage physical and financial investment *inside* the jurisdiction, and tax the asset later (which is the nature of abatement programs).

H.2 Equity Considerations

Much public discussion centers on the assertion that the tax abatement benefits only accrue to the developers or purchasers of high-priced condos, and that the program is therefore inequitable. As we have noted above, the abatement program has generated new investment throughout the City and across many property types and price levels. Also, increasing the supply of housing in an investment-starved and under-functioning housing market can only help those who are forced, by limited income, to remain in the market. It is also important to note that Philadelphia's tax system includes much more than just the real estate property tax. The true burden of supporting the public infrastructure and services is levied via several taxes, including the wage tax with a commuter component, without which the property taxes would be significantly higher. There is a multiplier effect to the abatement program, as well, which have been previously delineated and which are further described in the next section, which benefits the City and its residents as a whole.

Furthermore, everyone pays the same tax rate on eligible property improvements, and every property owner can take the same advantage of this encouragement to upgrade property. In fact, the effective dollar value of the abatement to any individual differs across the marginal tax brackets of the federal income tax code. The value of the abatement is higher for taxpayers in the lower tax brackets, as they typically aren't able take advantage of itemized deduction for local property taxes. Individuals facing higher marginal tax rates save less when their property taxes are lowered, because they gain more for higher deductions than do taxpayers in the lower marginal brackets.

The abatement program may also benefit CDCs in their efforts to spur the development of "affordable" housing by helping to close the gap between the cost to build an "affordable" house and the price it can be sold for. More importantly, it is leading to the construction of many more rental units. The abatements are "making the numbers work" for Low-Income Housing Tax Credit (LIHTC) units, thus necessitating less additional per unit subsidy. This means the City does not have to invest as many Community Development Block Grant (CDBG) dollars into each project. The ability to apply greater leverage to scarce federal tax credit dollars to make it possible to build more new, affordable housing in the City is crucial, especially as the City's CDBG allocations have been declining (and are expected to continue to decline).

I. ECONOMIC AND FISCAL IMPACTS OF THE ABATEMENT

Based on our estimate of the incremental impact on housing production during the tax abatement period, we can use standard input-output models to estimate the economic impacts – spending, earnings and employment – attributable to the abatement policy. These impacts are the result of the construction spending that would not have otherwise occurred in the City. This additional economic activity has generated incremental tax revenues to the City (and to the state) that also would not have been generated in the absence of the program. Here we use our results from Sections B and F to examine two components of construction – the construction expenditures associated with the already abated properties and those associated with projects currently underway (to come online 2006-2008).[34]

I.1 Already Abated Properties (to March 2006)

We estimated the abatement program generated 2/3 more residential construction activity than would otherwise have been undertaken in the City. This suggests the program led to approximately $375 million more residential construction than Philadelphia would have had without the abatement. We also concluded that the abatement program was responsible for 100% of the new commercial and industrial development in the City during the period, with an aggregate abated market value of $390 million. Since these values include BRT's market value adjustment, we remove that adjustment by dividing by 0.7 in order to estimate the market value for construction purposes.

Combined, we estimate that of the already abated properties with aggregate BRT market value of $2.1 billion, $765 million represents new construction generated by the abatement, and this reflects approximately $1.1 billion in actual market value.[35]

I.2 Construction Pipeline (2006-2008)

We also estimated that the pipeline of new and renovated construction projects currently beginning or under construction (and hence not yet abated) could have an aggregate market valuation of $1.95 billion.[36] As with the already abated properties, we assume that 2/3 of these projects would not have been developed without the abatement program. Further, we assume that 22% of the new construction and 33%

[34] Each consists of new construction and renovations:

- New construction already abated AND renovation and improvements already abated
- New construction not yet abated AND renovation and improvements not yet abated (under construction in pipeline)

[35] This already excludes land and existing building values, so this figure represent incremental construction expenditures pumped into the local economy.

[36] Note this includes only residential development; we estimate commercial or industrial development in the pipeline separately. Note, however, that we do not include the Comcast Tower, with construction costs in excess of $500 million, even though it will receive tax abatement.

of the renovations represent land and existing building value that would not be abated (and would not represent the value of new construction activity).

To this residential estimate, we add our estimate of $1.1 billion market value in the non-residential pipeline, resulting in over $3 billion of market value for new construction and conversion/rehab construction expenditures beginning or underway during the 2006-2008 period. Using the assumptions already discussed, we then calculate an estimate of $1.7 billion in construction expenditures that would not have otherwise occurred in the City, as illustrated in Table I.1.

Table I.1: 2006-2008 Pipeline Residential Construction Expenditures Attributable to the Abatement Program ($ Millions)

Construction Type	Market Value	% Attributable	% Construction	Total
Residential New Construction	$1,350	67%	78%	$705
Residential Conversions/Rehab	$600	67%	67%	$270
Subtotal, Residential	**$1,950**			**$975**
Non-Residential	**$1,100**	**100%**	**67%**	**$740**
Total, Residential & Non-Residential	**$3,050**			**$1,715**

Source: Econsult

Thus, for the multi-year period through 2008, we estimate that the City's tax abatement program has generated or will generate over $1.7 billion in construction expenditures in the City above and beyond what otherwise would have occurred.

I.3 Economic Impact of Construction Expenditures Attributable to Abatement

When we add the "already abated" and "in the pipeline" numbers, we can generate the potential economic impacts associated with the estimated construction expenditures attributable to the abatement program (past and through 2008). These are presented as $2.82 billion in *direct expenditures* in Table I.2 below.

These direct expenditures generate indirect and induced expenditures, as well as earnings and employment in Philadelphia and throughout the state of Pennsylvania, also displayed in Table I.2 below.

Table I.2: Potential Economic Impacts New Construction Spending Attributable to Abatement, 1997-2008 ($ Billions, rounded)[37]

Description	Philadelphia	PA State
Direct Expenditures	$2.8	$2.8
Indirect & Induced Expenditures	$1.3	$4.1
Total Output	**$4.2**	**$6.9**
Multiplier	1.5	2.5
Total Employment	**16,412**	**55,319**
Total Earnings	**$0.7**	**$2.2**

Source: Econsult

Indirect expenditures are those made by the construction company from their suppliers and by their suppliers from their suppliers, etc. Induced expenditures are the increased expenditures made by employees of the construction companies and their suppliers out of their increased wages. The sum of direct, indirect, and induced expenditures make up the total output generated by the increase in direct construction expenditures in both the City and the state.

These estimates suggest that in the eleven-year period, the City's tax abatement program has or will generate over $4.1 billion of economic activity in Philadelphia that would not have otherwise occurred. This includes approximately $700 million in earnings supporting over 16,000 jobs. Note that these jobs are not permanent fulltime jobs, but represent both full and part time jobs during that period.

Because the economic impact extends far beyond the city limits, the state has and will see an even greater impact: $6.9 billion in economic activity, $2.2 billion in earnings, supporting over 55,000 jobs. Note that the Philadelphia impacts numbers are included in the state estimates. We have to be careful interpreting the state estimates, since these assume that the additional City expenditures did not and do not displace construction activity in other parts of the state. While there undoubtedly has been and will be some displacement, the suburban housing permit activity has not declined during the period.

[37] The process for estimating the indirect and induced effects, as well as the taxes generated by the economic activity, relies on *regional input-output models*. These models are well established, having been used extensively since the 1950s, and are well adapted to this type of analysis. For the analysis contained herein, Econsult Corporation utilizes the United States Department of Commerce's Regional Input-Output Modeling System II (RIMS II) models.

I.4 Fiscal Impacts

The additional economic activity caused by the abatement has generated and will generate non-property tax revenues for both the city and the state. Total earnings amount to over $700 million in Philadelphia and over $2.3 billion in the State.[38] City and State fiscal impacts are likewise significant:

Table I.3: Potential Fiscal Impacts New Construction Spending Attributable to Abatement, 1997-2008 ($ Millions)

Local Taxes (Philadelphia County)	
Wage and Earnings	$ 74.4
Sales	$ 7.8
Business Privilege	$ 36.4
Total Local Taxes	**$ 118.6**

State of Pennsylvania	
Personal Income	$ 67.8
Sales and Use	$ 54.3
Corporate Net Income	$ 13.3
Capital Stock and Franchise	$ 8.8
Total State Taxes	**$ 144.2**

Source: Econsult

Additional tax benefits are also generated via the property tax, even though the values of the improvements are abated. The first positive impact is due to properties that were either delinquent and/or under-assessed before development. In many cases, the first step in the development process (purchase of the property) results in higher land value than before and a bona fide taxpayer.

A second source of property tax increase attributable to the abatement is the benefit increase spillover in the value of adjacent properties.

[38] State impacts include City impacts.

J. ABATEMENTS AND LOCAL REVENUE OVER TIME

In the next few years, abated properties will start "returning" to the property tax rolls. Once the original abatement cycle is completed, the properties will provide an ongoing increment to the tax base from that point forward. In this section of the report, we assess the net revenue implications of the tax abatement, given the estimates of construction attributable to the abatement developed in Section F.

J.1 Fiscal Impacts: Property Tax Only

Table J.1 shows the value of abatements each year since the inception of the full ten-year abatement program in 2000. In addition, the table shows the revenue that these projects would generate in the absence of the abatement (assuming that the projects would have been constructed) and the estimated foregone revenue assuming that only one-third of the projects would have taken place without the abatement.

Table J.1: Value of Abatements and Loss in Tax Revenue 2000-2010

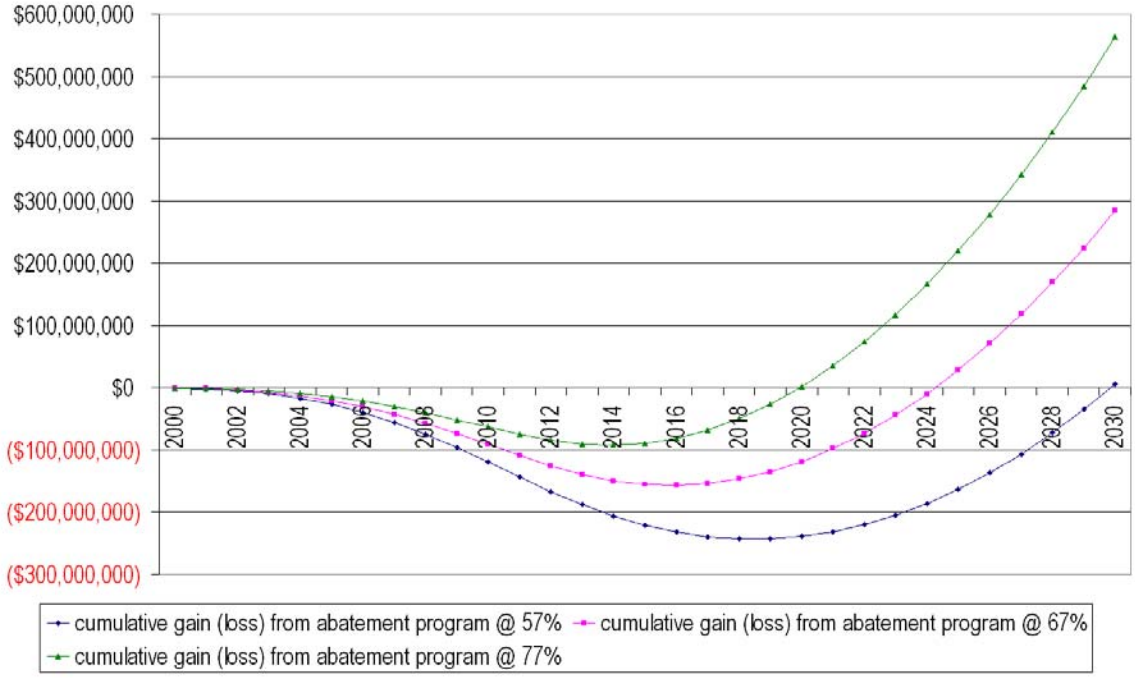
	new PT that year	total PT that year	annual gain (loss) from abatement program @ 67%
2000	$1,357,411	$1,357,411	($447,946)
2001	$1,539,833	$2,897,244	($956,091)
2002	$3,141,254	$6,038,498	($1,992,704)
2003	$5,847,366	$11,885,865	($3,922,335)
2004	$5,145,608	$17,031,472	($5,620,386)
2005	$6,569,639	$23,601,111	($7,788,367)
2006	$6,569,639	$30,170,750	($9,956,347)
2007	$6,569,639	$36,740,389	($12,124,328)
2008	$6,569,639	$43,310,027	($14,292,309)
2009	$6,569,639	$49,879,666	($16,460,290)
2010	$6,569,639	$56,449,305	($17,270,859)

Source: Econsult

Abatement and foregone revenue increased considerably from the initial year to 2005. By 2010, property taxes from the first properties receiving abatements will begin to return to the rolls. If we assume that the abated properties enter the tax rolls at their original appraised price, and the abatements continue at the 2005 pace (i.e. the addition of new properties each year is equal to the 2005 amount), we can estimate the cumulative tax payments associated with the abated properties compared to what would have occurred

without the abatement.[39] Figure J.1 shows the cumulative path of tax payments relative to the no-abatement scenario, based on our estimate that two-thirds of the abated investment would not have occurred in the absence of abatement. The figure also shows cumulative paths for alternative values for the percent of investment induced by abatement. This allows us to bracket potential outcomes for the abatement program.

Figure J.1



Source: Econsult

Figure J.1 shows that abatements start to have a positive impact on property tax revenues in 2017 based on 67% rate of inducement. That is, beginning in 2017, property tax received is higher than it would be if there were never abatements. In addition, by 2025, cumulative tax payments are greater than they would have been without the abatement, and by 2030, the cumulative gain from the abatement program is $53.4 million. In other words, the revenues from the abatement more than offset losses. It is clear that the City would be better off financing the abatements on the bond market than eliminating them: given a borrowing rate of 4.0%, the net present value of the flow of property tax revenues through 2030 is $53.4 million; through 2040, it jumps to

[39] We are assuming no property appreciation over the ten-year abated period. On the one hand, this is reasonable because losing the value of abatement will have a depressing effect on value, but on the other hand, the assumption is conservative because typical rates of appreciation are likely to more than offset the negative impact of the loss of the abatement. Note that if the pace of abatement were to slow, the properties returning to the tax rolls would be larger relative to the new abatements; thus this assumption is conservative as well.

$260.8 million. The NPV analysis implies that if the City were to eliminate the abatement program, it would reduce its revenue generating capability, rather than increase it.[40]

Of course, if the abatements actually induce a greater fraction of the total than 67%, the fiscal impacts of abatement rollover are even more attractive. On the other hand, if the inducement effect is significantly smaller, the payoff of abatements is much further in the future.[41] The payoff for the abatement program also changes if the City enjoys larger or smaller amounts of new construction in subsequent years.[42]

J.2 Fiscal Impacts: All Local Taxes

It is important to recognize that the direct rollover effect is only part of the fiscal effect. Other elements that generate significant revenue for the City include taxes on wages, retail sales, gross receipts and, net income associated with the new construction activity. As shown in the previous section, we estimated those to generate $93.5 million in revenue over the twelve-year period from 1997 to 2008. This represents approximately $8 million per year in additional taxes offsetting the abated property taxes.

In addition, spillover effects on other property values will increase total property tax payments, as have (and will) increased real estate transfers. Finally, wage and business taxes resulting from additional people living in the City will generate additional tax revenue. As Figure J.2 indicates, by 2030, the cumulative gain from the abatement program is $778 million. Given a borrowing rate of 4.0%, the net present value of the flow of all tax revenues through 2030 is $329 million; through 2040, it jumps to $580 million.

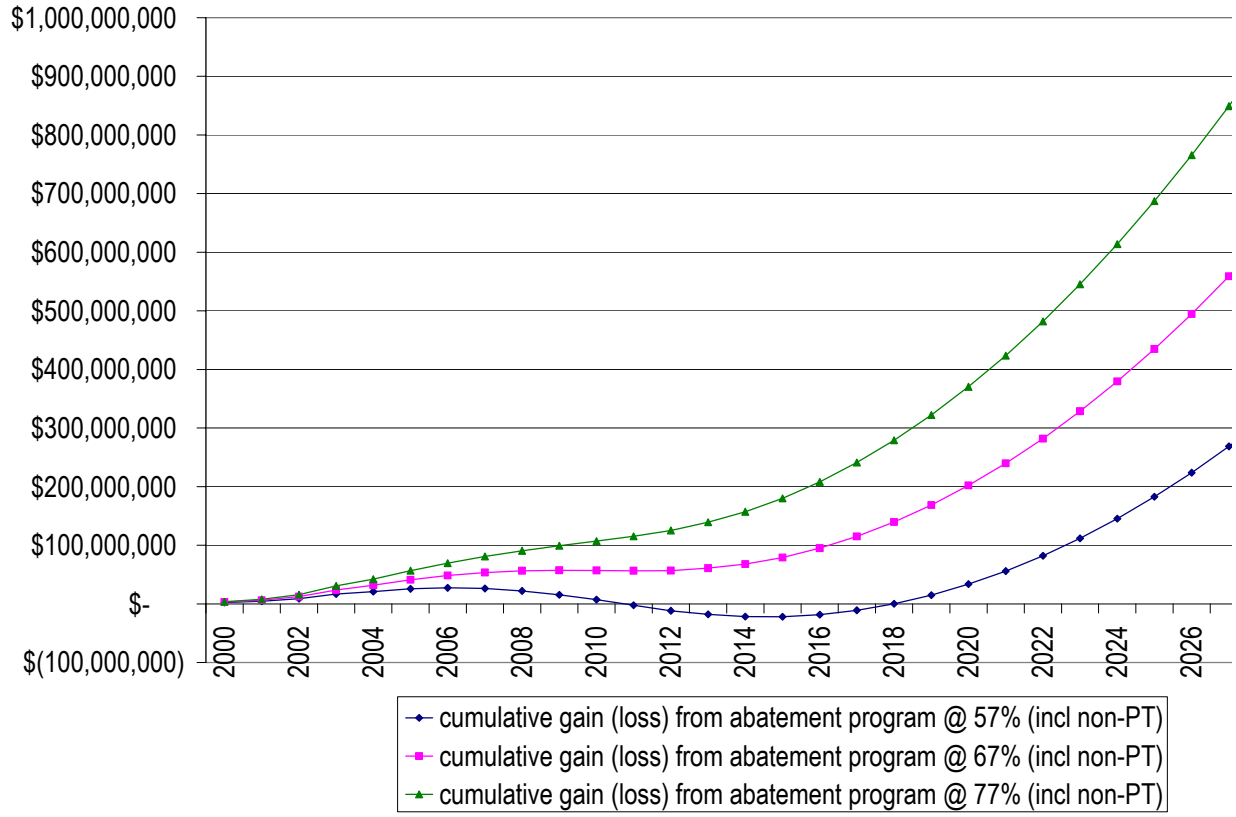
Taken together, even at relatively modest levels of investment inducement, tax abatements appear to be a good investment for the City. Curtailing or eliminating the tax abatement would likely result in lower future city and school district tax revenues and thereby force the city to either raise tax rates or reduce spending.

[40] It should be noted that the city could get a short-term gain by immediately eliminating the abatement because it would get the gains from previous induced investment but would not forego the tax revenues to induce further investment. However, such a gain, even if it occurred, might be more than offset by immediate cancellations of new construction projects not yet commenced and/or declining market values on existing properties.

[41] Econsult has developed a dynamic modeling spreadsheet that can test the sensitivities of various changes in variables, including but not limited to the following: % construction induced by the abatement program, % growth in new construction over time, and discount rate. Thus, any combination of scenarios could be modeled to determine impact over time.

[42] If, for example, new construction in 2006 and on were to slow to 75% of 2005 levels (which would mean an amount close to the average of 2002-2004 levels) and then hold constant at that level from then on, the cumulative gain from the abatement program would be $56.2 million (property tax only) through 2030 and $221.6 million through 2040. Of course, the actual construction levels from 2006 to 2030 will be driven by a combination of local and national macro-economic forces and the ongoing influence of the tax abatement program to induce new construction. See Technical Appendix E for more results.

Figure J.2



Source: Econsult

TECHNICAL APPENDIX A: ECONOMICS OF PROPERTY DEVELOPMENT AND TAXATION

An axiom of financial economics is that, in a reasonably efficient market, the true value of any asset is simply the present value of its net income stream. For real estate, this implies that the current value of a property should be approximately equal to discounted value of its net rental income stream, where "net rents" are gross rents minus operating/maintenance expenses and taxes. This can be expressed mathematically as:

$$P = \frac{R-O-t}{1} + \frac{R-O-t}{(1+i-g)} + \frac{R-O-t}{(1+i-g)^2} + \ldots + \frac{R-O-t}{(1+i-g)^T} + \ldots \qquad (1)$$

Where:

R = **total rent ($)**

O = **total operating costs ($)**

t = **total tax bill ($)**

i = **discount rate (%)**

g = **annual appreciation rate of property (%)**

If we take the limit of (1) as time goes to infinity, then we get a more tractable and compact representation of the formula:

$$\lim_{T \to \infty} P = \frac{R-O-t}{i-g} \qquad (2)$$

Now, since the property tax bill is a direct function of a property's value, then it is computed as:

$$t = \tau P \qquad (3)$$

Where:

t = **tax bill ($)**

τ = **property tax rate (%)**

P = **property value ($)**

Substituting equation (3) into (2) gives:

$$P = \frac{R - O - \tau P}{i - g} \qquad (4)$$

This is a very inelegant equation. Since the property's value ("P") is on both the right- and left-hand sides of (4), it says that a property's value is a function of its value. This is circular logic.

However, via some algebraic manipulation, it's possible to isolate the variable representing the property's value ("P") on the left-hand side of the equation:

$$P = \frac{R - O}{i - g + \tau} \qquad (5)$$

Differentiating (5) with respect to the property tax rate gives the result:

$$\partial P / \partial \tau < 0 \quad \forall \tau > 0 \qquad (6)$$

This mathematical result states that the higher the property tax rate, the lower a property's value (price) will be, holding all else constant. This can be easily inferred by visual examination of (5): since the tax rate is positively signed and in the denominator of the pricing equation, then the higher the effective property tax rate, the lower property values will be.[43] The converse of this statement is also true: holding all else constant, lowering (or abating!) property taxes will increase a property's value.

This is the so-called "capitalization" effect of taxes. Unlike other commodities that are subject to taxation, real estate is fixed in its location and cannot be moved to other jurisdictions with more favorable tax regimes. Because these taxes are unavoidable by the property owners, they act to depress overall prices. More generally, any change in the tax code will eventually become capitalized into property values. But in this particular case, the valuation equation captures the dynamics of how an increase (decrease) in tax rates can unintentionally result in lower (higher) property values.

If all of the variables in (5) were directly observable, then (6) could be explicitly computed and compared to the purchase price of actual, tax-abated properties. Unfortunately, this is not possible for both practical (e.g. collecting all this data) and economic (rents are not directly observable for owner-occupied properties) reasons. An alternative method is to compare the sale prices of abated properties with the prices of comparable non-abated properties that are similar in size, characteristics and location to abated ones. This is implicitly the technique of hedonic pricing regression, a commonly deployed tool for housing economists (see Rosen, 1974; Case, Pollakowski and Wachter, 1991).

[43] This one-sided statement assumes that public services are held constant. If higher taxes are used to either improve or increase public services, then this will be reflected in an increase in the rents that properties can command. Higher rents can then offset the increase in taxes in order to support or even enhance existing property values. The creation of the Center City District in the 1990s, for example, is one such example of this dynamic.

A hedonic model posits that housing is a "bundled good", for which its total value can be decomposed into the marginal values of its individual attributes. These marginal prices are obtained by estimating a regression of house prices on the individual characteristics of each home:

$$P_{it} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_k X_k \qquad (7)$$

Where :

P_{it} **= the price/sqft of the** i**th property at time** t

X_i **= a characteristic of the** i**th home (e.g. square feet)**

In words, equation (7) states that the overall value of a home is simply the sum of the values of its individual attributes. The value of these individual attributes is the product of the unit price of an individual attribute times the quantity of the attribute. For example, β_1 might be the price of an additional bedroom, while X_1 is the number of bedrooms in the house.

However, there are several problems with (7). First, if the dataset covers an extensive period of time, it is unlikely that the marginal prices are constant across observations, if only for the general presence of inflation in the economy. For example, an additional square foot (or garage, or swimming pool, or bath) is probably worth more in 2005 dollars than in 1975 dollars. Secondly, the specification in (7) assumes linearity in the marginal price (and thus, utility) of attributes. In reality, most housing characteristics exhibit "diminishing marginal utility"(DMU): the marginal price of an additional attribute declines with the total level consumed. So, for example, just as a very thirsty person is willing to pay more for a bottled water than someone who has just drank several of them, so too is an additional square foot of space worth more to the occupant of a small dwelling than a larger one.

A solution to this problem is to use an exponential specification:

$$P_{it} = \alpha e X_1^{\beta_1} X_2^{\beta_1} \ldots X_k^{\beta_k} \qquad (8)$$

This equation captures the nonlinearity of DMU, but there is still the problem of assuming constant prices. Additionally, the nonlinearity of (8) makes it difficult to empirically estimate. Thankfully, a logarithmic transformation can be applied to (8) to obtain:

$$\ln(P_{it}) = \alpha + \beta_1 \ln(X_1) + \beta_2 \ln(X_2) + \ldots + \beta_k \ln(X_k) \qquad (9)$$

By taking the natural log of each variable, the equation has now been linearized, and may now be estimated via traditional regression methods such as OLS. In addition, the β coefficients now have the interesting interpretation of being the marginal prices expressed in percentage terms, rather than dollar terms.

The effect of the presence of the abatement on the market's supply of real estate can be estimated by comparing the real estate prices (9) with the cost of building. Based upon a model by DiPasquale and Wheaton (1996), the cost function can be specified by:

$$C_s = m_i(\mu_i + \gamma F_i) \qquad (10)$$

Where:

C_s = construction cost per square foot

m = rowhome/semi-detached/detached indicator

$$F = \text{Floor Area Ratio} = \frac{\text{structure square footage}}{\text{lot square footage}}$$

The value of "m" will typically vary between .85 and 1.00 if a dwelling is attached (e.g. row home or townhouse), semi-detached or detached, respectively. This has the effect of shifting the overall level of construction costs downwards as decreasing amounts of the exterior will need work. Since row homes and semi-detached homes have less of their exteriors exposed, they do not require the façade work and windows on all exterior walls that fully detached homes do. The result is that they cost less on average than detached homes.

One of the signature stylized facts about real estate construction is that the unit costs of development increase with density, which is measured by F. The per square foot cost of building a condo tower exceeds that of detached single-family homes because the condo tower requires deeper foundations, greater structural support and the installation of elevators.[44] As a result, the necessity of all this additional supporting infrastructure ensures that the cost of a square foot of housing that is thirty stories in the air will be significantly greater than the cost of a comparable square foot of housing that is on the ground. The mathematical specification of (10) captures this salient fact, as C rises as density F increases. Construction costs are discussed further in Technical Appendix B.

The relationship between prices and construction costs can be considered by first noting that, although unit construction costs rise with density, unit prices decline with density. The reason is, all else equal, people prefer more space to less. So, properly controlling for all other attributes and locational characteristics of a property, consumers will pay less per square foot for a dwelling in a dense development than one with plenty of space and land.[45]

Since density increases costs while simultaneously decreasing prices, this poses an interesting trade-off problem to the developer. Since the lot size of any given site is fixed, the developer must choose the quantity (F) and quality (m,μ) of square footage to add to the site that maximizes his profits. This becomes

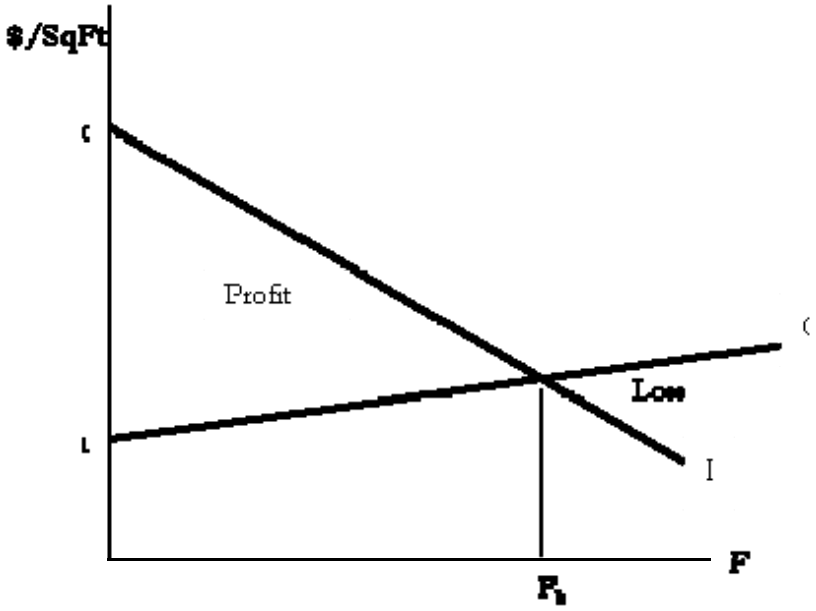
[44] Note: This cost equation measures hard costs (building materials and labor) only. Land costs and soft costs are omitted from this model because the city's tax abatement applies only to the value of the structure.

[45] The phrase "controlling for all other attributes and locational characteristics of a property" is critical here, because per square foot prices of downtown properties are usually higher than those of suburban homes. The reason is because the location amenity is, on net, dominating the density disamenity. The empirical results in the next section will show this. But, if you don't believe me, go build a high-rise tenement in a Kansas wheat field and see if it fetches more $ (per square foot) than the sprawling detached ranch house down the road!

and quantity-quality trade-off: a relatively large number of high-density units that sell at lower individual prices, or building relatively fewer units that can command higher prices.

The solution to this problem of choosing the optimal density is that the developer should choose that optimal density F* which maximizes the residual value of the land. In fact, it can be shown that the F* which maximizes the land value is the same F* that maximizes the developer's profits. To see this, first consider that the developer's profit is just the money left over after he builds the structure and sells it, which is simply the difference between price and costs: P-C. Now, from (9) and (10), it is known that unit prices decline with density while unit costs increase with it. So, prices and costs as a function of density can be represented graphically by plotting density on a horizontal axis and prices and costs per square foot on the vertical axis, which is shown in Figure 1:

Figure1. Price and Cost as a Function of Density



It can be seen how prices and costs (and thus profit) change in relationship to one another as the density of development is increasing. As density increases, prices uniformly fall and costs uniformly rise. As a result, marginal profit per square foot also falls as density rises. The break-even point where price equals cost is given by the intersection of the two lines, at a density of F_b. At any density higher than this, the developer would lose money since the cost of building such a structure exceeds its sale price. So, at any density $F< F_b$ the developer makes a profit because P>C, while at any density $F> F_b$ the developer takes a loss because P<C.

Now, profit per square foot is simply represented as the price per square foot minus the cost per square foot:

$$\Pi = P - C \qquad (11)$$

Where : Π = profit per square foot of structure

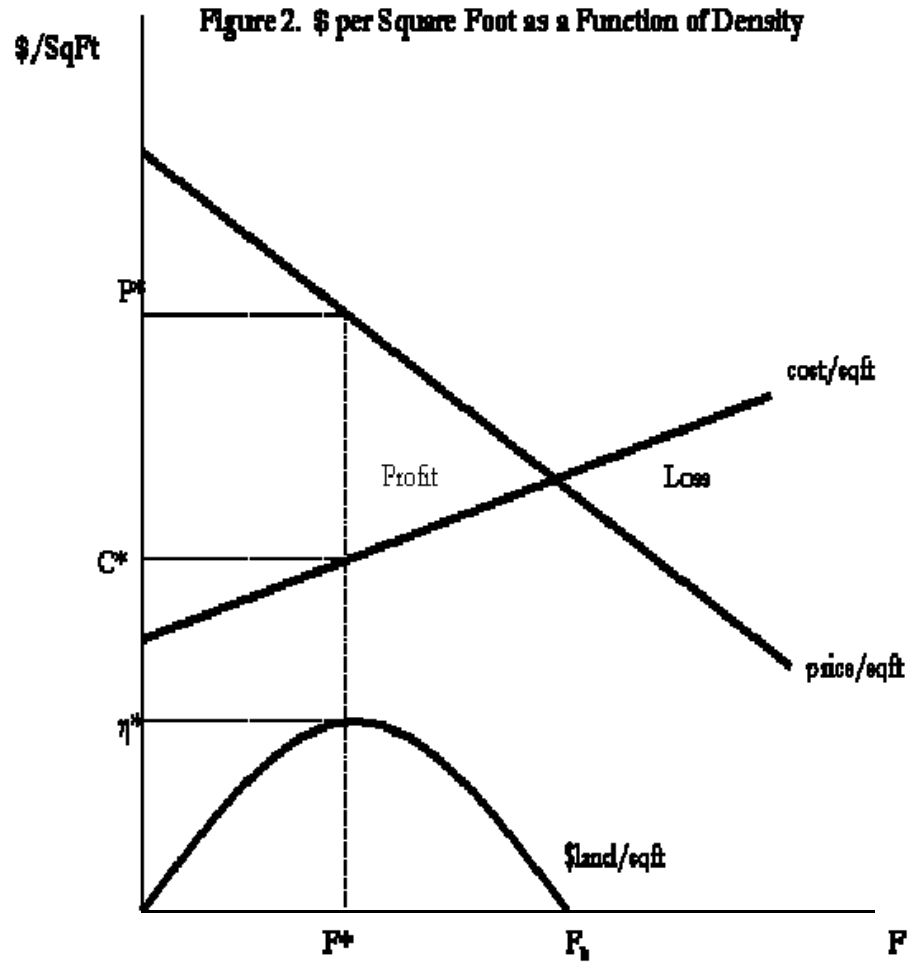
In equation (11), profit is represented per square foot of *floor area*. But the residual value of land is measured as the profit per square foot of *land area*. So, to obtain the value of land (per square foot), we only need to multiply equation (11) by the density of development F:

$$\eta = F(P - C) \qquad (12)$$

Where : η = profit per square foot of land

The reader may easily verify for herself that the equation in (12) can be rearranged to see that the value per square foot of land is simply the total price of housing minus the total cost of constructing it, divided by the total square feet of land. Thus does this model express the value of land as its residual value: it is the money (profit) per square foot that is left over after developing a property and then selling it.

Since we have now expressed price, construction cost and land value all as a function of density, we can put this together to see how these variables also relate to profitability. Figure 2 depicts this relationship:



The $ per square foot of development are on the vertical axis, while density is on the horizontal axis. The hill-shaped object at the bottom of the figure characterizes the relationship of a land parcel's value to density as density increases. It is computed using equation (12):

- With a density of zero at the origin, no construction takes place so there is no residual value to land. So the value of the land to the developer is also zero.

- As construction on the land begins to take place, the addition of structure square footage to a given parcel must also mean that density is increasing. So both profits and the residual value of land begin to rise.

- Eventually however the difference between costs and price begins to narrow, and both profit and land value begins to decline.

- At a density of F_b, the cost of supplying housing just equals its sales price, so both profit and land value return to a value of zero.

The optimal density, which maximizes both profit to the developer and value to the land, is at point F*. If the developer builds at this density, it will cost him C*, he sells at P*, collects a profit of (P*-C*), and the city taxes his land at a value of η*. Thus does this density also maximize the economic use of the land to both society and the taxing municipality. Generally speaking, everyone benefits—and profits--when land is developed to its highest and best use.

How does this model change with the presence of a tax abatement? This can be characterized by noting from equation (5) that, under a scenario of at least partial capitalization, the abatement acts to affect prices positively. An abated building should be able to command a higher price than a comparable non-abated building in the same neighborhood. Because the abatement reduces the effective tax rate on the property, the actual tax paid by the owner is some fraction of the prevailing effective tax rate τ, depending on the extent of improvements.

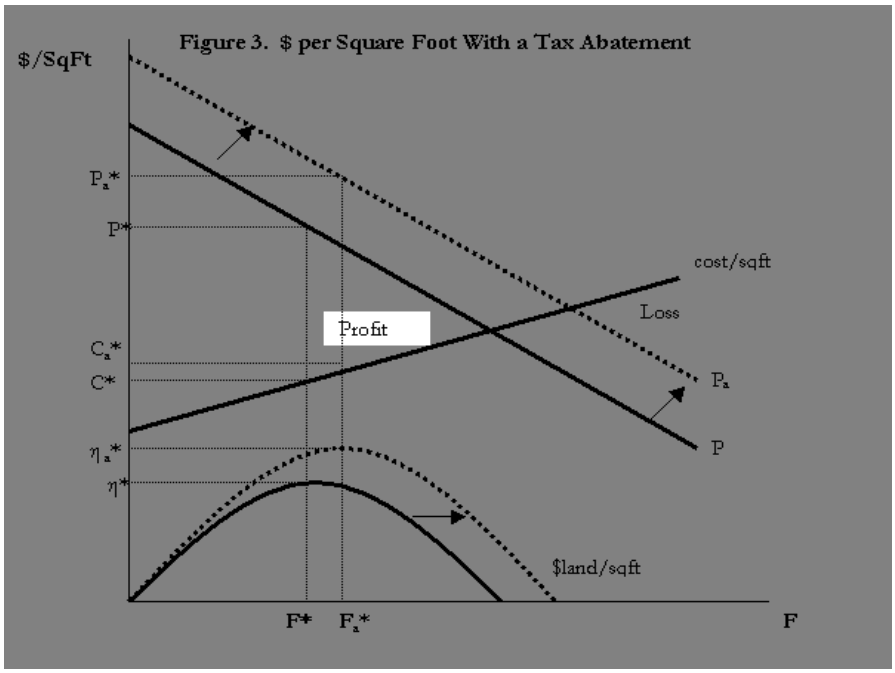
Mathematically then, the degree to which the abatement increases a property's value (and thus price) can be expressed as the simple difference in the property's price if it were abated versus unabated:

$$\Delta r = P_a - P \qquad (13)$$

Where : P_a = price per square foot of abated structure

P = price per square foot of unabated structure

The effect of this on the real estate market can be visually depicted by noting that (13) implies that receiving an abatement shifts prices upward by the amount $\Delta\tau$:



The effect of receiving abatement status is to shift the price schedule faced by the developer upwards from P to P_a, which is represented by the dashed line "P_a". Since the developer's building can now command a higher price, the profit-maximizing building size and density is now F_a^*, which is larger and denser than the previous optimal density of F*. At this higher density, the developer's construction costs C_a^* are now higher than before, but so is the residual value of the land $\eta_a^* > \eta^*$, and thus his profit $\Pi_a^* > \Pi^*$.

To summarize then, the effect of the 10-year tax abatement on improvements is to increase the value of newly constructed and improved/converted properties, increase the size and density of the new/improved buildings, and to increase the developer's profits from undertaking these ventures. This result would seem to be supported by casual empirical observation of Philadelphia current real estate market, where most major new development is the construction or conversion of middle- to high-rise condominiums.

Measuring the actual effect of the abatement could be computationally estimated if values of the parameters in equations (9), (10), (12) and (13) could be obtained. These values could then be plugged into these equations, and then the various outcomes P*, P_a^*, C*, C_a^*,F*, F_a^*, η^*,η_a^*, Π^*, and Π_a could be computed and compared. The data and methods used to do this are the subject that the next section addresses.

To illustrate the effect of the abatement, consider a representative developer who owns a third of an acre (14,375 SF) of vacant land in Center City, and decides to build a luxury-class condominium. Since this parcel is relatively small, the footprint of the building can be built out to the dimensions of the lot size, while

still allowing all units to have access to at least some natural light.[46] When the building's footprint exactly matches the lot dimensions, the density parameter F has the intuitively nice interpretation of simply being the number of stories in the building.

The cost schedule of this development project is given by inserting the parameters from Table Appendix B.1 (from Appendix B that below) into the cost function of equation (10):

$$C=1\times(300+2.5\times F) \qquad (14)$$

The price of such a condo--absent the presence of an abatement--can be computed from the regression results by inserting the mean values of luxury-class condos into the pricing equation (9), and summing the first k-1 terms, while letting the *k*th term remain unevaluated to allow for varying density. This gives the following pricing equation:

$$Ln(P)=6.75-0.04004\times F \qquad (15)$$

Exponentializing (15) gives

$$P=\exp(6.75-0.04004\times F) \qquad (16)$$

The developer wants that F* which maximizes profits. So, he solves:

$$F^* = \arg\max_F \{F(P-C)\} \qquad (17)$$
$$= F[e^{(6.75-0.04004F)} - (300+2.5F))]$$

The developer adds square footage (increasing density on a fixed lot size) until the marginal cost of an additional square foot exactly equals the marginal price a buyer would pay tow own it. Letting the residual value of land be denoted by p, the mathematical condition for MR=MC is:

$$\partial p / \partial F = 0 \qquad (18)$$

Differentiating (17) with respect to F gives:

$$\partial p / \partial F = -2.5 - 0.04004 \times e^{6.75-0.04004F} \qquad (19)$$

[46] This condition has important implications for the density of the building because it's a stylized fact of high-density architecture that all units (and their occupants) require at least some access to natural light. For a larger lot size (e.g. several acres), the footprint of the building—and thus its density—will often be substantially less than the lot dimensions because the necessary inclusion of air shafts, light wells and interior courts will shrink the building's footprint.

Ideally, setting the right-hand side of (19) equal to zero and solving for F would yield the optimal density, F*. However, the presence of the exponential operator in this equation forces the solution to enter into the equation into a transcendental way that prohibits solving for the explicit solution F* symbolically. Instead, numerical methods[47] were used to identify that the profit-maximizing density is F*=10.

At this density, a building with a footprint that exactly matches the lot dimensions implies that the developer should build a 10-story condo. Since the lot size is fixed at 14,375 square feet, the building would have a total square footage of 143,750 (=10×14,375) [48] square feet. Since the industry standard is that 20% of all square footage is common space, and since the average Center City condo size is 1,050 square feet, this implies that the building would contain 110 units (=143,750×0.8/1,050).

The developer's price and costs are computed by plugging F*=10 back into equations (15) and (16). At this density, the developer's costs are $325/SF, the condo's sales price is $572/SF. Not including land cost, taxes or other soft costs (A&E, marketing, etc.), the developer would take profit of $247/SF for a total profit of $35.5 million (=$247×143,750).

How does this scenario change if the developer applies for and receives a 10-year abatement designation on the structure? Because the abatement doesn't affect construction costs, the developer still faces the same cost schedule as described by equation (14). But, since the empirical results indicate that the presence of the abatement adds to the price an owner/investor is willing to pay for a condo, the pricing schedule is affected by shifting it upwards. This can be computed by adding the abatement coefficient from the regression results in Table Appendix A.1 to the pricing equation (16).

Table Appendix A.1
Pricing Regression Results

Variable	WLS Regression	
	Coefficient	t-value
Intercept	5.52188	313.21
time_left_imp_conv	0.00845	3.73
time_left_new	0.02554	20.64
tax_diff	0.00934	202.06
Condo	-0.03346	-1.74
FAR	-0.04004	-14.38
Hedonic Vars?	Yes	
Location Vars?	Yes	

[47] The reader can verify that this is the optimal density F* by simply setting up the cost and price equations (14) and (16) in a spreadsheet, and varying the levels of F to explicitly compute the profit-maximizing F*.

[48] Note: some rounding is present in the analysis.

Sample Selection Vars?	Yes
Time Vars?	Yes
Adj. R-Sq.	0.7141
Estimation Method	WLS

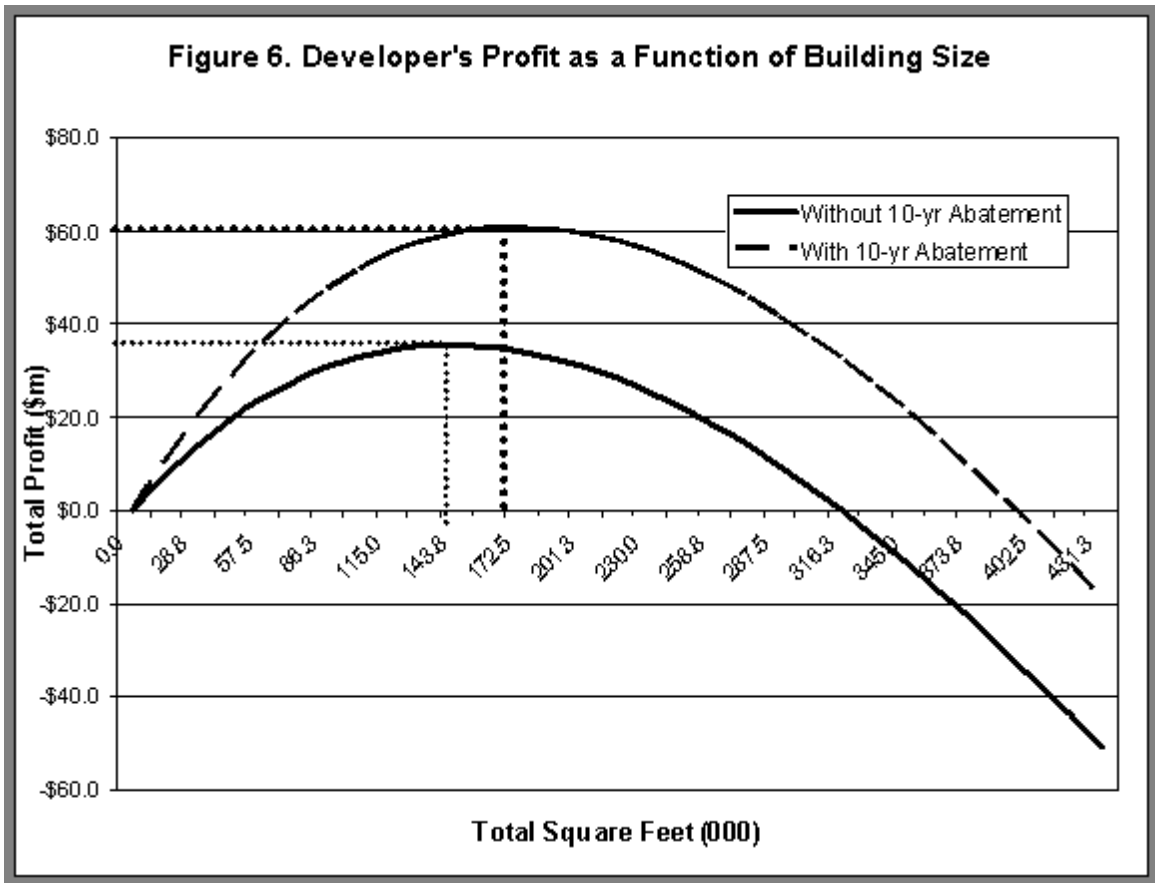
Source: Econsult

Now, the new pricing equation that describes how much the owner/investor is willing to pay if she takes ownership in year 1 of the abatement (right after the building's construction is completed and it's certified for occupancy) is given by:

$$P=\exp(6.75-0.04004\times F+0.02554\times 10) \qquad (20)$$

This has the effect of shifting the pricing schedule upwards, as indicated in Figure 3. Now, since the developer's building can command a higher price regardless of which density he chooses, the new optimal density F* is 12 stories; 2 stories higher than without the abatement. At this density, the developer builds a 172,500 square feet structure to the site, or 131 units. This structure costs $330/SF to build, but sells for a price of $528/SF, for a profit of $352/SF. Figure 6 illustrates how total profit varies with total square footage (density), with and without the presence of the abatement:

Abatement Type



Source: Econsult

As the model in Section II predicted, the presence of the abatement increases the value (price) of the building, which in turn increases both the profit-maximizing building size and the developer's profits. However, the increase in the former appears relatively small compared to the increase in the latter. While the building's optimal size increased by only 2 stories, or 20% over the original building size, the developer's profits jumped by $105/SF, or 42.5%.

TECHNICAL APPENDIX B: CONSTRUCTION COSTS

Data on construction costs were obtained by surveying members of the local development community. They were asked how construction costs vary along two axes: quality and quantity (or height). These axes are comparable to the μ and γF terms in the construction cost equation in (10). The general consensus was that high-rise new construction (>5 stories) varied from $175/SF for an economy-class building to a maximum of $400/SF for a luxury class building. The comparable numbers for a low-to-mid-rise building or garden apartments are $150/SF for economy class to $250/SF for luxury class. Improvements to and conversions of existing structures, by contrast, are typically range from $90-$300/SF, depending upon the class and extent of the conversion. Finally, the cost of single-family homes ranges from $90 to $200 per square foot, depending upon the class of the house and whether it is attached, semi-detached or detached.

This suggests the following set of construction cost equations for residential properties in Philadelphia, depicted in Table Appendix B.1 below.

The coefficients in Table Appendix B.1 capture the essential stylized facts about the technology of construction costs. New condo towers pay a higher price for density (γ>1) because they are the costliest to build relative to conversions of existing buildings or even new single-family. By contrast, single-family homes are rewarded for density with lower costs (m<=1), depending upon their degree of "attachedness" because row-homes and semi-detached dwellings don't require the insulation, facade finishing work and windows on all exterior walls that fully detached units would need. Finally, improvements/conversions/renovations of existing structures get penalized the least for density (γ<1) because no additional foundation work is required, and the improvements are within the existing frame of the building. Rather, it's assumed the developer is not adding additional stories to the building, but rather working within the existing frame.

For example, a new 40-story high-end luxury condo tower has a cost per square foot of c=1×(300+(2.5×40)=$400/SF. By contrast, converting an existing 40-story (say, office) tower to the same luxury class condo only costs c=1×(250+(0.75×40)=$280/SF. For single-family homes, the cost of a newly constructed middle-class 3-story townhouse is equal to c=0.85×(130+(1×3)=$113/SF, whereas the detached version of that same dwelling would now cost c=1×(130+(1×3)=$130/SF. The renovation of that same existing townhouse from middle-class to high-class is projected to cost c=0.85×(100+(0.5×3)=$101.50/SF.

Table Appendix B.1: Construction Cost Parameters

Category	Type	Class	Density	m	μ	γ
Condo/Apts.	New Const.	High	High	1	300	2.5
			Middle	1	300	2
			Low	1	300	1
		Middle	High	1	200	2.5
			Middle	1	200	2
			Low	1	200	1
		Economy	High	1	150	2.5
			Middle	1	150	2
			Low	1	150	1
	Improve/Convert	High	High	1	250	0.75
			Middle	1	250	0.5
			Low	1	250	0.25
		Middle	High	1	150	0.5
			Middle	1	150	0.25
			Low	1	150	0.15
		Economy	High	1	100	0.5
			Middle	1	100	0.25
			Low	1	100	0.15
Single-Family Homes	New Const.	High	High	.85	175	1
			Middle	.925	175	1
			Low	1	175	1
		Middle	High	.85	130	1
			Middle	.925	130	1
			Low	1	130	1
		Economy	High	.85	100	1
			Middle	.925	100	1
			Low	1	100	1
	Improve/Convert	High	High	.85	100	0.5
			Middle	.925	100	0.25
			Low	1	100	0.15
		Middle	High	.85	75	0.5
			Middle	.925	75	0.25
			Low	1	75	0.15
		Economy	High	.85	50	0.5
			Middle	.925	50	0.25
			Low	1	50	0.15

Source: Econsult

TECHNICAL APPENDIX C: ESTIMATE OF AGGREGATE CITY RESIDENTIAL MARKET VALUE

Aggregation Using Citywide Numbers

According to the March 2006 BRT property file, there are 445,573 residential properties in Philadelphia, of which 22,022 (~5%) are condos.

Total square footage of the single-family residences (SFRs) is 559m, which is an average size of 1,320 SF. The median size, however, is 1,204 SF because the presence of a few very large properties (e.g. Chestnut Hill mansions) positively skews the data.

Total square footage of the condos is 24m, which is an average size of 1,083 SF. The median size, however, is 1,039 SF because the presence of a few very large units (e.g. penthouses) positively skews the data.

According to the sales database, the mean price/SF of a single-family residence (SFR) in Philadelphia in 2005 was $90.91, while the median was $78.35. (Again, we see the positive skewness in the data).

If we multiply the mean $price/SF times total SFR SF, we get an aggregate valuation of $50.8 billion. If instead we use the median $price/SF, we get $43.8 billion

Doing the same exercise for condos gives a mean $price/SF of $430, with a median of $300 (the positive skewness is really evident here).

Thus, the aggregate condo valuation is $10.3 bn if we apply the mean price, or $7.2 bn if we use the median price instead.

Summing SFRs plus condos gives a total aggregate valuation of the residential housing stock of $61.1 bn if you use the mean prices, or $51 bn if you use the medians.

Which is correct, the mean or median? Well, this analysis implicitly assumes that all properties are habitable and up to code. Although the high end (right tail) of the housing stock is important to consider—which argues in favor of going with the mean valuation numbers—a counterpoint is that for every Chestnut Hill mansion or Rittenhouse Square condo, there is at least 20 dilapidated row homes in distressed parts of the City. Hence, we believe that the mean numbers are biased upwards, so we'd go with the more conservative median numbers instead.

Estimation Using Zip-Code Data

We now repeat the above exercise on a zip code-by-zip code basis. The results are given in the attached table. They appear to reconcile with the above results.

Table Appendix C.1
Market Value Estimates by Zip Code

Market value estimates by zip code: using mean value (not median)							
zip_code	tot_sfr_sqft	SFR PSF	totSFR $Val	TotCondoSF	Condo PSF	totCondo$Val	**Total Value**
19102	160226	151.803	$24,322,787	898947	408.48	$367,201,871	$391,524,658
19103	2881142	322.16	$928,188,707	3203915	512.95	$1,643,448,199	$2,571,636,906
19104	8593067	89.994	$773,324,472	.	.	$0	$773,324,472
19106	1818196	359.266	$653,216,004	3999769	401.13	$1,604,427,339	$2,257,643,343
19107	899022	321.881	$289,378,100	1640374	759.76	$1,246,290,550	$1,535,668,651
19111	21536092	123.155	$2,652,277,410	.	.	$0	$2,652,277,410
19114	9729593	139.212	$1,354,476,101	1938349	142.61	$276,427,951	$1,630,904,052
19115	12042022	158.499	$1,908,648,445	2405284	135.39	$325,651,401	$2,234,299,846
19116	11318053	147.42	$1,668,507,373	845664	143.41	$121,276,674	$1,789,784,048
19117	31832	68.765	$2,188,927	.	.	$0	$2,188,927
19118	5877133	220.948	$1,298,540,782	173089	156.19	$27,034,771	$1,325,575,553
19119	15769141	113.636	$1,791,942,107	318581	131.54	$41,906,145	$1,833,848,251
19120	22480912	64.356	$1,446,781,573	.	.	$0	$1,446,781,573
19121	12736760	39.535	$503,547,807	184387	840.99	$155,067,623	$658,615,430
19122	5634581	60.425	$340,469,557	1650	221.51	$365,492	$340,835,048
19123	2698260	159.393	$430,083,756	313807	266.5	$83,629,566	$513,713,322
19124	23439616	64.174	$1,504,213,917	.	.	$0	$1,504,213,917
19125	10076139	95.217	$959,419,727	19877	255.8	$5,084,537	$964,504,264
19126	7044560	70.98	$500,022,869	.	.	$0	$500,022,869
19127	2956517	145.531	$430,264,876	152270	260.52	$39,669,380	$469,934,256
19128	15706805	146.297	$2,297,858,451	718115	154.64	$111,049,304	$2,408,907,755
19129	4623178	157.603	$728,626,722	282622	150.95	$42,661,791	$771,288,513
19130	6926270	224.525	$1,555,120,772	2797548	482.43	$1,349,621,082	$2,904,741,853
19131	16114733	52.942	$853,146,194	810199	130.29	$105,560,828	$958,707,022
19132	19399747	29.9	$580,052,435	.	.	$0	$580,052,435
19133	10406149	26.757	$278,437,329	.	.	$0	$278,437,329
19134	22388124	49.797	$1,114,861,411	.	.	$0	$1,114,861,411
19135	12312871	89.103	$1,097,113,745	.	.	$0	$1,097,113,745
19136	12055979	104.284	$1,257,245,714	109090	74.63	$8,141,387	$1,265,387,101
19137	3885600	83.248	$323,468,429	.	.	$0	$323,468,429
19138	14304230	60.3	$862,545,069	.	.	$0	$862,545,069
19139	15474083	39.6	$612,773,687	.	.	$0	$612,773,687
19140	21482416	31.703	$681,057,034	.	.	$0	$681,057,034
19141	10997088	47.358	$520,800,094	.	.	$0	$520,800,094
19142	10814781	52.71	$570,047,107	.	.	$0	$570,047,107
19143	26724731	53.335	$1,425,363,528	223296	123.57	$27,592,687	$1,452,956,215
19144	15451121	54.461	$841,483,501	.	.	$0	$841,483,501
19145	18349861	91.469	$1,678,443,436	.	.	$0	$1,678,443,436
19146	15877363	138.418	$2,197,712,832	687967	445.2	$306,282,908	$2,503,995,740
19147	14038848	205.128	$2,879,760,813	1009310	338.65	$341,802,832	$3,221,563,644
19148	20026590	110.133	$2,205,588,436	.	.	$0	$2,205,588,436
19149	20163060	109.846	$2,214,831,489	.	.	$0	$2,214,831,489
19150	10231682	90.124	$922,120,109	.	.	$0	$922,120,109
19151	13465400	69.137	$930,957,360	36258	63.64	$2,307,459	$933,264,819
19152	11614250	145.032	$1,684,437,906	333718	101.85	$33,989,178	$1,718,427,084
19153	4225212	87.477	$369,608,870	.	.	$0	$369,608,870
19154	13934671	141.026	$1,965,150,912	580993	104.97	$60,986,835	$2,026,137,748
TOTAL							**$60,435,906,468**
TOTAL ESTIMATE USING MEDIAN P:							**$51 billion**

Source: Econsult

TECHNICAL APPENDIX D: BRT TAX ABATEMENT DATA

	Exempt Code I				Exempt Code M				Exempt Code 1			
	Records	Ex. M.V.	Ex. A.V.	Ex. Tax	Records	Ex. M.V.	Ex. A.V.	Ex. Tax	Records	Ex. M.V.	Ex. A.V.	Ex. Tax
1998												
1999												
2000												
2001					3	117,275	37,528	3,101	1	62,400	19,968	1,650
2002					32	701,350	224,432	18,547				
2003					48	1,658,500	530,720	43,859	2	77,000	24,640	2,036
2004	1	7,303	2,337	193	96	2,971,188	950,780	78,572	21	3,527,716	1,128,869	93,290
2005					84	2,462,784	788,091	65,128	179	25,282,297	8,090,335	668,585
2006					9	334,000	106,880	8,833	98	18,682,541	5,978,413	494,056
2007									2	237,500	76,000	6,281
2008												
2009												
2010												
Total	1	7,303	2,337	193	272	8,245,097	2,638,431	218,040	303	47,869,454	15,318,225	1,265,898

Ordinance 961 and its amendments: (Residential Rehab)

Code I: 5 year term that declines by 20% each year during the abatement term. Maximum assessment is $10,000

Code M: 10 year term. Capped at $50,000 of added market value.

Code 1: 10 year term. Uncapped. **This abatement reflects the most recent amendment to the Ordinance.**

	Exempt Code 4				Exempt Code N			
	Records	Ex. M.V.	Ex. A.V.	Ex. Tax	Records	Ex. M.V.	Ex. A.V.	Ex. Tax
1998					2	63,000	20,160	1,666
1999					14	2,143,272	685,847	56,678
2000					216	23,557,584	7,538,427	622,976
2001					223	28,645,141	9,166,445	757,515
2002					246	34,610,109	11,075,235	915,257
2003					305	46,992,575	15,037,624	1,242,709
2004	1	300,000	96,000	7,933	400	90,505,191	28,961,661	2,393,392
2005	1	63,031	20,170	1,667	352	87,470,609	27,990,595	2,313,143
2006					14	2,935,000	939,200	77,615
2007								
2008								
2009								
2010								
Total	2	363,031	116,170	9,600	1,772	316,922,481	101,415,194	8,380,951

Ordinance 1456-A and its amendments: (New Residential Construction)

Code 4: 3 year term. Uncapped.

Code N: 10 year term. Uncapped. **This abatement reflects the most recent amendment to the ordinance.**

	Exempt Code 8			
	Records	Ex. M.V.	Ex. A.V.	Ex. Tax
1998				
1999				
2000	1	11,062,359	3,539,955	292,542
2001	9	5,294,859	1,694,355	140,021
2002	84	65,903,006	21,088,962	1,742,792
2003	126	170,494,484	54,558,235	4,508,693
2004	228	97,029,897	31,049,567	2,565,936
2005	206	146,745,603	46,958,593	3,880,658
2006	72	32,903,613	10,529,156	870,129
2007				
2008				
2009				
2010	1	28,200,000	9,024,000	745,743
Total	727	557,633,821	178,442,823	14,746,514

Ordinance 1130 and its amendments: (Commercial, Industrial & Other Business Properties)

Code 8: 10 year term. Uncapped. **This abatement reflects the most recent amendment to the Ordinance.**

	Exempt Code 6			
	Records	Ex. M.V.	Ex. A.V.	Ex. Tax
1998				
1999	205	64,169,728	20,534,313	1,696,956
2000	17	16,710,047	5,347,215	441,894
2001	43	24,187,813	7,740,100	639,642
2002	52	17,646,556	5,646,898	466,660
2003	13	1,995,397	638,527	52,768
2004	2	800,000	256,000	21,156
2005				
2006	6	1,891,200	605,184	50,012
2007				
2008				
2009				
2010				
Total	338	127,400,741	40,768,237	3,369,088

Ordinance 970274 ("Conversion Ordinance")

Code 6: 10 year term. Uncapped. **This Ordinance has "sunset".**

	Exempt Code 2			
	Records	Ex. M.V.	Ex. A.V.	Ex. Tax
1998				
1999				
2000				
2001				
2002				
2003	8	1,800,100	576,032	47,603
2004	58	39,423,925	12,615,656	1,042,558
2005	10	2,774,238	887,756	73,364
2006	9	6,750,000	2,160,000	178,502
2007				
2008				
2009				
2010				
Total	85	50,748,263	16,239,444	1,342,027

State Act 175 and its amendments:

Code 2: 30 month term or until sold or otherwise transferred. Uncapped.

Total Records	Total Exempt Market	Total Exempt Assessed	Total Exempt Tax
3,500	1,109,190,191	354,940,861	29,332,311
	Total Taxable Market	Total Taxable Assessed	Total Tax
	493,352,809	157,872,899	13,046,616

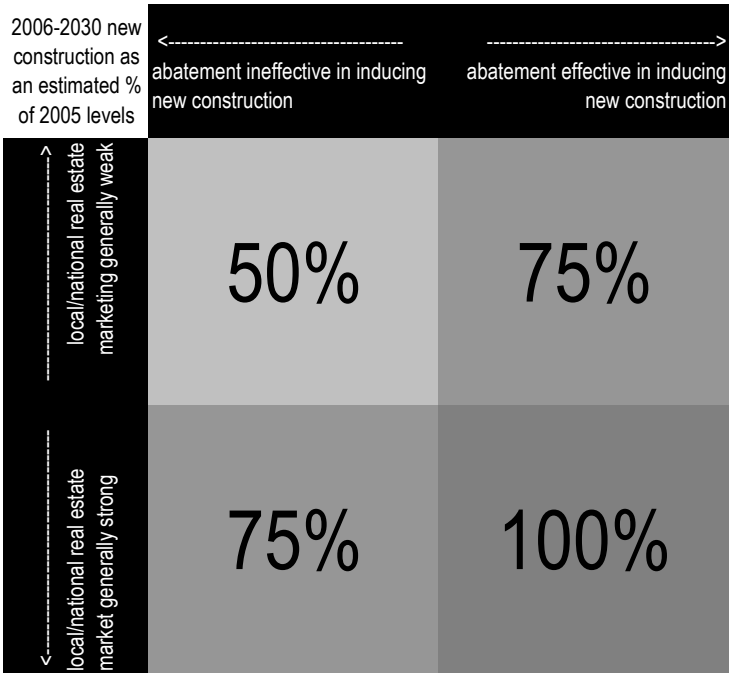
Finally, currently pending in the BRT system, but not yet approved, are approximately 2,650 abatement applications. These applications consist of 957 new residential construction applications, 536 Commercial, Industrial and other Business Property applications, 1,037 existing residential rehabilitation applications, and 119 State Act Applications for developers of residential properties.

TECHNICAL APPENDIX E: SENSITIVITY ANALYSIS OF ABATEMENT PROGRAM ON CUMULATIVE TAX REVENUES GENERATED

2006-2030 new construction = 50% of 2005 level (discount rate = 4%)	cumulative gain (loss) from abatement program @ 67%	PV of cumulative gain (loss) from abatement program @ 67%	cumulative gain (loss) from abatement program @ 67% (incl non-PT)	PV of cumulative gain (loss) from abatement program @ 67% (incl non-PT)
2025	$ 75,354,632	$ 3,124,053	$ 378,568,601	$ 198,134,136
2030	$ 243,272,719	$ 58,919,025	$ 602,255,503	$ 272,555,372
2035	$ 466,211,532	$ 119,882,494	$ 880,963,130	$ 348,828,272
2040	$ 744,171,069	$ 182,404,465	$ 1,214,691,482	$ 423,933,480

2006-2030 new construction = 75% of 2005 level (discount rate = 4%)	cumulative gain (loss) from abatement program @ 67%	PV of cumulative gain (loss) from abatement program @ 67%	cumulative gain (loss) from abatement program @ 67% (incl non-PT)	PV of cumulative gain (loss) from abatement program @ 67% (incl non-PT)
2025	$ 51,868,174	$ (14,334,324)	$ 413,377,792	$ 209,940,486
2030	$ 264,213,443	$ 56,154,861	$ 698,637,655	$ 304,782,465
2035	$ 559,089,801	$ 136,747,937	$ 1,066,428,607	$ 405,391,763
2040	$ 936,497,247	$ 221,611,235	$ 1,516,750,646	$ 506,706,936

2006-2030 new construction = 100% of 2005 level (discount rate = 4%)	cumulative gain (loss) from abatement program @ 67%	PV of cumulative gain (loss) from abatement program @ 67%	cumulative gain (loss) from abatement program @ 67% (incl non-PT)	PV of cumulative gain (loss) from abatement program @ 67% (incl non-PT)
2025	$ 28,381,715	$ (31,792,701)	$ 434,922,802	$ 215,088,146
2030	$ 285,154,167	$ 53,390,698	$ 777,854,397	$ 329,047,895
2035	$ 651,968,070	$ 153,613,380	$ 1,230,827,443	$ 452,922,639
2040	$ 1,128,823,424	$ 260,818,006	$ 1,793,841,940	$ 579,567,536



TECHNICAL APPENDIX F: CENTER CITY DEVELOPMENTS

DESIGN ADVOCACY GROUP of Philadelphia

CURRENT AND PROPOSED CENTER CITY DEVELOPMENTS

August 2005

PROJECT NAME	ADDRESS	CATEGORY	TYPE	SPECIFIC TYPE	INVESTMENT	APTS	CONDOS	HOUSES	BLDG SF	OFFICE SF	RETAIL SF	DEVELOPER / CONTACT	STATUS
Northern Liberties Development	Front and Brown St vicinity extends to N. Delaware Ave	Residential	New Construction	Condos	$600,000,000		1110					Hoboken Brownstone Company	Planned
Waterfront Square	900 N Delaware Ave	Residential	New Construction	Condos	$280,000,000		780		1300000			Isle of Capri Associates	Under Construction
1441 Chestnut St	1441 Chestnut St	Residential	New Construction	Condos			325					Mariner Commercial Properties	Planned
The Murano	21st & Market Streets	Residential	New Construction	Condos			302					Solomon Cordwell Buenz	Approved
Post Office Condos	30th & Chestnut	Residential	New Construction - 30 Story Tower	Condos	$150,000,000*							Cesar Pelli	Planned
Sheraton Rittenhouse Square Condominiums	225 S 18th St	Residential	Conversion	Condos			275						Under Construction
Meridian Building	S 15th St & South Penn Sq	Residential	New Construction	Condos	$150,000,000		220					Arden Group	Planned
New Market	400-block S. Front Street	Residential	New Construction	Condos			192	8	455000			Sant Properties	Planned
2200 Arch Street	2200 Arch St	Residential	Conversion	Condos			176		350000			Orens Brothers Inc	Under Construction
Symphony House	400 S Broad St	Residential	New Construction	Condos	$92,000,000		167					Dranoff Properties	Under Construction
Rittenhouse Place	1811 Walnut St	Residential	New Construction	Condos	$140,000,000		150		500000			ARC Wheeler Group and Skanska USA Building Inc.	Approved
Marina View Towers	230 N. Columbus Blvd	Residential	New Construction	Condos	$100,000,000		180		250000		15000	Louis A. Cicalese / BLT	Planned
Pier 34 Condos	S. Columbus Blvd.	Residential	New Construction	Condos	$100,000,000		150					Louis A. Cicalese / BLT	Planned
Pier 40	N. Columbus Blvd.	Residential	New Construction	Condos	$200,000,000		270					Louis A. Cicalese / BLT	Planned
Tivoli Condominiums	1944 Hamilton St	Residential	New Construction	Condos	$55,000,000		122					Valhal Corp	Under Construction
Western Union Building	11th & Locust Streets	Residential	New/Conversion	Condos	$30,000,000		100					Cecil Baker & Associates	Under Construction
Radio Lofts	Camden	Residential	Conversion	Condos			90		230000			Dranoff Properties	
23: A Condominium	23 S 23rd St	Residential	Conversion	Condos	$40,000,000		80					Turchi Properties	Under Construction
Lofts at Bella Vista	1101 Washington Ave	Residential	Conversion	Condos			78					Metro Development Company	Under Construction
1352 Lofts and Condos	1352 South Street	Residential	New Construction w u	Condos	$14,000,000		72		72000			BENAKMOUME SAMIR??	Approved
1027 Arch Street Lofts	1027 Arch St	Residential	Conversion	Condos			63		100000			Miles & Generalis, Inc.	
York Square	317 Vine St	Residential	New Construction	Condos	$23,000,000		60					Cecil Baker & Associates	Approved
Mandeville Place	2401 Walnut	Residential	New Construction	Condos/Office			45		400000	110000	40000	Richard Meier & Partners Architects	Planned
Doc Johnson Site	13th & Arch	Residential	Conversion	Condos/Retail			35					Sam Hageman	Planned
1701 Rittenhouse	17th & Rittenhouse Sq. Streets	Residential	New Construction	Condos			32		150000			Scannapieco Developemtn Corp.	Approved
1220 Buttonwood St	1220 Buttonwood St	Residential	Conversion	Condos			30		55000			RGV Developers	Planned
Nugent and Presser Homes	101 and 221 West Johnson St	Residential	Adaptive Reuse	Condos			30					Nolen Company Developers selected	Planned
101-115 Spring Garden St	101-115 Spring Garden St ??	Residential	New Construction	Condos	$10,000,000		24					Hugh Zimmers Architects	Under Construction
Cobblestone Court	103 Church St	Residential	Conversion	Condos			21						
Sunshine Court	524 Christian St	Residential	New Construction	Condos			18					Regis Development Corp.	
Le Granier Condominiums	1034 Spruce St	Residential	New Construction	Condos	$10,000,000		19					Maxwell Realty / BLT Architects	Under Construction
Locust Club Condominiums	1612 Locust St	Residential	Conversion	Condos	$25,000,000		17					Ceebraid Signal	Approved
The White Building Condominiums	105 S 12th St	Residential	Conversion	Condos			16					Goldman Properties	
101 Walnut	140 S Front St	Residential	New Construction	Condos			10					101 Walnut Associates	Planned
257 North	257 N 02nd St	Residential	New Construction	Condos			10					257-259 DEVELOPMENT LLC	
The Chelsea	1515 Locust St	Residential	Conversion	Condos			15		55000			Kane & Silverman / Marathon Construction	Under Construction
837-43 N 2nd St	837 N 02nd St	Residential	New Construction	Condos			19						
The Beaumont	110 S Front St	Residential	New Construction	Condos			14					JK Roller Architects	Under Construction
Dilworth House	225 South 6th Street	Residential	New Construction	Condos			13					Turchi Properties	Planned
240 Arch St	240 Arch St	Residential	New Construction	Condos			9					Yaron Properties	
900 N 3rd St	900 N 03rd St	Residential	New Construction	Condos			8						
Mission Place	511 S. 21st St	Residential	New/Conversion	Condos			8		15000			Harwin Homes	Under Construction
625-627 Bainbridge St	625 Bainbridge St	Residential	Conversion	Condos			8						
Liberty Court	712 N 02nd St	Residential	New Construction	Condos			8					712 N 02ND STREET LLC	
2043 Walnut St	2043 Walnut St	Residential	Conversion	Condos			6						
722 Chestnut	722 Chestnut St	Residential	Conversion	Condos			3					Pintzuk Brown Realty Group	
Knave of Hearts	226 South St	Residential	Conversion	Condos			3						
28 N 3rd St	28 N 03rd St	Residential	Conversion	Condos								Miles & Generalis	
22-24 S. Front Street	22 S. Front Street	Residential	New Construction	Condos								Hans Stein, Architect	Planned
205 Race Street	205 Race Street	Residential	New Construction	Condos/Office								Brown Hill Development	
N.W. Ayer Building	210 Washington Square West	Residential	New/Conversion	Condos								Brown Hill Development	Planned
JFK Vocational Building		Residential	Conversion	Condos									Planned
Lafayette Building	426 Chestnut Street	Residential	Addition	Condos					170000			WRT Design	Planned
13th & Buttonwood	13th & Buttonwood	Residential	New Construction	Condos								DPK&A	Planned
20th & Market	20th & Market Streets	Residential	New Construction	Condos								Opus Properties	Planned
9th & Race	9th & Race Streets	Residential	New Construction	Condos								Synterra	Planned
Whole Foods Redevelopment	21st & Callowhill	Residential	New Construction	Condos								Valhal Corporation	Planned
North Columbus Blvd		Residential	New Construction	Condos									Planned
16th & Vine	16th & Vine Streets	Residential	New Construction	Condos								Metro Development Company	Planned
Acme Warehouse	30th and Girard Vicinity	Residential	Conversion	Condos								Pennrose Properties	Planned
5th & Walnut	5th & Walnut Streets	Residential	New Construction	Condos									Planned
The National at Old City	109 N 02nd St	Residential	New Construction	Mixed			372	40	427439		18538	Matrix Development Group and K. Hovnanian	Under Construction
Naval Square	2420 Grays Ferry Ave	Residential	New Construction	Mixed			275	75				The Toll Brothers Corporation	Under Construction
Spring Arts Point	10th & Mt. Vernon Streets	Residential	New Construction	Mixed			15	53				New Urban Ventures/DV Smart Growth	Approved

CURRENT AND PROPOSED CENTER CITY DEVELOPMENTS

Continued

PROJECT NAME	ADDRESS	CATEGORY	TYPE	SPECIFIC TYPE	INVESTMENT	APTS	CONDOS	HOUSES	BLDG SF	OFFICE SF	RETAIL SF	DEVELOPER / CONTACT	STATUS
Independence Court	3 Christian St	Residential	New Construction	Single Family				50					Under Construction
Liberty Court At Society Hil	234 Lombard St	Residential	New Construction	Single Family	$35,000,000			48				AFC Realty Capital Inc.	Under Construction
Slater Mews	S. 3rd & Christian St	Residential	New Construction	Single Family				33	59000			Harwin Homes	Under Construction
Delancey Parkview	328 S 25th St	Residential	New Construction	Single Family				20				Sunrise Properties	Under Construction
The Artisan	1412 Bainbridge St	Residential	New Construction	Single Family				17					Under Construction
1500 S Front St	1500 S Front St	Residential	New Construction	Single Family				16					Under Construction
Bella Vista Rowhomes	825 Catharine St	Residential	New Construction	Single Family				16				Bella Vista Development	Under Construction
Front & Washington	S Front St & Washington Ave	Residential	New Construction	Single Family				5					Under Construction
Kings Court	147 N 22nd St	Residential	New Construction	Single Family				6				Miles & Generalis	Under Construction
1301-07 South St	1301 South St	Residential	New Construction	Single Family				4					
Quincy Court	900 S 18th St	Residential	New Construction	Single Family				12					
Liberty Gates	918 N Front St	Residential	New Construction	Single Family				8					
Passyunk & Christian	816 E Passyunk Ave	Residential	New Construction	Single Family				2					Under Construction
116-22 Quarry St	116 Quarry St	Residential	New Construction	Single Family				4					Under Construction
Bella Vista Court	611 Catharine St	Residential	New Construction	Single Family			3	12				Shaffer Builders	
S 17th St & Kater St	613 S 17th St	Residential	New Construction	Single Family				7					Under Construction
Girard West	30th and Girard Vicinity	Residential	New Construction	Single Family				100+				Westrum	Approved
11th & Fitzwater	11th & Fitzwater	Residential	New Construction	Single Family				5	25000				Planned
Shot Tower Townhomes	925 S 02nd St	Residential	New Construction	Single Family				8					Under Construction
Park Towne Place	2201 Park Towne Pl	Residential	Renovation									AIMCO	Under Construction
34th & Chestnut	34th & Chestnut Streets	Residential	New Construction	Apartments	$100,000,000	285			325000		26000	Hanover/BLT	Planned
Edgewater	200 N 23rd St	Residential	New Construction	Apartments	$70,000,000	290			350000			Realen Properties	Under Construction
Mulford Building	640 N Broad St	Residential	Conversion	Apartments	$41,000,000	225			360000			EB Realty Management Corp., Acorn Development, and Bresler & Reiner	Approved
Powelton Village Housing	32nd & Powelton Ave	Residential	New Construction	Apartments		151						David Adelman	Planned
Apostolic Senior Housing	21st & Bainbridge Streets	Residential	New Construction	Apartments		150			220000			The Church of the Lord Jesus Christ of the Apostolic Faith	Planned
Liberties Walk	1040 N 02nd St	Residential	New Construction	Apartments	$25,000,000	70		19				Tower Investments	Partially Complete
1010 Arch St	1010 Arch St	Residential	Conversion	Apartments		50			95000				
Le Cillon	1734 Chestnut St	Residential	Conversion	Apartments								Albert M. Greenfield & Co.	
Quartermaster's Depot	S 23rd St & Oregon Ave	Retail			$100,000,000						540000	Moreland Development LLC	Approved
83		Retail			$39,000,000							Goldman Properties	Planned
Suburban Station Renovations	1601 John F Kennedy Blv	Retail	Renovation		$42,000,000							Metro Market at Suburban Station	Under Construction
Italian Market Facelift	S 9th St & Christian St	Retail	Renovation		$2,000,000								Planned
100 Market St	100 Market St	Retail										Yaron Properties	
North Bowl	909-915 North Second Street	Retail	Conversion									Oron & Ierach Daskal	Under Construction
Fresh Grocer	1501 North Broad Street	Retail			$9,000,000						46000		
Parkommium	231 N 02nd St	Retail	New Construction									Realty Capital Advisors	Under Construction
Lucky Strike Lanes	13th & Chestnut	Retail	Conversion		$3,000,000						40000	Lucky Strike Entertainment	Under Construction
Interpark / Jefferson Garage	900 Chestnut St	Retail	New Construction		$35,000,000						15000	InterPark / Urban Growth Property Trust	Under Construction
Applebee's	215 S 15th St	Retail	Conversion								1600		Under Construction
AAA Building	2040 Market St												Planned
Comcast Center	1701 John F Kennedy Blv	Office	New Construction		$435,000,000					1200000		Liberty Property Trust	Under Construction
440 N Broad St	440 N Broad St	Office							850000			Renaissance Properties	Under Construction
Navy Yard Corporate Center	S Broad St & Pattison Ave	Office	New Construction		$170,000,000					1000000		Liberty Property Trust	Approved
Cira Centre	Amtrak's 30th St Station	Office	New Construction		$117,600,000				728000			Brandywine Construction Management	Almost Completed
IRS/Post Office Building	30th & Market	Office	Conversion		$100,000,000*							Bohlin Cywinski Jackson	Planned
PA Convention Center Expansion	Broad & Arch Streets	Commercial	New Construction						260000			PA Convention Center Authority	Approved
Museum of Art Expansion	Ben Franklin Parkway	Arts/Culture	New Construction		$500,000,000							Phila Museum of Art	Planned
Main Branch of the Free Library	1901 Vine St	Arts/Culture	New Construction		$130,000,000							Free Library of Philadelphia	Approved
The Barnes Foundation	20th & Ben Franklin Pkwy	Arts/Culture	New Construction		$100,000,000				100000			The Barnes Foundation	Planned
National Museum of American Jewish History	121 N Independence E Ml	Arts/Culture	New Construction		$100,000,000				80000			National Museum of American Jewish History	Planned
City Hall	1400 John F Kennedy Blv	Arts/Culture	Renovation		$84,800,000								Under Construction
Perelman Building	25th & Pennsylvania Ave	Arts/Culture	New/Conversion		$90,000,000				140000			Phila Museum Art/Giudiman Mayne	Under Construction
Calder Museum	22nd & Ben Franklin Pkwy	Arts/Culture	New Construction		$35,000,000				35000			Calder Foundation/Phila Museum of Art	Planned
Boyd Theater	1908 Chestnut Street	Arts/Culture	Renovation		$33,000,000							Clear Channel Entertainment	Approved
Philadelphia Theatre Co.	400 S Broad St	Arts/Culture	New Construction		$10,000,000							Dranoff Properties	Under Construction
Independence Park Institute	6th & Arch Streets	Arts/Culture	New Construction		$7,500,000							National Park Service	Planned
President's House	6th & Market Streets	Arts/Culture	New Construction		$4,500,000							National Park Service	Planned
Temple University Tyler School of Art	12th and Norris	Institutional	New Construction		$75,000,000							Temple Univ. / H2L2 Architects/Planners	Planned
Temple University Hospital		Institutional	New Construction		$68,000,000				122000				Planned
Temple University Business School	13th and Montgomery	Institutional	New Construction		$87,000,000							Temple Univ. / Michael Graves/Burt Hil	Planned
Translational Research Facility		Institutional			$65,000,000							Forest City Enterprises	
Jefferson Education Building	11th & Locust Streets	Institutional	New Construction		$60,000,000				100000			Thomas Jefferson University	Planned
Delaware River Tramway	101 S Chris Columbus Blvd	Recreation			$32,000,000							Delaware River Port Authority	Approved
Schuylkill River Park		Recreation			$15,000,000								Approved

Note: This list has been developed from one initially researched by the Center City District and the Central Philadelphia Development Corporation
It has been expanded with the assistance of John Gallery, Laura Spina, Inga Saffron, Karen Stabenow, George Claflen, and James Templeton.
Although compiled in good faith from sources deemed to be reliable, its accuracy is not guaranteed for any purpose.
If you have any corrections/updates to this list, or if you have new projects to add, please forward the information to info@claflenassociates.com

Page2