Vacant Land Management in Philadelphia

The Costs of the Current System and the Benefits of Reform

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Philadelphia Association of Community Development Corporations

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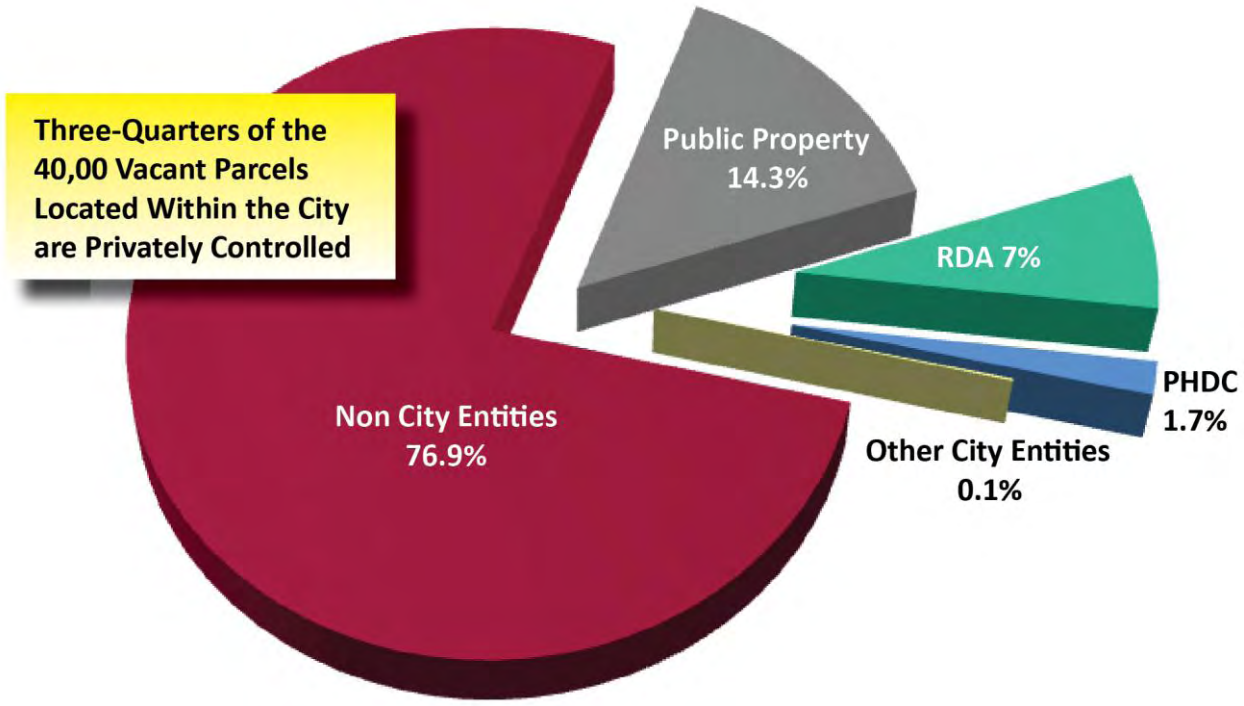
EXECUTIVE SUMMARY

Vacant land has a devastating impact on the neighborhoods and the finances of the City of Philadelphia. Vacancy results in blighted blocks, high maintenance costs, and uncollected taxes. City-owned vacant parcels are owned by different agencies with different rules and agendas. Historically, the City has rarely used its tax foreclosure power to put privately-owned vacant parcels into more responsible hands. As a result, neighborhoods bear undue distress, the City and its taxpayers pay dearly, and those seeking to improve properties and reclaim blocks are discouraged.

Though they are most concentrated in North and West Philadelphia, vacant parcels are scattered throughout the City, affecting virtually every neighborhood. **Of 40,000 vacant parcels in the City, over three-quarters are privately controlled** (see Figure ES.1).

Figure ES.1 – Ownership Distribution of Vacant Parcels within the City of Philadelphia: Three-Quarters of the 40,000 Vacant Parcels Located within the City are Privately Controlled



Source: Philadelphia Water Department (2010), Econsult Corporation (2010)

In this study, commissioned by the Redevelopment Authority of the City of Philadelphia (RDA) and the Philadelphia Association of Community Development Corporations (PACDC), Econsult Corporation, the Penn Institute for Urban Research, and May 8 Consulting estimated that vacant parcels cost the City and its residents in the following ways:

1. **$3.6 Billion in Lost Household Wealth.** Vacant parcels have a blighting effect on nearby properties, reducing values by 6.5 percent citywide and by up to 20 percent in some neighborhoods (see Figure ES.2). This results in an estimated $3.6 billion reduction in property values, an average of $8,000 for each household in the City.

2. **Over $20 Million in City Maintenance Costs Each Year.** Though the City controls only a fraction of the vacant parcels within the city, it has to bear significant costs to maintain all of them – waste clean-up, pest control, police and fire – totaling over $20 million per year.

3. **At least $2 Million in Uncollected Property Taxes Each Year.** 17,000 vacant parcels are tax delinquent, most by over a decade, owing a total of $70 million to the City and School District in back property taxes. This number increases by at least $2 million a year.

The City's historic approach to vacant land management contributed to the problem and prevented a comprehensive solution. Management has been fragmented because **ownership and services are spread out across multiple agencies.** No single entity is responsible for acquiring, assembling, and disposing of vacant parcels, or for thinking about the entire inventory of parcels and making strategic land use decisions, although recently Mayor Nutter has convened a working committee of City agencies and other stakeholders to this end. As a result, further vacancies occur, and the cost of vacant land continues to be borne by every resident and every neighborhood. Even the most committed of individuals are discouraged from reclaiming blighted properties and turning around declining blocks.

A strategic and coordinated response by the City could substantially reduce the negative effect of vacant parcels, and transform them from liabilities to assets through redevelopment, with significant gains in neighborhood stability, job creation, and tax revenue generation. This study estimated that reformed vacant land management would activate new construction in neighborhoods in which there exists more potential for development (as defined as prices exceeding costs by 10 percent or more), which would lead to the addition of about 3,400 new housing units within the city within the next five years (see Figure ES.3).

In addition, **having a more efficient and predictable system minimizes barriers and costs for non-profit developers** as well, stretching scarce public funds and enabling the City to **better leverage available resources** at the state and federal level, **enabling the development of additional affordable homes and commercial development.**

It is conservatively estimated that adding that many units would generate a number of benefits to the City and its neighborhoods:

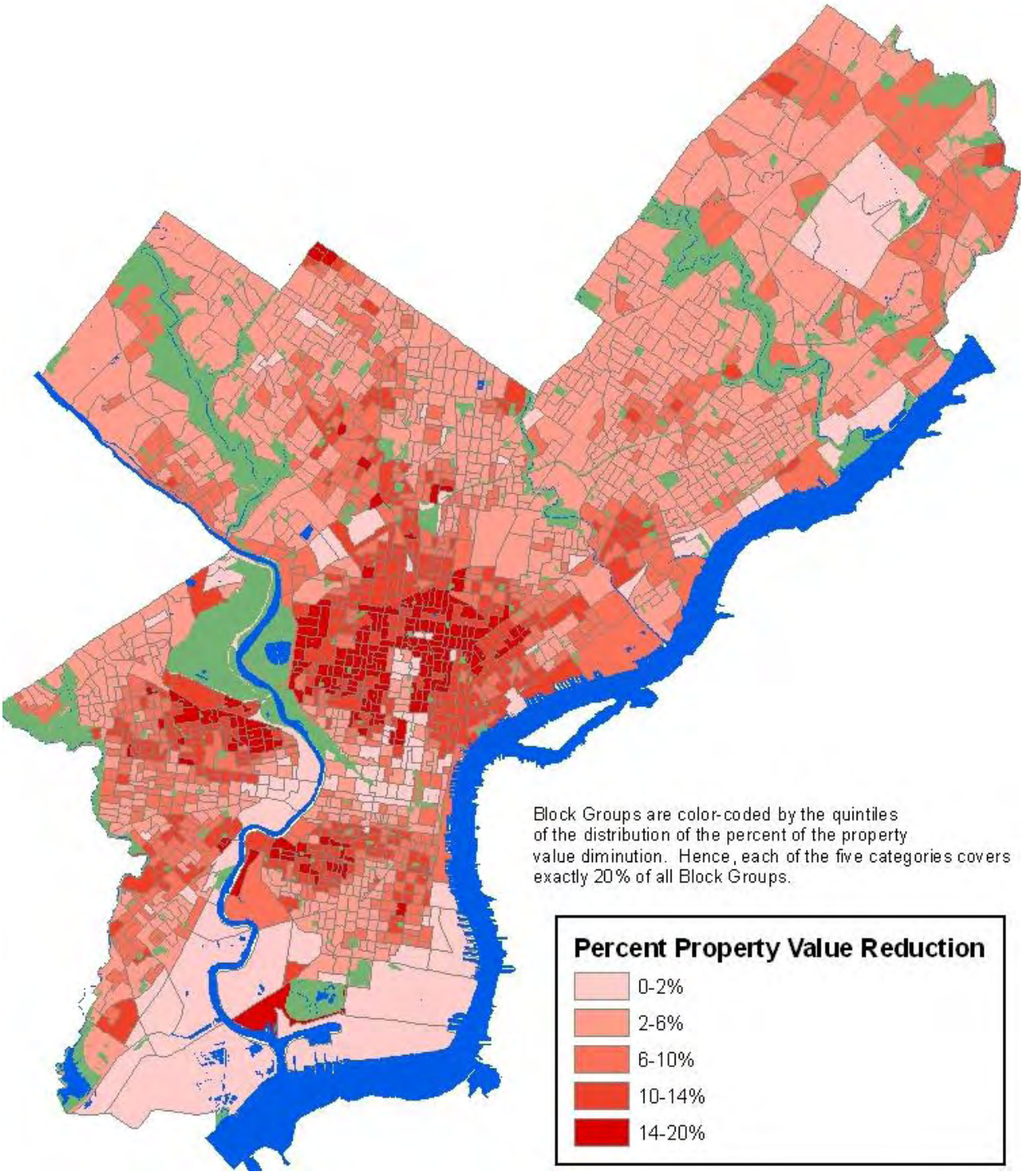
1. The construction activity would generate **$180 million in economic impact** each year, supporting **800 jobs** and **$30 million in earnings**, and producing **$1.9 million in taxes** to the City. Selling those new units would generate about **$4.1 million in real estate transfer tax revenues** per year.

2. Adding those new units would add **$43.5 million in property tax base** (i.e. assessed value) and **$3.6 million in property tax revenues to the City and School District** per year; it would also add **about 800 new residents** and **340 new wage earners**, translating into **$500,000 in wage tax revenues** and **$25,000 in sales tax revenues** per year.

Adding up all of these gains, **the City and School District could gain well over $35 million or more in tax revenues within five years.** This is over and above the gains from reducing **$3.6 billion** in property value loss, over **$20 million** per year in maintenance costs for vacant parcels, and at least **$2 million** in uncollected property taxes each year from delinquent vacant parcels **(see Figure ES.4)**.

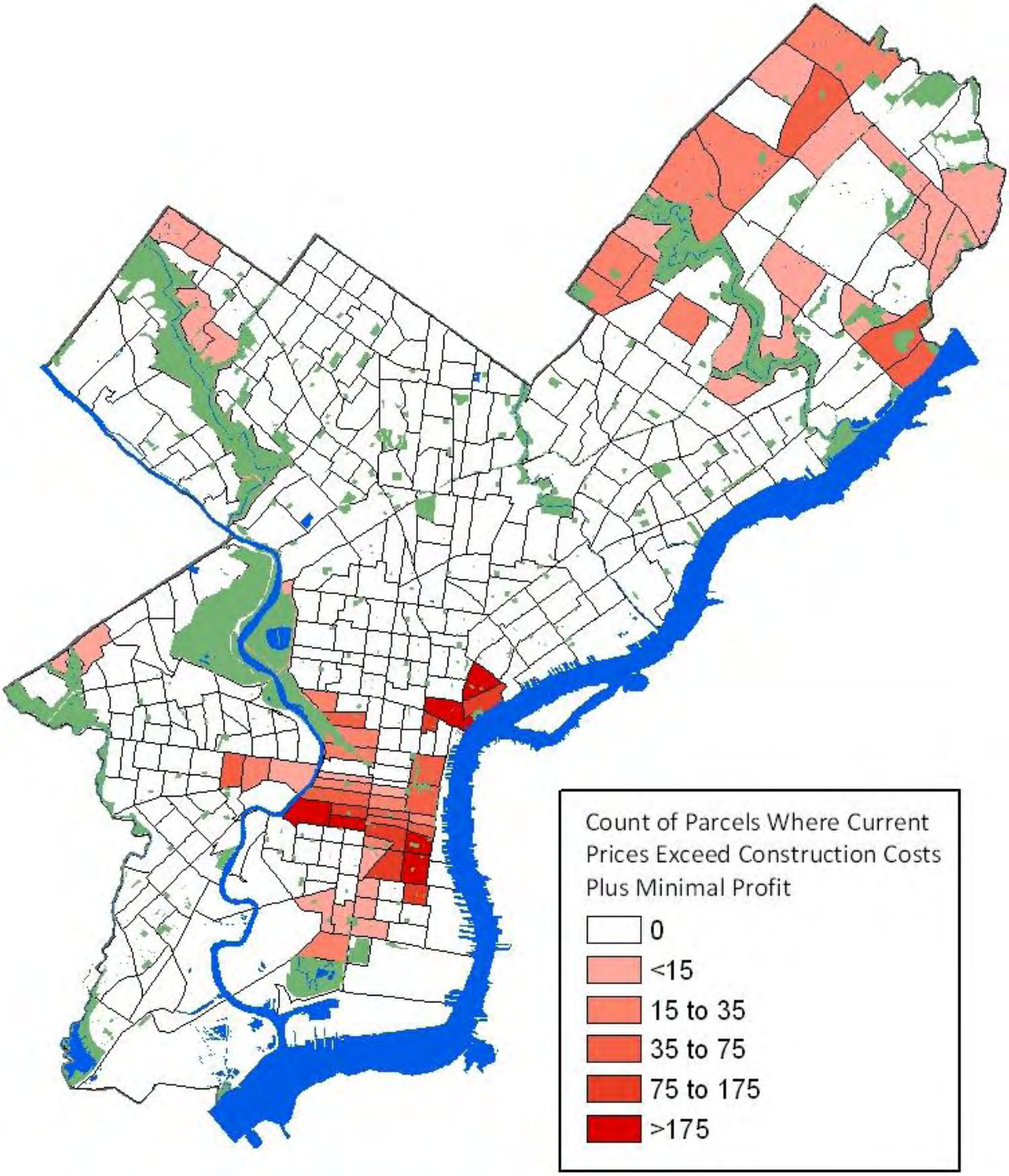
Vacant parcels can become building blocks for neighborhood development. If the City can replace its present approach to vacant land management with one that aggressively deals with problem properties and that works with residents and for-profit and not-for-profit developers in a coordinated and organized manner, **millions of dollars in annual costs can be reduced or eliminated, and significant reinvestment in neighborhoods can occur, resulting in construction activity, job creation, vibrant blocks, and an increase in residents and tax base.**

Figure ES.2 – Distribution of Negative Impact on Property Values Because of Proximity to Vacant Parcels, by Census Block Group: Property Value Reduction is Up to 20% in Some Neighborhoods



Source: Board of Revision of Taxes (2010), City of Philadelphia Department of Records (2010), Geolytics (2010), Econsult Corporation (2010)

Figure ES.3 – Number of Vacant Parcels in Census Tracts Where Current House Prices Exceed Constructions Costs by 10 Percent or More: 3,400 Vacant Parcels in Total Are Located in These Census Tracts



Source: Board of Revision of Taxes (2010), Philadelphia Department of Records (2010), Marshall & Swift (2010), Econsult Corporation (2010)

Figure ES.4 – Potential Benefits Resulting from Reforming Vacant Land Management

Objective	*Potential Benefits*	*Estimated Impact*
Reduce or eliminate the number of long-term vacancies	Reversal of property value loss associated with blighting effect of all vacant parcels	One-time increase of $3.6 billion in household wealth
	Reduction of City costs associated with maintaining all vacant parcels	Over $20 million in City administrative and maintenance cost savings each year
	Reduction of lost property tax revenues from delinquent privately controlled vacant parcels	At least $2 million more in City and School District property tax revenues collected each year
Facilitate conversion of vacant parcels into developable lots	New construction, new residential units, new property tax base, new residents and wage earners	Well over $35 million or more in City and School District tax revenues in the first five years

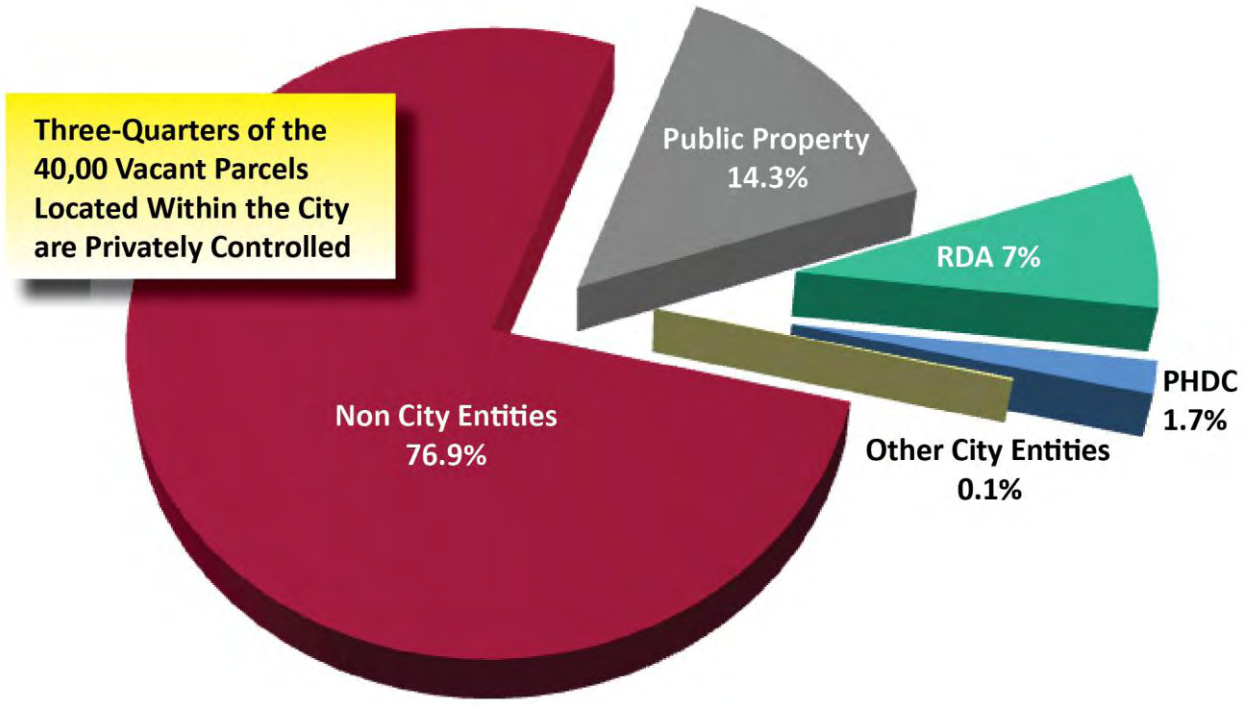
Source: Econsult Corporation (2010)

1.0 INTRODUCTION

1.1 Context

Vacant land in post-industrial cities like Philadelphia can represent a significant impediment to neighborhood stability, a drag on property tax revenue generation potential, and a logistical challenge to manage. Within the city of Philadelphia, over **three-quarters of the estimated 40,000 vacant parcels are not controlled by the City** (see Figure 1.1), and the majority of them are tax delinquent.[1] The one-quarter that are owned by the City are controlled by several different agencies, with little coordination and few efficiencies in tracking, marketing, or disposition.

Figure 1.1 – Ownership Distribution of Vacant Parcels within the City of Philadelphia: Three-Quarters of the 40,000 Vacant Parcels Located within the City are Privately Controlled[2]



Source: Philadelphia Water Department (2010), Econsult Corporation (2010)

[1] Throughout the report, a difference is made between the geography of Philadelphia ("city") and the government of Philadelphia ("City").

[2] Vacant parcel data is based on a Philadelphia Water Department data set, which is further described in Section 2. Tax delinquency data is based a City Revenue Department data set. "Privately controlled" refers to all parcels not owned by the City, and includes governmental entities such as Amtrak, Commonwealth of Pennsylvania, and SEPTA.

It is difficult, in the current fiscal environment, for the City and its residents to have to bear the significant expenses associated with maintaining vacant parcels as well as losses associated with tax delinquency and with the blighting effect on neighborhoods. Recent local media coverage has highlighted the cost of vacant land and of the uncoordinated and inefficient process by which it is managed, shining a spotlight not only on **the financial cost to the City and its taxpayers** but also on **the distress borne by neighboring residents** and on **the discouraging effect of the broken system on the efforts of residents and for-profit and not-for-profit developers to reclaim blighted properties and turn around declining blocks** (see Figure 1.2 and 1.3).

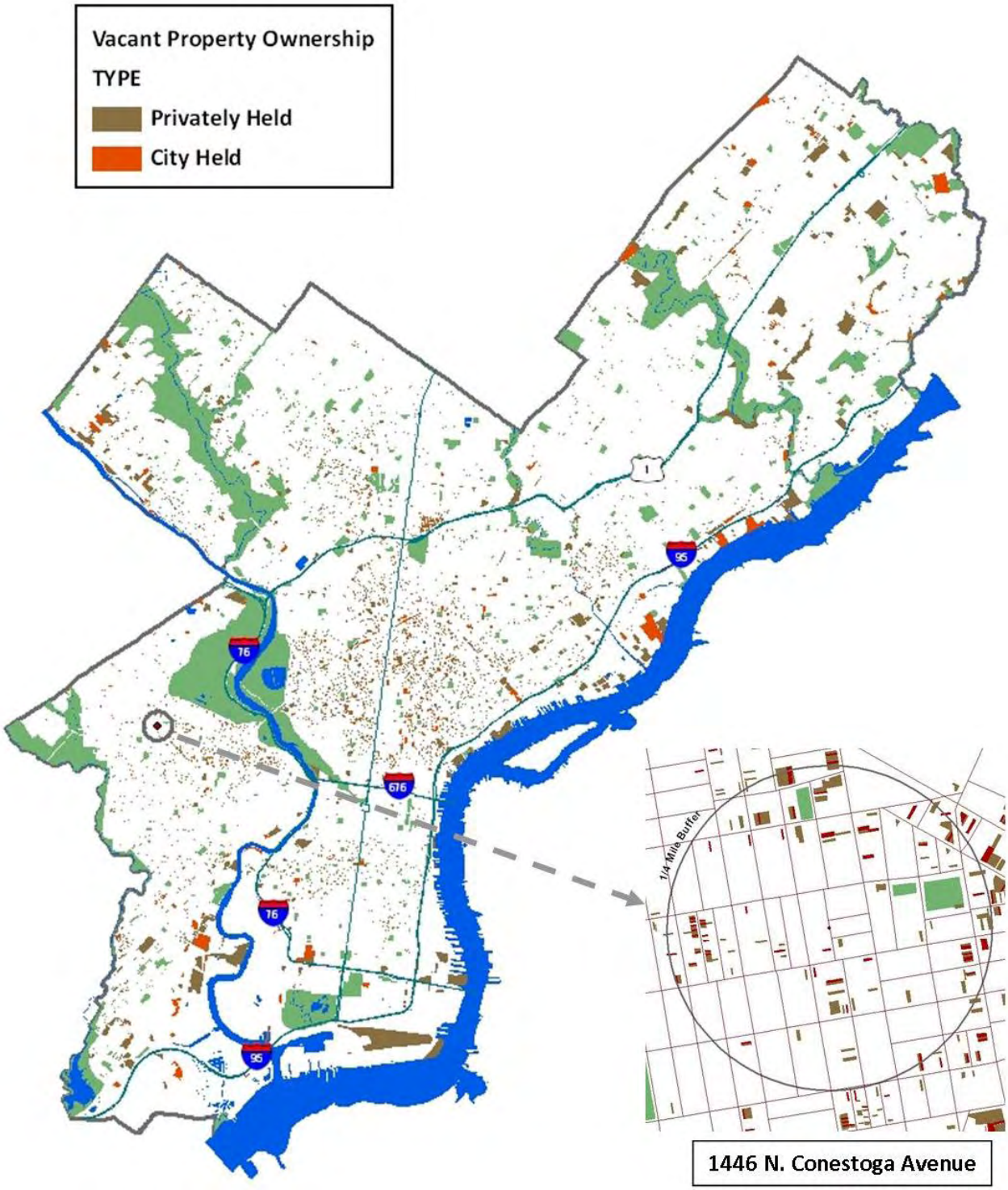
Figure 1.2 – Vacant Land in the News: "West Philadelphia Neighbors Fight to Save Their Block"[3]

A recent story by the Philadelphia Inquirer's Kia Gregory illustrates some the impact of vacant land at a neighborhood level. In the story, neighbors care for a home at 1446 North Conestoga Street that has been abandoned for at least 15 years. Facing broken windows, a sagging roof, and even raccoons, the neighbors cut the grass and shovel the snow even as they maintain their own homes on the block. The City has not foreclosed on the property despite more than a decade of unpaid taxes. The owners cannot be found to be held accountable for the numerous code violations, or to sell to potential buyers who are interested in purchasing the property. After 15 years of deterioration, it is unclear how the property can be reclaimed before it is demolished, leaving a missing tooth in this block of Philadelphia row-homes.

Source: Philadelphia Inquirer and Daily News (2010), Econsult Corporation (2010)

[3] Philadelphia Inquirer (April 8, 2010). See also: "40,000 City Properties. Now What?" Philadelphia Daily News (July 28, 2010); "In the Fight vs. Blight: A Lot of Frustration," Philadelphia Daily News (July 28, 2010); "Renovator Stymied by Power Struggle of Agency, Council," Philadelphia Inquirer (June 25, 2010); "City Hall Drives a Couple toward Ruin," Philadelphia Inquirer (June 9, 2010).

Figure 1.3 – Spatial Distribution of Vacant Parcels within the City of Philadelphia and in a Neighborhood Profiled in a Recent News Story



Source: Philadelphia Water Department (2010), Philadelphia Inquirer and Daily News (2010), Econsult Corporation (2010)

1.2 Scope of Work

The Redevelopment Authority of the City of Philadelphia and the Philadelphia Association of Community Development Corporations, with support from the Oak Foundation, the Office of Housing and Community Development, and the William Penn Foundation, engaged Econsult Corporation, the Penn Institute for Urban Research, and May 8 Consulting to **identify and calculate the costs imposed by vacant land on the City**, and to **articulate and estimate the benefits of a reformed approach**. This initial exploration provides preliminary answers and guidance for further analysis in the following categories:

1. **What is the current vacant land management system costing the City?** A statistical model was developed to isolate the blighting impact of vacant parcels on the property values of neighboring properties. Collection of financial statements from and interviews with relevant City agencies was combined with per-unit estimates from comparable localities to arrive at a total amount being spent to manage vacant parcels within the city. Finally, data from the City's Revenue Department enabled an estimate of the distribution of tax delinquency status and thus a sense of what the City is unable to collect in property tax revenues as a result of vacancy.

2. **What would a reformed approach yield?** While providing specific recommendations on the programmatic, administrative, and legal actions the City could take is outside the scope of this report, the characteristics of those preferred reform methods are identified. Reform would likely have to integrate the management of vacant parcels, streamline the process for disposition of parcels, and enable the City to more efficiently assume ownership of tax delinquent properties. Assuming successful implementation, the City would then have an array of options for managing its inventory of vacant parcels, including continued ownership, redeployment for other public purposes, and disposition for private for-profit and not-for-profit development, as well as a set of criteria by which those alternatives could be weighed.

3. **What would be the benefits of a reformed system?** Reform would lower direct costs associated with vacant parcels through improved efficiency and lower vacancy levels. It would reduce neighborhood blight that accompanies vacancy, thereby increasing household wealth. And, it would spur development of vacant parcels by assuring clear title and reducing investment risk. Gains from development of previously unproductive parcels include upfront construction activity and jobs, upfront real estate transfer tax revenues, a growing property tax base, and net new residents and workers, with attendant increases in wage and other tax revenues.

By expressing and estimating these impacts, this report intends to inform the weighing of current costs, the costs of continued inaction and inefficiency, and the benefits of a reformed approach.

2.0 CURRENT COSTS[4]

2.1 Overview

There are significant current costs to the City of Philadelphia stemming from 31,000 vacant privately-owned parcels and 9,000 vacant City-owned parcels, and from the inefficient ways in which those vacant parcels are managed. These negative impacts have wider geographic and functional impact than may be popularly understood. Though by count they are most densely situated in low-income neighborhoods in North and West Philadelphia, vacant parcels can be found all over the City of Philadelphia. They adversely impact the City as a whole in at least three ways:

1) They represent **an aggregate $3.6 billion in reduced household wealth** because of the blighting effect they have on nearby properties**.**

2) They represent **over $20 million spent by the City on maintenance each year**, and

3) They represent $70 million in delinquent property tax revenues for the City and School District, a figure that likely increases by **at least $2 million each year in uncollected property taxes.**

2.2 Data on Vacant Parcels

The City does not presently have a centralized inventory management system that tracks the number, characteristics, and status of vacant parcels. The best available data set for understanding the number and spatial distribution of vacant parcels within the city is maintained by the Philadelphia Water Department (PWD), which defines as vacant those parcels for which they have shut off water service. It is therefore not a perfect data set, but it serves as a fairly good proxy.

Of the 40,000 parcels PWD classifies as vacant based on this definition, the vast majority, some 37,000, are classified as structureless vacant lots.[5] It is likely that there are additional vacant

[4] The cost calculations in this section are based on the best available data and statistical techniques, but because of the imprecise nature of this exercise, they are merely intended to be rough estimates for the purposes of understanding the relative orders of magnitude of impact involved. Where possible, conservative assumptions were used, so resulting figures should be considered as lower bound estimates.

[5] See Appendix A for additional detail on the characteristics of vacant parcels within the City.

parcels containing structures that exist within the city, over and above the current number of 40,000, that do not yet appear in the PWD data set.[6]

In fact, this data set probably underestimates the number of vacant parcels in the city, as estimates from previous studies range up to 60,000 parcels. The use of this data set from PWD as a proxy for the inventory of vacant parcels therefore likely understates the impacts discussed in this report.

2.3 Blighting Effect on Nearby Parcels

Vacant parcels have a blighting effect on the neighborhoods in which they are located, resulting in the loss of wealth for private owners via property value reductions. This blighting effect can be isolated and estimated through hedonic regression analysis, a longstanding and accepted form of property value impact analysis that is used by Econsult for a variety of real estate analyses within the city and across the US. Hedonic regression analyses understand the price of a housing unit to be the sum of that housing unit's positive and negative characteristics – structural traits (square footage, lot size, number of bedrooms and bathrooms), the package of tax and service levels for the jurisdictions in which it lies, and locational amenities and disamenities (i.e. whether it is near attractive things like parks and playgrounds and/or whether it is near unattractive things like landfills and highways).

Through statistical and econometric techniques, the incremental effect of each of those characteristics – in this case, distance to the nearest vacant parcel – can be isolated. This hedonic regression analysis considered the 22,743 home sales that took place between the first quarter of 2009 and the first quarter of 2010.[7] Based on this analysis, it is conservatively estimated that the existence of 40,000 vacant parcels within the city costs homeowners 6.5 percent in property value, for an **aggregate $3.6 billion in property value loss**.[8] For the average household, this magnitude of loss is about $8,000 in property value (see Figure 2.1).

[6] Also, it is likely that some of the parcels classified as "Vacant Lot" actually have structures on them; looking up on Google Earth a random sample of 100 parcels classified "Vacant Lot" by PWD yielded 15 that actually had structures on them. Therefore, while structureless vacant lots represent the vast majority of vacant parcels within the city as per the PWD data set, in reality they likely represent a smaller percentage, although probably still the vast majority, of vacant parcels within the city.

[7] See Appendix B for additional detail on the methodology and results of Econsult's property value impact model.

[8] Only occupied single-family units were included in this analysis, so the magnitude of the blighting effect is even larger than this, since the property values of multi-family structures and unoccupied structures would also be affected.

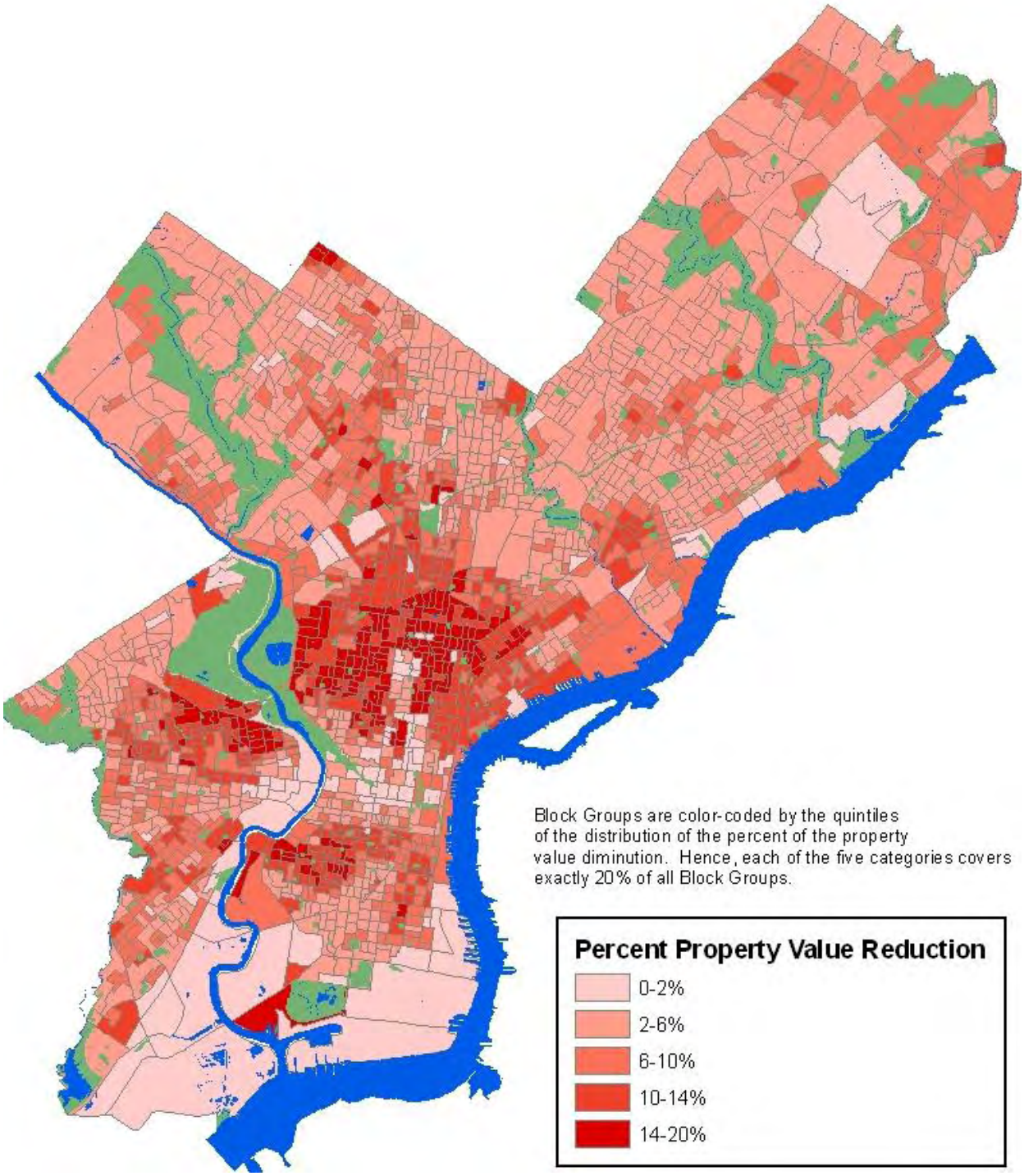
Figure 2.1 – Blighting Effect of Vacant Parcels on Nearby Properties: A 6.5% Reduction Means $3.6 Billion in Aggregate Property Value Loss, An Average of $8,000 per Household

	Aggregate Citywide	*Average Household*
# Occupied Single-Family Units	449K	1
Estimated Value of Housing Stock (2009-2010 figure)	$56B	$125K
% Loss from Vacant Parcels	6.5%	6.5%
$ Property Value Loss	**$3.6B**	**$8.1K**

Source: Board of Revision of Taxes (2010), City of Philadelphia Department of Records (2010), Geolytics (2010), Econsult Corporation (2010)

There is obviously a wide disparity within the city of house values as well as of the blighting impact of vacant parcels. In some neighborhoods, the loss of value was estimated to be zero, while in other neighborhoods, the loss of value was estimated to be as high as 20 percent (see Figure 2.2). Lower valued neighborhoods tend to have more vacant parcels and therefore a higher negative impact in percentage terms, but not as high of a negative impact in absolute dollar terms; while higher valued neighborhoods tend to have fewer vacant parcels and therefore a lower negative impact in percentage terms, but a relatively high negative impact in absolute dollar terms.

Figure 2.2 – Distribution of Negative Impact on Property Values Because of Proximity to Vacant Parcels, by Census Block Group: Property Value Reduction is Up to 20% in Some Neighborhoods



Source: Board of Revision of Taxes (2010), City of Philadelphia Department of Records (2010), Geolytics (2010), Econsult Corporation (2010)

2.4 Cost to Maintain Vacant Parcels

Even though the City only controls one-quarter of the 40,000 vacant parcels within the city, it bears considerable expense providing some level of maintenance and oversight for all 40,000 vacant parcels. A number of different City agencies bear costs associated with the maintenance of vacant parcels, some because they directly control vacant parcels and some because their functions intersect with the maintenance of vacant parcels.

Based on interviews conducted with department representatives, a review of available financial statements, and research on equivalent per-capita costs from similar nearby localities, it is conservatively estimated that the **aggregate costs are over $20 million each year** (see Figure 2.3).[9] Furthermore, this is despite the fact that data for some entities was not available, some entities that own vacant parcels spend little or nothing to maintain them, and there does not currently exist a standardized baseline level of condition to which City agencies seek to maintain the vacant parcels they control.

Figure 2.3 – Total Annual Ascertainable Direct City Costs of Maintaining Vacant Parcels within the City of Philadelphia Totals Over $20 Million

Entity	*Related Tasks*	*Estimated Annual Amount*
Board of Revision of Taxes	Information management	Unavailable
City Council	Staff time	$100K
City Planning Commission	Blight Certification and Redevelopment Area Plan Reports	Unavailable
Fire	Cost of responses	$5.95M (includes Police)
Health	Vector control	$33K
Law	Follow-up on tax delinquent accounts	$400K

[9] Aggregate costs do not include those for departments for which no information was available at the time. They also do not include costs borne by the Philadelphia Housing Authority, since it uses federal funds and therefore its expenditures have no impact on City finances. See Appendix C for additional information on cost estimate sources, methodology, and detail by agency.

Entity	*Related Tasks*	*Estimated Annual Amount*
Licenses & Inspections (L&I)	Clean and Seal, Demolition, Code Enforcement, Contractual Services	$7.92M
Managing Director's Office (MDO)	CLIP	$1.80M
Office of Housing and Community Development (OHCD)	Funds the maintenance of vacant parcels	$2.99M (includes PHDC)
Philadelphia Housing Development Corporation	Owner of vacant parcels	See OHCD
Police	Cost of responses	See Fire
Public Property	Owner of vacant parcels	$100K
RDA	Owner of vacant parcels	$1.63M
Records	Information management	Unavailable
Revenue	Follow-up on tax delinquent accounts	See Law
Sheriff	Follow-up on tax delinquent accounts	Unavailable
Streets	Disposal of waste dumped on vacant parcels	$390K
Annual Total, All Ascertainable Direct City Costs		**$21.3M**

Source: City of Philadelphia FY 2010 budget, interviews with various City department representatives (2010), Econsult Corporation (2010)

2.5 Lost Revenues from Uncollected Property Taxes

The vast majority of vacant parcels are privately held. And, the majority of those privately held vacant parcels that are not tax exempt are also tax delinquent, with little to no prospect for collection. By merging information on the 40,000 vacant parcels within the city with information from the City's Revenue Department on some 100,000 delinquent tax accounts within the city, it is estimated that about **17,000 vacant parcels within the city are also tax**

delinquent (see Figure 2.4).[10] Some 11,000, or two-thirds of those parcels, have been tax delinquent for over 10 years, and **the aggregate amount of tax delinquency represented by all delinquent vacant parcels is, including interest and penalty, about $70 million to the City and School District**, the bulk of which can be considered uncollectible.[11] It is conservatively estimated that these delinquent accounts add **at least an additional $2.0 million in uncollected property tax revenues to the City and School District each year (see Figure 2.5)**.[12]

Figure 2.4 – Distribution, in Terms of Amount Owed and of Number of Accounts, of Vacant Parcels That Are Tax Delinquent, by Amount of Time Delinquent: Total Amount Owed is $70 Million; 66 Percent of Accounts and 89 Percent of Amount Owed is More Than 10 Years Delinquent

# Years Delinquent	*% by Amount Owed*	*% by # Accounts*
1	2%	8%
2-10	9%	26%
11+	89%	66%
Total	**$69.4M**	**16.7K**

Source: Philadelphia Water Department (2010), Philadelphia Revenue Department (2010), Econsult Corporation (2010)

[10] The universe of 40,000 vacant parcels within the city also includes 9,000 City-owned parcels as well as thousands of additional tax exempt parcels controlled by non-profit organizations.

[11] Out of this amount, roughly $28 million is to the City and an additional $42 million is to the School District. See Appendix D for additional detail on the distribution by amount owed and years delinquent for vacant parcels that are tax delinquent.

[12] If principal amounts only are considered (i.e. no interest, penalties, or other charges), and outstanding amounts for each tax delinquent vacant parcel are divided by the number of years the parcel is delinquent (i.e. a parcel that owes $30,000 in principal and is three years delinquent is estimated to have an average annual bill of $10,000), that calculation yields an estimate of about $5 million per year in uncollected property taxes, of which about $2 million is to the City and an additional $3 million is to the School District. See Appendix E for more detail on how this figure was calculated.

It is assumed that any accounts that are more than three years delinquent are essentially uncollectible, so the aggregate sum of the principal amounts owed by accounts that are three or fewer years delinquent is about $2 million. This is therefore taken to represent the amount that is added to the balance each year that is potentially collectible, and represents about $0.8 million is to the City and about $1.2 million is to the School District.

In fact, it is very likely that lost revenues from uncollected property taxes from vacant parcels that are tax delinquent is far higher. First, the $5 million figure does not include tax-exempt properties such as all of the ones controlled by a City agency, which if disposed of to a private entity would generate property tax revenues. Second, the figure does not include properties that become newly vacant each year, which thus add to the uncollected amount.

Figure 2.5 – Distribution, in Terms of Estimated Principal Amount Owed, of Vacant Parcels That Are Tax Delinquent, by Amount of Time Delinquent (in $M) : At Least $2 Million in Principal Each Year is Three or Fewer Years Delinquent and Therefore Considered Still Collectible

	# Years Delinquent	*Total Amount Delinquent, Principal Only*	*Annualized Amount, Principal Only*
Considered Still Collectible: $2 Million in Principal	1	$1.43	$1.43
	2	$0.87	$0.44
	3	$0.51	$0.17
Considered Uncollectible: $3 Million in Principal	4-9	$2.05	$0.33
	10+[13]	$25.99	$2.60
	Total	**$30.85**	**$4.96**

Source: Philadelphia Water Department (2010), Philadelphia Revenue Department (2010), Econsult Corporation (2010)

2.6 Current Costs Compared to Estimated Values

The magnitude of these current costs, in light of present fiscal challenges, argues for action: $3.6 billion in lost household wealth, over $20 million per year in maintenance costs, and at least $2 million lost each year in delinquent property taxes. Furthermore, these costs must be compared against the relatively low market values of the vast majority of the parcels in question. Econsult estimated, via a statistical analysis of land sales within the city,[14] that the aggregate value of all 40,000 parcels, totaling 3,555 acres, is $1.9 billion,[15] and that the aggregate value of the 9,000 City-controlled parcels, totaling 823 acres, is $410 million. **Most of the value of City-controlled vacant parcels is concentrated within a relatively small proportion of those parcels**: in aggregate, the top 1 percent of City-controlled vacant parcels,

[13] All amounts 10 or more years delinquent are considered 10 years delinquent and thus are divided by 10 to arrive at an annualized amount.

[14] The value of the current inventory of vacant parcels is estimated by conducting a hedonic regression analysis of the 1,540 land sales that took place between the first quarter of 2008 and the first quarter of 2010. See also Appendix G for a listing of addresses and characteristics for all 40,000 vacant parcels, as well as values estimated by Econsult's hedonic regression model. This listing was also submitted to the City in spreadsheet format.

[15] As a point of reference, it is estimated that the city's 449,000 occupied single-family units have an aggregate value of $565 billion. Therefore, the inventory of all vacant parcels within the city represents about 9 percent of the total number of occupied single-family units but only 3 percent of the aggregate value of those units.

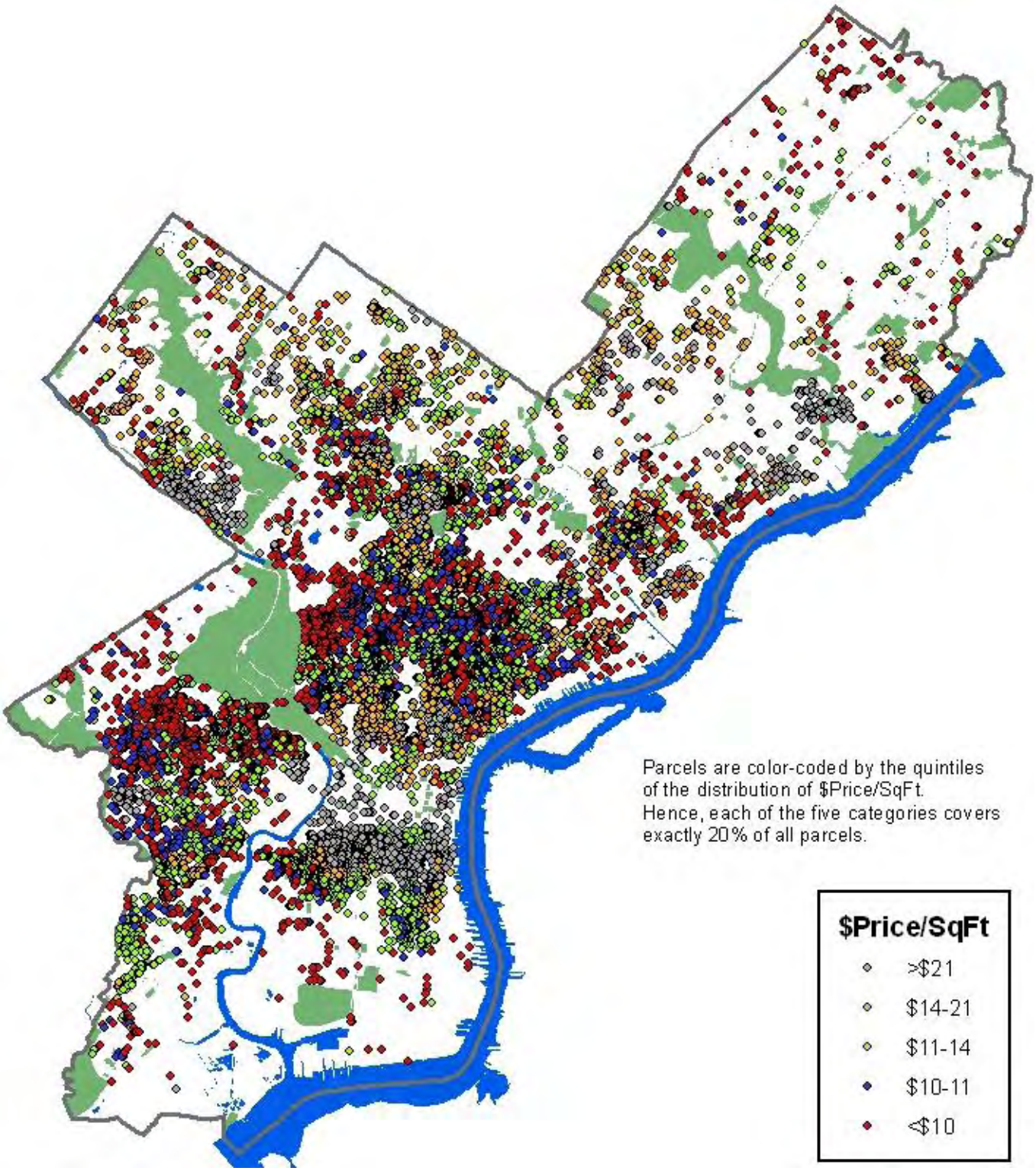
by value, is worth more than half of the estimated aggregate value of City-controlled parcels (see Figure 2.6 and Figure 2.7).

Figure 2.6 – Distribution of Estimated Value of Vacant Parcels within the City of Philadelphia: Top 1% of City-Owned Parcels by Value Make Up More Than Half of the Estimated Value of All City-Owned Parcels

	Estimated Aggregate Value (in $M)	*Proportion of Estimated Aggregate Value of City-Controlled Parcels*
All Vacant Parcels	$1,899	
All City-Controlled	$410	100%
Top 1% of City-Controlled, by Parcel Value	$214	52%

Source: Philadelphia Water Department (2010), Econsult Corporation (2010)

Figure 2.7 – Distribution of Estimated Value of All Vacant Parcels within the City of Philadelphia



Source: Philadelphia Water Department (2010), Econsult Corporation (2010)

3.0 THE VALUE OF A REFORMED APPROACH

It is beyond the scope of this engagement to evaluate the specific programmatic, legislative, and other actions that can be taken to reform the way in which vacant land is managed by the City of Philadelphia. However, it is useful to describe what is characteristic of a reformed system, what choices that yields for decision-makers for individual vacant parcels as well as for the entire inventory of parcels, and what the costs, benefits, and decision criteria are for each of those choices. The aim of this section is to cover that ground, and to lay the foundation for a more detailed and numeric exploration of the benefits of reform in the ensuing section.

The City's historic inability to tackle vacant land in a coordinated, strategic, and proactive manner represents a lost opportunity for redeployment and redevelopment. This lost opportunity holds consequences for the City's capacity to pursue neighborhood stabilization, economic growth, and revenue generation.

Characteristic of the land management systems deployed by localities that are recognized for their effectiveness in this arena is the existence of **a comprehensive system of maintaining that locality's inventory of vacant parcels**. Places like Baltimore, Cleveland, Genesee County (Flint, MI), and Portland (OR) are comprehensive not only in their accounting for the existence and characteristics of their vacant parcel holdings, but also in their ability to strategize across holdings towards land retention and disposition actions that maximize a number of objectives.[16] In Philadelphia, no single entity is responsible for acquiring, assembling, and disposing of vacant parcels, or for thinking about the entire inventory of parcels and making strategic land use decisions, although recently Mayor Nutter has convened a working committee of City agencies and other stakeholders to this end.

A comprehensive land management system enables **the leveraging of proceeds from higher market properties for efforts intended to assist neighborhoods in which lower market properties exist**. Even accounting for vast differences in prices, there will be fundamental differences among parcels in terms of attractiveness to developers for acquisition, assemblage, and development; and, there will also be fundamental differences among parcels in terms of the extent to which they impose negative effects on nearby parcels. Therefore, it is paramount to be able to **look across land holdings to make strategic decisions** as to which parcels to hold for a higher price, which parcels to aggressively price for disposition and development, which parcels to develop for public purposes such as affordable housing, and which parcels to better maintain so as to minimize their blighting effect on nearby properties.

[16] These approaches also enable a coordinated response to private controlled vacant parcels, in terms of custody and maintenance.

On a related note, a more coordinated approach can better position the City to be aware of adjoining vacant parcels that are held by different City agencies, and to be able to **assemble those parcels towards larger and more attractive development opportunities**. Similarly, it can be positioned to more efficiently redeploy parcels from development proposal agreements in which plans have ceased, to new opportunities that are more likely to occur.

Finally, successful approaches are also mindful that the circumstances by which parcels become vacant and stay vacant can be influenced by good policy and programming. Notably, **by accelerating and streamlining the tax foreclosure process**, **by becoming more aggressive concerning delinquent tax collection, and by implementing effective forbearance policies**, successful localities have found that time and administrative costs can be saved, fewer properties need to be deemed effectively unavailable due to their tax delinquent and unclear title status, parcels can redeployed more quickly, and collection of current accounts can improve.

A reformed process for managing and disposing of vacant parcels creates **choices for policymakers, enabling more effective and strategic decision-making as it relates to individual vacant parcels as well as the entire inventory of parcels**. Each choice has its pros and cons; in the next section, an estimate is made of the overall economic and fiscal benefits associated with the development of some vacant parcels into housing units by for-profit and not-for-profit developers.[17]

[17] See Appendix H for a summary of the specific choices that may emerge from a reformed process, and the relative pros and cons of each choice.

4.0 POTENTIAL BENEFITS[18]

4.1 Reduction or Elimination of Current Costs

Reform, as described previously, is intended to lead to **an accelerated rate of transforming vacant parcels from liabilities to assets**. The first step of this transformation leads to the **reduction or elimination of the current costs associated with vacant parcels**.

To illustrate the magnitude of the impact of such a transformation, consider that if reform led to the complete elimination of vacant parcels within the city of Philadelphia, vacant parcels would no longer contribute **$3.6 billion in property value loss to nearby parcels.** The City would also no longer have to bear **over $20 million per year in costs associated with maintaining vacant parcels**.

Finally, the City and School District would no longer miss out on at least **$2 million per year in uncollected property tax revenues**, which represents the potentially collectible principal portion of the aggregate $70 million in delinquent accounts represented by vacant parcels. Reform may also improve collection efforts on existing accounts, if more robust enforcement efforts stem the addition of newly delinquent accounts.

4.2 More and Faster Development

Reducing the number of vacant parcels therefore holds the prospect of generating significant public cost savings through the removal of vacant parcels and thus of their negative effects. Even better is when those previously vacant parcels can be developed on, which leads to upfront construction activity, an increase in the City's property tax base, and net new residents and wage earners. Thus, in addition to minimizing or eliminating the negative impacts of vacant parcels, reform would also generate **positive impacts associated with development that takes place on these parcels**. It is anticipated that reform would lead to net new development, over and above what is currently being demanded in the local real estate markets, for the following reasons:

1. By making the land acquisition process **more efficient and more predictable**, a reformed system is one that minimizes or eliminates some of the barriers to develop in the minds of real estate developers, thus leading to increased interest in developing

[18] The benefit calculations in this section are based on the best available data and statistical techniques, but because of the very imprecise nature of this exercise, they are merely intended to be rough estimates for the purposes of understanding the relative orders of magnitude of impact involved. Where possible, conservative assumptions were used, so resulting figures should be considered as lower bound estimates.

within the city. Importantly, having a more efficient and more predictable system minimizes barriers and costs for not-for-profit housing developers as well, stretching scarce public funds and enabling development of additional homes where delays once disrupted efforts.[19]

2. By speeding up the acquisition of abandoned parcels, the reformed system would prevent undue deterioration of existing structures, potentially leading to significant reductions in the cost of redeveloping property.

3. A re-organized land management system with a single coordinating agency enables the City to **assemble adjoining parcels for greater development opportunity**, both in terms of parcels owned by different City agencies that did not previously collaborate like this on such matters as well as those that were privately owned and tax delinquent.

4. Additional development can be stimulated via more **aggressive marketing and pricing of vacant parcels**, by making more efficient the match-making between supply and demand of land and by making profitable development more frequently available by lowering the upfront costs associated with land acquisition.

5. The aforementioned reasons motivate not only for-profit developers building market-rate units, but also stretch the resources of **not-for-profit developers building affordable and workforce units**, as well as mixed-use developments, thus potentially creating additional supply.[20]

6. Having an efficient system positions not-for-profit developers and the City to better **leverage available resources at the state and federal levels**, through programs such as the Pennsylvania Housing Finance Agency's Homeownership Choice Program and the Low Income Housing Tax Credit Program. The ability of the City to acquire and dispose of properties strategically and expeditiously has a direct impact on a developer's ability to leverage scarce public resources, so if the City is impaired in playing that role, it loses out on critical outside funding opportunities to stimulate development.

[19] Decreasing the cost of development has been proven to be associated with higher levels of development, as is evidenced by increases in development associated with the introduction of a ten-year property tax abatement program within the city. See, for example, "Building Industry Association: Philadelphia Tax Abatement Analysis," Econsult Corporation (September 2006). More development also occurs when the amount of time it takes to bring a project through the development process is reduced, since this leads to higher returns on investment for developers and their investors.

[20] In other words, it is anticipated that some of the increase in the production of housing units would come from neighborhoods stabilizing and prices increasing to the point that for-profit developers would find it feasible to build new units where previously it was financially infeasible; and some of the increase would come from non-profit developers finding the process of securing and reclaiming vacant parcels reformed enough that they can proceed more quickly with subsidized construction in neighborhoods where for-profit developers are not yet sufficiently motivated.

Most importantly, and for the reasons described above, vacant parcels would **no longer be considered automatically "off-limits"**: developers will not have to accept that there is imperfect information about the composition of the overall inventory of vacant parcels or the characteristics of individual parcels, there is a greater chance that larger parcels can be assembled for more attractive development opportunities, and the risks associated with the uncertain, cumbersome, and lengthy nature of the disposition process would be minimized or eliminated. This will have the powerful effect of increasing not only the supply of developable parcels within the city but also their demand.

4.3 Estimating Market Absorption – Short-Term Approach

It is difficult to pinpoint how much net new development would occur should reform efforts help clear the way, given the many variables that influence whether and where for-profit and not-for-profit developers choose to build. One way to roughly estimate the magnitude of that demand increase, at least in the short run, is to presume that reform would facilitate the development of vacant parcels in neighborhoods in which there currently exists already some semblance of economic motivation for construction activity, which can be loosely defined as occurring where current house prices presently exceed construction costs plus a minimal profit (the assumption being that where costs exceed prices, there is currently far less hope for market rate development).[21]

In reality, market absorption would be more nuanced than that. In some cases, development may make sense but there is some other barrier besides the disarray associated with vacant land management, so even solving the vacant land problem in those neighborhoods or on those blocks would not stimulate development. For example, there may be significant additional costs besides construction costs, such as the cost of land acquisition and/or environmental remediation, which deter development. In other cases, development may not otherwise make sense but it occurs anyway because of the existence of some sort of subsidy in the form of public investment and/or the efforts of not-for-profit developers.

Most notably, prices for existing housing units may be markedly different from prices that would be offered or demanded for newly constructed housing units. Furthermore, within neighborhoods there may be little if any relationship between prices for existing housing units and prices for newly constructed housing units. Therefore, it is not unusual that some neighborhoods where prices of existing housing units are lower than construction costs may yet bear new housing at higher price points, or that some neighborhoods where prices of existing houses units are higher than construction costs may yet not bear new housing at any price point. Thus, the assumption that development would occur where prices presently exceed

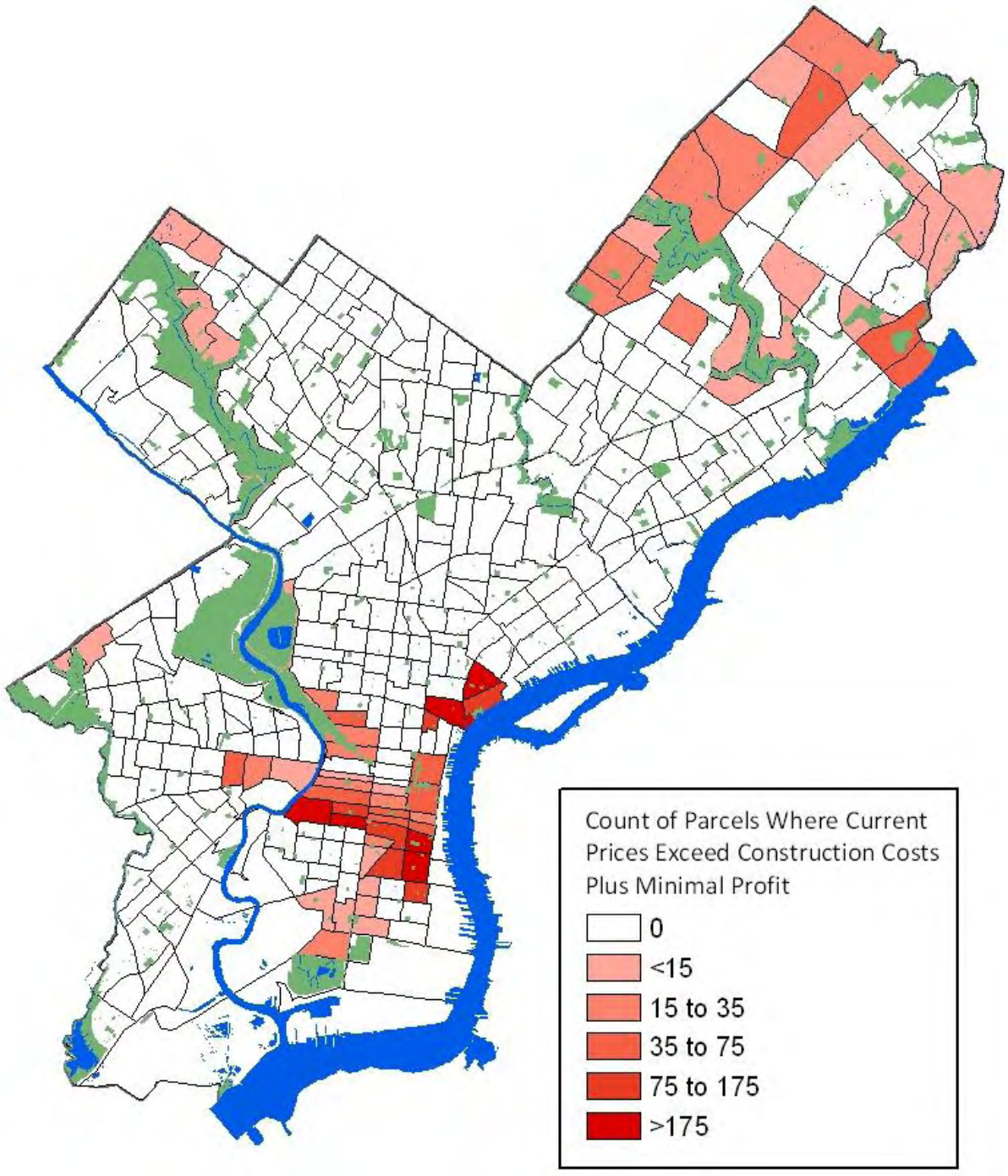
[21] See Appendix I for a map of Census tracts where current house prices currently exceed construction costs.

costs is just that – an assumption – and is intended only to suggest a certain scale of impact, not to predict that that is precisely and definitely where development would occur.

Based on current citywide construction cost averages and on house transactions that took place between Q1 2009 and Q1 2010, it is estimated that there are about 3,400 vacant parcels in Census tracts where current house prices presently exceed construction costs plus a minimal profit for the developer of 10 percent (see Figure 4.1).[22] Assuming that this first round of development opportunities could be realized in five years, that equates to about 680 new housing units per year (see Figure 4.2). As noted above, there may be many more Census tracts in which the market would bear a price for a new house that exceeds current construction costs plus a minimal profit, than there are Census tracts in which the average sales price for existing, non-new houses exceeds current construction costs plus a minimal profit. Thus, this count of parcels is intended only to provide a general and conservative estimate of the order of magnitude of development that could take place in the short term, not necessarily to predict the location and scale of actual development.

[22] I.e. within the Census tract, the average price of houses transacted from the first quarter of 2009 to the first quarter of 2010 is greater than the citywide average construction cost per square foot times the average house size, as well as a 10 percent profit margin. If a 10 percent profit is not accounted for, then the number of vacant parcels in Census tracts where prices presently exceed costs rises to 4,697. If, further, one accounts for the estimated 6.45 percent house value increase that is suggested would take place should the problem of vacant parcels be solved within the City, the number of vacant parcels in Census tracts where prices presently exceed costs further rises to 5,561. To be conservative, the lowest number was used in this analysis.

Figure 4.1 – Number of Vacant Parcels in Census Tracts Where Current Prices Exceed Construction Costs by 10 Percent or More: 3,400 Vacant Parcels in Total Are Located in These Census Tracts



Source: Board of Revision of Taxes (2010), Philadelphia Department of Records (2010), Marshall & Swift (2010), Econsult Corporation (2010)

Figure 4.2 – Estimated New Residential Units Added in the Short Term as a Result of Vacant Land Reform: 3,400 in Five Years Means 680 New Units per Year

	Year 1	*Year 2*	*Year 3*	*Year 4*	*Year 5*
# New Units Built Each Year	679	679	679	679	679
Cumulative # New Units	679	1,358	2,037	2,716	3,395

Source: Econsult Corporation (2010)

As a point of reference, Philadelphia City Planning Commission's (PCPC) most recent 2035 projections anticipate that the City will experience a net increase of 46,000 housing units from 2010 to 2035, or about 1,800 housing units per year.[23] It does not seem unreasonable to imagine that a solution to the problem of vacant land would be responsible for a large proportion of that net increase or for growth over and above those base projections. Consider also that during the period from 1997 to 2008, which covers both boom years and bust years in the local and national real estate markets, an average of 875 units were added on an annual basis, during a time period in which there was no relief in the negative effect of vacant land on neighborhoods and development.[24]

4.4 Economic and Fiscal Impact Estimates – Short-Term Approach

Assuming that about 680 residential units are added each year for the next five years following the implementation of a reformed vacant land management system, there are a number of net new economic and fiscal impacts that proceed. Construction activity generates economic and fiscal impacts, new housing units lead to more real estate transfer tax revenues and property tax revenues, and new residents and wage earners lead to more wage tax revenues and sales tax revenues (see Figure 4.3).[25]

[23] Based on a July 15, 2010 memorandum from Gary Jastrzab, Deputy Planning Director. These projections help validate the perspective that the City's progress between 2000 and 2010 provide optimism that the major trends causing significant population loss from 1950 to 2000 have largely abated, and that there is very real potential for net growth in the years and decades to come.

[24] See Appendix J for a table of new housing units constructed by year during this time period. Furthermore, during the 50-year period from 1950 to 2000, when the City suffered its most significant declines, there was a net loss of 170,000 households, or about 3,400 housing units per year, according to the US Census Bureau Profile of General Demographic Characteristics. Adding back about 680 units per year over a five-year period would therefore represent adding back in five years what was lost each year on average from 1950 to 2000.

[25] See Appendix K for additional detail on economic and fiscal impact estimates.

Figure 4.3 – Fiscal Impacts Resulting from New Development[26]

Revenue Source	*Description*
Tax Revenues Generated During Construction	Construction activity associated with building new units each year generates employment and expenditures, which generates annual wage, sales, and business privilege tax revenues
Real Estate Transfer Tax Revenues	New housing units are built and sold each year, triggering real estate transfer tax payments on an annual basis
New Property Tax Revenues[27]	New housing units are added each year, increasing the property tax base in an accumulating fashion
New Wage Tax Revenues	New wage earners are added each year, increasing the wage tax base in an accumulating fashion
New Sales Tax Revenues	New population is added each year, increasing the sales tax base in an accumulating fashion

Source: US Census Bureau (2009), Econsult Corporation (2010)

To begin with, that much construction results in **jobs created, as well as other economic and fiscal impacts that proceed from that net new construction activity**. Based on estimated direct net new construction activity of about $120 million per year,[28] it is estimated that total annual economic impacts would result of about $180 million supporting about 800 jobs and about $30 million in earnings and generating about $1.9 million in tax revenues to the City, once the spillover effects resulting from the direct net new construction activity have been

[26] Tax revenues generated during construction and real estate transfer tax revenues are considered to be annual in nature. Each year, housing units get built, so each year construction activity leads to tax revenues and initial housing sales lead to real estate transfer tax revenues. These amounts will be roughly the same each year, and will be generated each year.

In contrast, property tax revenues, wage tax revenues, and sales tax revenues are considerable to be accumulating in nature. Each year, a new wave of housing units, wage earners, and residents are added to the City. So each subsequent year's tax base would be larger than the previous year, and thus these amounts would grow over time.

[27] The existence of the City's 10-year property tax abatement program means that any net new property tax revenues associated with new construction would commence after Year 10.

[28] 680 new housing units x 1997-2008 citywide average square footage per unit of 1,455 x current citywide average construction cost per square foot of $128 = $120 million in direct construction costs.

properly accounted for (see Figure 4.4).[29] Since it is anticipated that 680 residential units would be added on annual basis, those estimated amounts represent impacts that would occur each year for five years.

Figure 4.4 – Economic and Fiscal Impact from New Construction Activity and from Resulting Indirect and Induced Activity (in $M): $180 Million in Total Expenditures Supporting 800 Total Jobs and $30 Million in Total Earnings and Generating $2 Million in Local Tax Revenues[30]

	Year 1	*Year 2*	*Year 3*	*Year 4*	*Year 5*
New Construction Expenditures	$126	$126	$126	$126	$126
Indirect and Induced Expenditures	$60	$60	$60	$60	$60
Total Expenditures	$186	$186	$186	$186	$186
Total Employment	797	797	797	797	797
Total Earnings	$30	$30	$30	$30	$30
Total Local Tax Revenues[31]	$1.9	$1.9	$1.9	$1.9	$1.9

Source: US Department of Commerce Bureau of Economic Analysis (2009), Econsult Corporation (2010)

[29] Net new construction activities have significant spillover effects, resulting from two kinds of additional expenditures that occur as a consequence of the net new direct expenditures:

- First, indirect expenditures are those expenditures resulting from all intermediate rounds of production in the supply of goods and services. For example, upfront construction will necessitate various contractors increasing their purchases of materials, thus creating a spillover effect on those suppliers.
- Second, induced expenditures are those expenditures that are generated through the spending of earnings generated by the direct activities as well as by the indirect activities of supplying firms. For example, workers on a construction site will themselves spend their earnings on various items, such as food, clothing, and housing.

Citywide economic impacts, in the form of the sum of direct, indirect, and induced expenditures, and of the employment and earnings supported by that composition and scale of total expenditures, can be estimated by utilizing input-output models and multipliers. Input-output modeling is a standard way to measure the total economic impact of any net new economic activity.

Econsult constructed an economic impact model for this purpose, which incorporates data from the US Department of Commerce's Bureau of Economic Analysis. Econsult also developed a fiscal impact model to generate detailed estimates of the increases in state tax collections that result from these expenditures, employment, and earnings. See Appendix L for more information on these economic and fiscal impact model methodologies.

[30] If one assumes that expenditure levels grow at the same rate of inflation, these dollar figures can be taken to represent inflation-adjusted amounts.

[31] I.e. the wage tax revenues, sales tax revenues, and business privilege tax revenues that are generated to the City by construction and related activity.

Furthermore, each of those residential units, when sold, would generate **real estate transfer tax revenues**. It is conservatively estimated that adding about 680 residential units represents $136 million in home sales transactions per year.[32] Thus, if about 680 residential units are added each year, that means the City would gain about $4.1 million in real estate transfer tax revenues annually (see Figure 4.5).[33]

Though **property tax revenues** would be abated in the first ten years because of the City's property tax abatement program, after that time period the units would continue to add to the property tax base. In Year 1, it is estimated that adding about 680 residential units within the city would mean adding $43.5 million in assessed value and therefore about $3.6 million in property tax revenues;[34] and, because of the ten-year property tax abatement, that is the amount that would be added to the property tax rolls in Year 11. In Year 2, it is estimated that the city would add an additional 680 residential units, which, in addition to the newly added residential units from Year 1, results in a $87.0 million increase in assessed value and therefore $7.2 million in property tax revenues; and, because of the ten-year property tax abatement, that is the amount that would be added to the property tax rolls in Year 12. Assessed value base and property tax revenues thus continue to accumulate in this fashion and are added to the property tax rolls ten years later (see Figure 4.5).

Finally, the new units would also generate **net new residents and workers within the city**, resulting in **wage tax revenues and sales tax revenues**. It is conservatively estimated that the addition of about 680 residential units would result in about 800 new residents and about 340 new wage earners being added each year,[35] leading to $500,000 in net new wage tax revenues and $25,000 in net new sales tax revenues each year (see Figure 4.5).[36] As with assessed value

[32] 680 housing units x average new house sale price of $200,000 = $136 million in net new house sale transactions. Multiplying the average new house size of 1,455 square feet by citywide average construction costs of $128 per square foot, and then applying a 10 percent profit and assuming no land costs, results in a house sale price of $205,000, which is then conservatively rounded down.

[33] 680 housing units x average new house sale price of $200,000 x 3% City real estate transfer tax rate = $4.1 million in net new real estate transfer tax revenues. Conservatively, this only accounts for real estate transfer tax revenues associated with initial sales, not with any subsequent sales of those units in the future.

[34] 680 new housing units x average new house sale price of $200,000 x 32% equalization ratio (i.e. ratio between assessed value and market value) = $43.5 million in assessed value x 8.264% property tax rate for City and School District = $3.6 million in net new property tax revenues, of which about $1.4 million would go to the City and about $2.2 million would go to the School District.

[35] It is conservatively assumed that the addition of new housing units leads to one-half of the amount of net new residents and wage earners, to account for internal shifts. Thus:

- 680 new housing units x 2008 US Census average household size of 2.34 x 50% are net new to the city = 797 net new residents.
- 680 new housing units x estimated 1 wage earner per household x 50% are net new to the city = 340 net new wage earners.

[36] 340 net new wage earners x 2008 US Census median household income of $37,090 = $12.6 million in net new wages within the city. Thus:

base and property tax revenues, these amounts also accumulate: since, each year, net new residents and workers are being added as a result of net new residential units being added, each successive year's addition in wage and sales tax revenues is greater and greater, since net new residents and workers that are added in one year remain within the city in subsequent years.

Figure 4.5 – Fiscal Impact from New Housing Units, Residents, and Wage Earners (in $M): 4,000 New Residents and 1,700 New Wage Earners within Five Years[37]

	Year 1	*Year 2*	*Year 3*	*Year 4*	*Year 5*
Real Estate Transfer Tax Revenues	$4.1	$4.1	$4.1	$4.1	$4.1
Net New Property Tax Revenues[38]	$0.0	$0.0	$0.0	$0.0	$0.0
Net New Population Added	795	1,590	2,385	3,180	3,975
Net New Wage Earners Added	340	679	1,019	1,358	1,698
Net New Wage Tax Revenues	$0.5	$1.0	$1.5	$2.0	$2.5
Net New Sales Tax Revenues	$0.0	$0.1	$0.1	$0.1	$0.1

Source: US Census Bureau (2009), Econsult Corporation (2010)

All together, the tax revenue gain to the City resulting from the addition of these residential units each year would be about $6.5 million in Year 1, increasing to about $8.5 million in Year 5, for **a cumulative five-year gain to the City of well over $35 million or more** (see Figure 4.6).[39] These benefits would be over and above the gains associated with the minimization or elimination of $3.6 billion in property value loss, over $20 million per year in expenditures

- $12.6 million in net new wages x 3.93% wage tax rate = $495,597 in net new wage tax revenues.
- $12.6 million in net new wages x estimated 10% of wages spent on sales tax eligible purchases x 2% City portion of sales tax rate = $25,000 in net new sales tax revenues.

[37] If one assumes that revenue levels grow at the same rate of inflation, these dollar figures can be taken to represent inflation-adjusted amounts.

[38] The existence of the City's 10-year property tax abatement program means that any net new property tax revenues associated with new construction would commence after Year 10.

[39] These amounts do not include any net new property tax revenues, which would not be seen until beginning in Year 11 (because of the existence of the City's 10-year property tax abatement program), when $3.6 million in property tax revenues would be received, representing net new property tax base added in Year 1.

associated with the maintenance of vacant parcels, and at least $2 million more each year in uncollected property taxes from delinquent vacant parcels. Additionally, these numbers do not account for any positive impacts from owners of neighboring parcels responding to blight removal and new development by recommitting to their properties instead of moving away and by reinvesting in those properties instead of letting them deteriorate.

Figure 4.6 – Aggregate Fiscal Impact from New Construction Activity and from New Housing Units, Residents, and Wage Earners (in $M): Cumulative Well Over $35 Million or More in New Revenues to the City within Five Years[40]

	Year 1	*Year 2*	*Year 3*	*Year 4*	*Year 5*
Real Estate Transfer Tax Revenues from New Housing Units, Residents, and Wage Earners (see Figure 4.5)	$4.1	$4.1	$4.1	$4.1	$4.1
Property Tax Revenues from New Housing Units, Residents, and Wage Earners (see Figure 4.5) [41]	$0.0	$0.0	$0.0	$0.0	$0.0
Wage Tax Revenues from New Construction Activity and from New Housing Units, Residents, and Wage Earners (see Figure 4.4 and Figure 4.5)	$1.6	$2.1	$2.6	$3.1	$3.6
Sales Tax Revenues from New Construction Activity and from New Housing Units, Residents, and Wage Earners (see Figure 4.4 and Figure 4.5)	$0.1	$0.2	$0.2	$0.2	$0.2
Business Privilege Tax Revenues from New Construction Activity (see Figure 4.4)	$0.6	$0.6	$0.6	$0.6	$0.6
Total Fiscal Impact from New Construction Activity and from New Housing Units, Residents, and Wage Earners	**$6.5**	**$7.0**	**$7.5**	**$8.0**	**$8.5**
Cumulative Fiscal Impact from New Construction Activity and from New Housing Units, Residents, and Wage Earners	**$6.5**	**$13.4**	**$20.9**	**$28.9**	**$37.5**

Source: US Department of Commerce Bureau of Economic Analysis (2009), US Census Bureau (2009), Econsult Corporation (2010)

[40] If one assumes that revenue levels grow at the same rate of inflation, these dollar figures can be taken to represent inflation-adjusted amounts.

[41] The existence of the City's 10-year property tax abatement program means that any net new property tax revenues associated with new construction would commence after Year 10.

4.5 Estimating Market Absorption – Long-Term Approach

Whether the pace of redevelopment slackens or accelerates after this first round remains to be seen. On the one hand, these vacant parcels represent the least blighted neighborhoods, so the work would appear to be more difficult to sustain once those parcels have been developed. On the other hand, these initial redevelopment efforts may create positive momentum in other, lower-valued neighborhoods, such that the number of places where for-profit and not-for-profit development makes sense grows over time.

Furthermore, removing the blighting effect of vacant land in these other neighborhoods may have larger percentage effects on prices related to costs, and may therefore lead to greater impetus for development. Recall that it is in these lower-valued neighborhoods where vacant parcels are more common and where addressing the problem of vacant land may translate into the removal of property value reductions that are as steep as 20 percent.[42] This is a price adjustment that may "tip" some neighborhoods towards more viability from the standpoint of market-rate and affordable housing construction.

An alternative way to estimate the magnitude of demand increase resulting from vacant land reform, which may hold some guidance as to long-term market absorption potential, is to try to infer a relationship between changes in value associated with the removal of the blighting effect of vacant parcels and attendant changes in density. In other words, as the blighting effect of vacant parcels on neighborhoods and on property values is addressed, housing values rise, and new development is induced.

Based on this alternative, long-term approach, Econsult estimated that vacant land reform could result in 29,000 new residential units over a 50-year period, for an average of about 580 new units per year. Though such long-range forecasting is imprecise by nature, these results seem to be consistent with Econsult's short-term approach to estimating market absorption (680 units per year for five years), with recent historical performance in terms of new housing construction (875 single-family and multi-family units per year from 1997 to 2008), and with other related growth forecasts (PCPC estimates 46,000 new housing units from 2010 to 2035, or about 1,800 units per year). If vacant land does in fact stimulate the projected 29,000 net new residential units, the estimated cumulative fiscal impact is about $75 million within 10 years.[43]

[42] Where there are greater numbers of vacant parcels, there is greater population loss and disinvestment. Removing the blighting effect of vacant land citywide would therefore have an outsized positive impact in these neighborhoods, leading to net new activity and tax revenue generation when compared to an alternative scenario in which population loss and disinvestment continues.

[43] See Appendix M for more information on this alternative, long-term approach to estimating market absorption.

5.0 NEIGHBORHOOD EXAMPLES

5.1 Overview

Heretofore the discussion has been at a citywide level: the vast majority of vacant parcels hold minimal market value, they impose substantial costs upon the City of Philadelphia and its residents, and transforming them from being perceived as unavailable and unattractive to being efficiently and strategically deployed towards development activities can create meaningful benefits in addition to minimizing or reducing current costs. It is useful to also consider if and how this formula has been and is being applied at a neighborhood level.

Therefore, information is provided in this section on the instructive example of Kensington, which has had significant public investment and which now enjoys healthy increases in property values where once there was significant blight and disinvestment (see Figure 5.1). A closer look at Kensington's example suggests that by addressing the problems associated with vacant land, neighborhoods can stabilize and growth can occur.[44]

Figure 5.1 – House Price Appreciation Rate, Kensington/Frankford Real Estate Sub-Market[45]

	10-Year	*1-Year*
Kensington	+86.2%	+5.4%
Philadelphia	+75.2%	+1.8%

Source: Econsult Corporation (2010)

Notably, this neighborhood example is also a good example of **the positive role that strong not-for-profit developers can play in transforming blighted neighborhoods**. In many instances throughout the City, community-serving organizations have entered neighborhoods with virtually no market-rate development potential and, with the help of significant public investment, developed subsidized affordable housing units. Echoing a theme featured prominently in this report, this has had the effect not only of providing a much-needed good – affordable housing – but also of reducing vacancy and its blighting effect, with attendant wealth

[44] See Appendix N for a brief write-up on a second and different neighborhood example, that of Eastern North Philadelphia.

[45] "Philadelphia Housing Price Indices," Econsult Corporation (August 10, 2010). The Kensington/Frankford real estate sub-market, which is larger than just the Kensington neighborhood, is roughly defined as being bounded by the Delaware River, Poplar Street, 5th Street, Erie Avenue, and Frankford Avenue, and Bridge Street.

benefit to existing households and change in the market viability of previously less developable neighborhoods.

5.2 Kensington

The evolution of the **Kensington** neighborhood in Near Northeast Philadelphia[46] makes for an illustrative example of industrial re-use.[47] Industry shifts over the second half of the 20th century had transformed Kensington from a strong, working-class neighborhood into a place of extensive blight, vacancy, and peril. In the transformation of Kensington into a magnet for arts and artists, reclamation and re-use have played and continue to play a significant role: in 1996, New Kensington Community Development Corporation (NKCDC) joined with the Pennsylvania Horticultural Society to "clean and green" trash-strewn lots into mini-parks, NKCDC has converted a former textile mill into 27 artists' housing units, run-down playgrounds and fields have been cleaned up made safe and popular again, and one of the three "design challenge" proposals for the Community Design Collaborative's current industrial land campaign involves the repurposing of former factory buildings for more modern commercial use.[48] As a result of significant public investment in vacant land reclamation, new housing starts have increased, property values have risen, and crime and blight have diminished: vacant land improvements were found to increase surrounding housing values by as much as 30 percent (translating in an aggregate property value gain of $12 million), and new tree plantings increased surrounding housing values by about 10 percent (translating in an aggregate property value gain of $4 million).[49]

5.3 Lessons Learned

Neighborhoods like Kensington were able to make the turnaround from downward trending to upward trending due to a combination of macro-economic trends, public investment, and hard work on the part of local advocates. The turnarounds flipped the vicious cycles into virtuous

[46] Roughly bounded by Front Street, Erie Avenue, and Castor Avenue.

[47] According to a merge of the Philadelphia Water Department inventory of vacant parcels and the master Board of Revision of Taxes parcel file, approximately 1,200 of the 40,000 vacant parcels within the City are industrial in nature. Later this year, the Philadelphia Industrial Development Corporation is expected to release its study of industrial parcels within the City.

[48] "New Heights for Postgreen's Awesome Town ," Brownstoner Philadelphia (June 3, 2010); "City Blocks: Frankford Avenue Revival ," Metropolis (June 1, 2010); "Turning Philadelphia's industrial past into jobs today," WHYY (May 27, 2010); "Derby is a Vehicle for Artists' Creativity," Philadelphia Inquirer (May 23, 2010); "Crack Pipe to Half-Pipe," Philadelphia Daily News (January 29, 2010); "Turning a Field of Dreams Into Reality," The Spirit Community Newspaper (September 9, 2009); "Revitalization Planned for PR Waterfront," The Spirit Community Newspaper (May 6, 2009).

[49] "The Determinants of Neighborhood Transformations in Philadelphia: Identification and Analysis: The New Kensington Pilot Study," Wharton School of Business (Spring 2005). This report was co-authored by two Econsult team members.

cycles, as upward tipping points resulted from **the reclamation of previously vacant parcels as assets from which to build developments and initiatives that could then beget additional developments and initiatives.**

In such cases, community groups that had a civic vision for their neighborhoods were able to encourage the overall redevelopment of vacant land through a strategic framework rather than in a piecemeal fashion. Such an approach is a microcosm of what can and should occur citywide were a single approach instituted to manage vacant land in Philadelphia, with the requisite broad perspective to plan the process of vacant land acquisition, management, and disposition in a fashion that encourages the emergence of vibrant blocks in healthy neighborhoods.

6.0 CONCLUSION

Vacant land within the city of Philadelphia imposes significant costs on the City, at a time when it can least afford to bear them: vacant parcels **diminish property values within the City by an aggregate $3.6 billion**, a variety of City agencies together spends **over $20 million annually to maintain City-owned and non-City-owned vacant parcels**, and privately held vacant parcels represent at least **$2 million each year in uncollected property tax revenues to the City and School District**. Most of the value within the City's inventory of vacant parcels is concentrated within a small proportion of that inventory, which suggests that if a more strategic approach was taken, there could be considerable gains to the City from **public remediation of some vacant parcels, aggressive disposition of others for private remediation, and the holding and assembling of still others for development opportunities**.

A more comprehensive and strategic approach to vacant land management would allow the City to **look across its inventory of vacant parcels and decide on which parcels to hold and which to release, and for what purposes.** More effective policies and procedures will prevent parcels from becoming vacant in the first place and will provide clear paths for those that do to be quickly and strategically redeployed for higher use.

A reformed approach would lead to **a more efficient, predictable, and strategic acquisition and disposition process**. Vacant parcels would more quickly and systematically be identified, and remedies undertaken to facilitate their redeployment for positive purposes. If successfully carried out, a reformed vacant land management process would minimize or eliminate the costs described above, and in some cases there would be the additional benefits associated with development, roughly estimated at **over $35 million or more within five years**.

APPENDIX A – CHARACTERISTICS OF VACANT PARCELS WITHIN THE CITY OF PHILADELPHIA, BASED ON PHILADELPHIA WATER DEPARTMENT DATA SET

Figure A.1 – Distribution of Vacant Parcel Types within the City of Philadelphia: The Vast Majority are Classified by PWD as Structureless

	#	%
Vacant Lot	35,575	89.2%
Vacant Home	2,416	6.1%
Adjacent Lot	1,526	3.8%
Parking	229	0.6%
Adjacent Building	54	0.1%
Scrapyard	26	0.1%
Other/Unknown	70	0.2%
Total	**39,896**	**100.0%**

Source: Philadelphia Water Department (2010), Econsult Corporation (2010)

Figure A.2 – Distribution of Vacant Parcel Ownership within the City of Philadelphia: Three-Quarters of the 40,000 Vacant Parcels Located within the City are Privately Controlled

	#	% Total	% City
Public Property	5,706	14.3%	61.9%
RDA	2,783	7.0%	30.2%
PHDC	681	1.7%	7.4%
Other City entities	43	0.1%	0.5%
All City entities[50]	9,213	23.1%	100.0%
All non-City entities	**30,683**	**76.9%**	
Total	**39,896**	**100.0%**	

Source: Philadelphia Water Department (2010), Econsult Corporation (2010)

[50] Philadelphia Housing Authority (PHA) is federally funded and as a result is not counted among City entities.

APPENDIX B – HEDONIC REGRESSION MODEL METHODOLOGY AND ADDITIONAL DETAIL FOR ESTIMATION OF EFFECT ON PROPERTY VALUES OF PROXIMITY TO VACANT PARCELS

B.1 Measuring the Impact of Vacant Parcels on Nearby Property Values

The model developed to estimate the property value effect of the 40,000 vacant parcels within the city of Philadelphia on nearby properties is a statistical analysis of all arms-length transactions of homes in the city from the first quarter of 2009 to the first quarter of 2010, of which there were about 23,000. Three variables were considered in this hedonic regression analysis:[51] 1) distance to the nearest vacant parcel, 2) whether the distance to the nearest vacant parcel was less than 75 feet, and 3) whether the distance to the nearest vacant parcel was between 75 and 200 feet (see Figure B.1 and Figure B.2).[52]

[51] Hedonic regression analysis is a longstanding and accepted form of property value impact analysis, and is used by Econsult for a variety of real estate analyses within the city and across the US. It understands the price of a housing unit to be the sum of that housing unit's positive and negative characteristics – structural traits (square footage, lot size, number of bedrooms and bathrooms), the package of tax and service levels for the jurisdictions in which it lies, and locational amenities and disamenities (i.e. whether it is near attractive things like parks and playgrounds and/or whether it is near unattractive things like landfills and highways). Through statistical and econometric techniques, the incremental effect each of those characteristics – in this case, distance to the nearest vacant parcel – can be isolated. For example, differences within the city as they relate to demographic and neighborhood characteristics were controlled for by accounting for the Census tract level in which a home sale took place.

[52] The median distance to the nearest vacant parcels was 192 feet (i.e. there were just as many home sales that took place in locations that were more than 192 feet from a vacant parcel than there were that were less than 192 feet from a vacant parcel), and the first quartile distance to the nearest vacant parcels was 76 feet (i.e. there were three times as many home sales that took place in locations that were more than 75 feet from a vacant parcel than there were that were less than 75 feet from a vacant parcel). Because the effect of vacant parcels on the property values of nearby parcels is likely very sensitive at shorter distances, these two additional variables were included to better understand the effect at these shorter distances.

By using the natural log of price, rather than price itself, as the dependent variable, the coefficients have the interpretation of being the percent change, rather than dollar change, in the price of residential properties as a result of a change in the independent variables. This makes the valuation less sensitive to price inflation (or deflation) over time, which certainly occurred during the 2009-2010 period.

It may also prove worthwhile to consider, instead of or in addition to the relationship between home values and distance to the nearest vacant parcel, the relationship between home values and the amount of vacant parcel square footage within a certain radius around a home; while this second approach will likely yield similar results to the first (homes that are near a vacant parcel are likely to have more vacant parcel square footage near them, and vice versa), there may be exceptions that are worth exploring.

Additionally, it may prove useful to further differentiate between vacant parcel types, since there are vast qualitative differences. For example, some vacant parcels have been treated by the Pennsylvania Horticultural Society, transforming them from liabilities to assets at the neighborhood level. Also, some vacant parcels have been tax delinquent for longer than others, and/or have higher balances than others; this, too, may yield guidance on prioritizing which vacant parcels to remediate or otherwise respond to sooner rather than later.

Figure B.1 – Distribution of Distance to the Nearest Vacant Parcel for Home Sales That Took Place from Q1 2009 to Q1 2010 (in Feet)[53]

Maximum Value	3,529
Third Quartile (i.e. 75th percentile)	437
Median (i.e. 50th percentile)	192
First Quartile (i.e. 25th percentile)	76
Minimum Value	0
Average Value	333
Standard Deviation	390

Source: Board of Revision of Taxes (2010), Econsult Corporation (2010)

Figure B.2 – Hedonic Regression Analysis of Property Value Impact of Vacant Parcels within the City of Philadelphia, Q1 2009 to Q1 2010

N=22,743, Adj. R-sq=.6623, Method=OLS

Variable	*Est. Coeff.*	*t-value*
dist_vacant	0.0000546	3.17
dist_75	-0.16528	-12.06
dist_75_200	-0.08576	-7.36

Source: Board of Revision of Taxes (2010), Econsult Corporation (2010)

[53] "Maximum value" = among all home sales that took place from Q1 2009 to Q1 2010, the highest value for distance to the nearest vacant parcel. "Third Quartile" = 75 percent of home sales had values for distance to the nearest vacant parcel that were lower than this number, while 25 percent had values that were higher than this number; "Median" = 50 percent had values that were higher than this number, while 50 percent had values that were lower than this number; "First Quartile" = 25 percent had values that were higher than this number, while 75 percent had values that were lower than this number. "Minimum Value" = the lowest value for distance to the nearest vacant parcel; "0" means immediately adjacent. "Average Value" = the average of all values for distance to the nearest vacant parcel. "Standard Deviation" = the average of the absolute differences between the average distance and the actual distance for each home sale.

The regression results indicate that home sales that were located within 75 feet of the nearest vacant parcel sold for 16.5 percent less, which would roughly be the equivalent of a $20,000 diminution of value for a house priced at the citywide average of $125,000; home sales that were located between 75 and 200 feet of the nearest vacant parcel sold for 8.6 percent less, which would roughly be the equivalent of a $11,000 diminution of value. Both of these findings are statistically significant.

B.2 Aggregating the Estimated Impact of Vacant Parcels on Nearby Property Values

Now the results of this hedonic regression model can be applied to the universe of single-family units within the city. This calculation was performed in the following manner (see Figure B.3):

1. Median house price per square foot was estimated at the Census Block Group level by utilizing arms-length home sales of single-family units that occurred between the first quarter of 2009 and the first quarter of 2010, as recorded from deeded title transfers from the City's Department of Records.[54]

2. The number of single-family units within each Census Block Group was determined from data from the Board of Revision of Taxes.

3. The proportion of single-family units that was occupied within each Census Block Group was determined by applying vacancy rates in 2008 as available from Geolytics.

4. Price per square foot was multiplied by the individual square footage of each housing unit in each Census Block Group to obtain the predicted current value of each unit. The total value of housing stock was then obtained by summing the predicted values across all housing units in the Census Block Group.

5. The distance of each occupied single-family unit to the nearest vacant parcel was computed by joining the parcel file of those occupied single-family units to the parcel file of vacant parcels from the Philadelphia Water Department.

6. Regression results were applied to each occupied single-family unit, based on its characteristics (i.e. its value and its distance to the nearest vacant parcel), to determine the magnitude of diminution of value.[55]

[54] During this period, there were 22,743 arms-length home sales.

[55] A specific valuation of all 449,000 single-family units within the city was beyond the scope of this engagement. Because house prices are relatively homogenous within a Census block group, assuming that the value of each single-family unit within a Census block group is equal to the median house price within that Census block group is a reasonable assumption.

7. The property value losses were multiplied through for all occupied single-family units within the City to arrive at an aggregate citywide estimate for property value loss.

8. The aggregate property value loss was divided by the estimated value of citywide housing stock to arrive at an average property value loss.

9. All estimates were divided by the number of occupied single-family units located within the city to arrive at estimates at the average household level.

Figure B.3 – Blighting Effect of Vacant Parcels on Nearby Properties: 6.5% Reduction Means $3.6 Billion in Aggregate Property Value Loss, An Average of $8,000 per Household

	Aggregate Citywide	*Average Household*
# Occupied Single-Family Units	449K	1
Estimated Value of Housing Stock (2009-2010 figure)	$56B	$125K
% Property Value Reduction from Vacant Parcels	**6.5%**	**6.5%**
$ Property Value Reduction	**$3.6B**	**$8.1K**

Source: Board of Revision of Taxes (2010), City of Philadelphia Department of Records (2010), Geolytics (2010), Econsult Corporation (2010)

There is obviously a wide disparity within the city of house values as well as of the blighting impact of vacant parcels. In some neighborhoods, the reduction in value was estimated to be zero, while in other neighborhoods, the reduction in value was estimated to be as high as 20 percent. Lower valued neighborhoods tend to have more vacant parcels and therefore a higher negative impact in percentage terms, but not as high of a negative impact in absolute dollar terms: for example, a 20 percent decrease on a $60,000 house is a $12,000 decrease. Meanwhile, higher valued neighborhoods tend to have fewer vacant parcels and therefore a lower negative impact in percentage terms, but a relatively high negative impact in absolute dollar terms: for example, a 2 percent decrease on a $600,000 house is a $12,000 decrease.

APPENDIX C – ADDITIONAL INFORMATION ON MAINTENANCE COST ESTIMATE SOURCES, METHODOLOGY, AND DETAIL

C.1 Overview and Summary

Even though the City of Philadelphia only controls one-quarter of the 40,000 vacant parcels within the city, it bears considerable expense maintaining all 40,000 vacant parcels. Seventeen different City agencies or related entities bear costs associated with the maintenance of vacant parcels, some as direct owners of the parcels and some as service providers whose roles intersect with vacant parcels. Based on interviews conducted with department representatives and on research on equivalent per-capita costs from similar nearby localities, it is conservatively estimated that the annual aggregate costs are over $20 million, despite the fact that some entities that own vacant parcels spend little to maintain them (see Figure C.1).

Figure C.1 – Total Annual Ascertainable Direct City Costs of Maintaining Vacant Parcels within the City of Philadelphia Totals Over $20 Million

Entity	*Comments*	*Source*	*Estimated Annual Amount*
Board of Revision of Taxes	Administrative function related to vacant parcel information management		Unavailable
City Council	Staff time	Council President Verna's office	$100K
City Planning Commission	Responsible for Blight Certification and Redevelopment Area Plan Reports)		Unavailable
Fire	Cost of responses	Interview with deputy chief; per-capita averages from recent City of Baltimore study	$5.95M (includes Police)

Entity	*Comments*	*Source*	*Estimated Annual Amount*
Health	Vector control	Interview with director of Environmental Health Services	$33K
Licenses & Inspections (L&I)	Clean and Seal	Interview with chief of staff and deputy commission and with budget officer	$1.15M
L&I	Demolition	See above	$5.34M
L&I	Code Enforcement	See above	$490K
L&I	Contractual Services	See above	$940K
Law	L&I code violation court enforcement		$400K
Managing Director's Office (MDO)	CLIP	Interview with representative from Mayor's Office of Neighborhood Services	$1.80M
Office of Housing and Community Development (OHCD)	Contracts with Pennsylvania Horticultural Society for Philadelphia Green treatment and maintenance of vacant properties	Interview with representative from Philadelphia Green; memorandum from OHCD Director	$2.99M (includes PHDC)
Philadelphia Housing Development Corporation	Owner of vacant parcels	See OHCD	See OHCD
Police	Cost of responses	Per-capita averages from recent City of Baltimore study	See Fire
Public Property	Owner of vacant parcels	Interview with commissioner	$100K

Entity	*Comments*	*Source*	*Estimated Annual Amount*
RDA	Owner of vacant parcels	Interview with deputy director	$1.63M
Records	Administrative function related to vacant parcel information management		Unavailable
Revenue	Follow-up on tax delinquent accounts		See Law
Sheriff	Follow-up on tax delinquent accounts		Unavailable
Streets	Disposal of waste dumped on vacant parcels	Interview with deputy managing director	$390K
Vacant Property Review Committee	Created by City Council in 1976 to recommend all vacant land acquisition and disposition along with the District Councilperson		
Annual Total, All Ascertainable Direct City Costs			**$21.3M**

Source: City of Philadelphia FY 2010 budget, interviews with various City department representatives (2010), Econsult Corporation (2010)

C.2 Overall Methodology

To determine the cost to the City of maintaining the 40,000 vacant parcels within the city, key personnel at ten agencies that play an active role in managing vacant parcels were interviewed to identify available data for estimating actual expenditures for Fiscal Year (FY) 2009 related to vacant parcels. Each agency had a varying ability to ascertain the costs attendant to vacant parcels. For some programs, like L&I's Clean and Seal program or the MDO's CLIP program, the focus of the program is solely on vacant buildings or lots, so the entire budget was attributed to vacant properties. For other programs, like the L&I Code Enforcement program, using a series of criteria (in this case seven Property Management Code sections recorded by inspectors), departments could provide a credible estimate as to the proportion of their department budget that was expended as a result of the existence of vacant parcels.

FY 2009 was selected because it was the most recent complete fiscal year available at the time. This selection has the effect of providing a conservatively low estimate, for time and again, interviewees stated that an analysis based on FY 2009 data would produce a much lower annual estimated cost than one based on FY 2008 or FY 2007 data, because the City had imposed the largest budget cuts in a decade in FY 2009. For example, millions of dollars were stripped from OHCD and PHDC to maintain vacant parcels in partnership with PHS's Philadelphia Green program, while L&I's budget for demolition was slashed by almost $3 million.

Each of the agencies interviewed provided a FY 2009 cost for maintaining vacant parcels, with two very notable exceptions: the Police Department does not note or record when a property they respond to is vacant, and the Fire Department keeps this information only for responses that are investigated (which represents a small subset of all visits). As a result, a different approach was utilized, which relied on a recent and very comprehensive analysis of additional police and fire costs attributable to vacant parcels that was performed by the City of Baltimore in 2009, and deriving an equivalent cost for Philadelphia based on per capita amounts for Baltimore.

C.3 Health Department

The Health Department's Vector Control program works to eliminate vermin from vacant parcels. In order to determine the total cost of vector control services, the Health Department analyzed data kept in the regular course of business that defines whether each vector control visit concerned an occupied house, vacant house, or vacant lot. In FY 2009, Vector Control treated 182 vacant lots and 170 vacant houses.

Dr. Palak Raval-Nelson, PhD, MPH, Director of Environmental Health Services, provided an average hourly rate for investigation and abatement work on site, which can be used to

determine the total cost to treat the vacant lots and houses. Two levels of staff complete the work involving vacant properties: field investigators, and vector control staff who do the abatement work. Based on Dr. Raval-Nelson's experience, she estimated that for vacant lots, the field investigator is responsible for 60 percent of the work on site and vector control is responsible for 40 percent; for houses, investigators perform a bit higher percentage of the work.

The hourly rates for servicing provided by Dr. Raval-Nelson are estimated to be $45 for vacant lots and $50 for vacant houses, and the average vector control staff time spent on a lot is 1.5 hours, while the average time spent at a house is 2.5 hours. As a result, the average cost to perform vector control on a vacant lot is $67.50, while the average cost to perform vector control on a vacant house is $125.[56]

182 vacant lots x $45/hour x 1.5 hours	$12,285
170 houses x $50/hour x 2.5 hours	$21,250
= Total Vector Control Costs	$33,535

C.4 Licenses and Inspections (L&I)

L&I plays a major role in managing vacant properties. There are four key units of L&I that deal with vacant and abandoned properties: Clean and Seal, Code Enforcement, Demolition, and Contractual Services.

Clean and Seal is responsible for boarding up abandoned homes and buildings to protect the building from illegal entry and inclement weather. Clean and Seal only deals with vacant structures so its entire budget is included in the direct cost calculation:[57]

Straight Time Class 101	$1,034,888
Overtime Class 161/162	$29,500
Class 200 Expenditures	$5,955
Class 300 Expenditures	$64,976
Class 400 Expenditures	$14,178
= Total Clean and Seal Costs	$1,149,497

Where private owners fail to maintain their properties, Code Enforcement officials can inspect and write violations for non-compliance. L&I also can take homeowners to court to try and gain

[56] Interview with Dr. Palak Raval-Nelson, PhD, MPH, Director of Environmental Health Services.

[57] Interview with Anuj Gupta, Chief of Staff and Deputy Commissioner, and Diane Pecca, Budget Officer.

compliance.[58] Since code enforcement activities involve both occupied and vacant properties, it was essential to break down the data to determine how many code enforcement visits were to vacant properties. To ascertain whether a property was vacant, the Director of Information Systems calculated the total number of inspections that involved vacant properties by including all inspections where the inspector noted one of seven violations of the Property Management Code that signifies the property is vacant.[59] During the course of FY 2009, 82,112 inspections were conducted, and of these, 14.5 percent, or 11,920, were related to vacant and abandoned properties. To ascertain the total cost to the unit of making these 11,920 visits to vacant properties, the total Code Enforcement unit budget was determined to be $3,377,396, and 14.5 percent of the total, $489,722, was attributed to vacant properties.

The Demolition Program demolishes unsafe and imminently dangerous buildings. Imminently dangerous buildings are those buildings where, in the inspector's opinion, a partial or complete collapse of the structure will likely occur within the next 90 days and the structure therefore endangers human life and/or will cause damage to adjacent property. The Demolition Program only targets vacant buildings, so its entire budget is included. Expenditures to hire contractors to demolish structures in FY 2009 totaled $5,339,049.[60]

The Contractual Services Unit identifies structurally dangerous buildings and refers them for city-funded demolition. When property owners fail to take corrective action, private contractors may be hired to demolish imminently dangerous buildings and stucco repair adjacent buildings to prevent further deterioration. This unit works exclusively with vacant properties so its entire budget is included in the direct cost calculation.[61]

Straight time class 101	$532,205	(General Fund)
Overtime class 161/171	$54,441	(General Fund)
Straight time class 101	$315,643	(OHCD Fund)
Overtime class 161/171	$36,166	(OHCD Fund)
= Total Contractual Services Unit Costs	$938,455	

C.5 Managing Director's Office (MDO)

The MDO directs Philadelphia's Community Life Improvement Program (CLIP). CLIP was initiated in 2002 at the request of City Councilwoman Joan Krajewski, who established the

[58] Note that the cost of appearing in court or working with the City Law Department is not included.

[59] These violations correspond with the following Property Management Code Sections: 306.0/1, 306.0/90, 306.0/91, 306.2/1, 306.2/2, 306.2/4, 306.2/90, 306.2/91, 306.2/92, 307.1/1, 307.1/19, 307.1/90, and 307.2/1.

[60] $8.25 million was originally budgeted for FY 2009 but the budget was cut by several million dollars in order to balance the City's budget.

[61] Interview with Anuj Gupta, Chief of Staff and Deputy Commissioner, and Diane Pecca, Budget Officer.

program to clean up blighted properties in her district, which extends from Port Richmond into the Northeast. In 2009, CLIP operated in the following zip codes to address specific exterior quality of life issues such as high grass, debris on property etc. through means of education, enforcement and abatement (cleaning of the property): 19111, 19114, 19115, 19116, 19120, 19124, 19135, 19136, 19137, 19149, 19152, and 19154. CLIP responds to complaints from City Council members, neighbors, and referrals from the police, the fire department, or L&I. CLIP deals almost exclusively with vacant lots. If CLIP has to clean a private property because the owner failed to comply within 20 days to fix a violation, a lien is placed on the property with the goal of recouping the costs for the cleanup.[62] CLIP's total expenditures for FY 2009 were $1,800,000.[63]

Personnel	$1,500,000
Equipment/Supplies	$300,000
= Total CLIP Costs	$1,800,000

C.6 Office of Housing and Community Development (OHCD) and Philadelphia Housing Development Corporation (PHDC)

Some of the vacant parcels controlled by OHCD and PHDC are treated and maintained through a contract with the Pennsylvania Horticultural Society (PHS).[64] Inclusive of these activities, it is estimated that $2,985,000 is spent on an annual basis on vacant parcels. This estimate was obtained by taking 12 months' worth of invoices associated with OHCD's Vacant Land Management activities, backing out amounts designated for Tree and Park activities (which do not take place on vacant parcels), and including an estimated amount for associated administrative costs by OHCD.[65]

C.7 Public Property

Though Public Property is the City agency that controls the most vacant parcels, it does not keep separate records from which to determine costs specific to the maintenance of vacant parcels. It is estimated that annual costs are about $100,000.[66]

[62] This study did not factor in the potential for recouping costs from liens on the properties.

[63] Interview with Thomas Conway, Mayor's Office of Neighborhood Services.

[64] Interview with Bob Grossman, Philadelphia Green.

[65] Based on a July 14, 2010 memorandum from Deborah McColloch, OHCD Director.

[66] Interview with Joan Schlotterbeck, Commissioner.

C.8 Redevelopment Authority

RDA spent $1,625,000 maintaining its properties in FY 2009.[67]

Labor	$1,450,000
Materials	$175,000
= Total RDA Costs	$1,625,000

C.9 Revenue and Law Departments

Both Revenue and Law bear additional costs associated with vacant parcels because vacant parcels are more difficult to administer in terms of delinquent tax collection. No direct record-keeping exists to isolate these marginal costs to Revenue and Law, but one can conservatively estimate a number based on rough proportioning of known budget line items:[68]

- For Revenue, Enforcement costs $3.7 million per year. If one assumes that property taxes represent one-sixth of that cost (since it represents about one-sixth of City-collected taxes), and that vacant parcels represent one-sixth of that cost (since they represent about one-sixth of parcels with delinquent property taxes), that results in annual costs associated with vacant parcels of over $100,000. And, one could also assign some costs to other Revenue departments, such as Collections.

- For Law, a 6 percent surcharge is levied on collections performed in-house to reflect the cost of collections activity. If about $5 million in principal is added in delinquent property taxes each year as a result of vacant parcels, that is an annual administrative cost of about $300,000. And, one could also assign some costs to other Law functions, such as those associated with taking vacant properties to tax sale.

Conservatively, only what is estimated above is counted towards Revenue and Law. This results in an annual administrative cost of $400,000, although the actual administrative cost is likely much higher.

Revenue	$100,000
Law	$300,000
= Revenue + Law	$400,000

[67] Interview with John Carpenter, Deputy Director.

[68] Based on July 21, 2010 memorandum from Marisa Waxman, Director of Policy, Planning and Outreach in the Revenue Department, with contribution from Jim Zwolak.

C.10 Streets Department

Streets disposed of 6,100 tons of trash and debris that the CLIP program collected from vacant properties, at a fee of $64 a ton. Total disposal costs to landfills for the CLIP program in FY 2009 thus totaled $390,400.[69]

Tons of trash/debris removed from vacant lots	6,100
x Landfill disposal fees per ton	$64
= Total disposal costs related to vacant lots	$390,400

C.11 Police and Fire Departments

Vacant properties are the location for more crimes and more fires than occupied properties.[70] As a result they require much higher amounts of Fire Department and Police Department resources than occupied buildings. In 2008, the City of Baltimore used econometric analysis to rigorously quantify the cost of police and fire services associated with vacant properties. Many studies have addressed the cost of vacant properties in a general sense, but Baltimore was the first city to undertake a detailed study that calculated each and every visit by Police or Fire to a Baltimore address.[71] Working with a consultant, the city determined that the cost per block of police and fire services showed an annual increase of $1,472 for each vacant and unsafe property on that block, over and above expenditure levels associated with non-vacant parcels.

Philadelphia Police does not keep data showing whether a police call sent them to an address that was occupied or vacant. Fire only maintains information as to whether a building is vacant or occupied for a small subset of their total calls, only those calls that are the subject of an investigation.[72] Given the short timeframe for the completion of this study, it was not possible to determine the number of fire or police responses to vacant properties. Instead, this study utilizes the detailed Baltimore study and normalizes the data to reflect differences in population and in Police and Fire funding levels in the two cities.

Baltimore documented that every vacant property required $1,000 in additional police time and $472 in additional firefighter time. The study used 911 call data, a list of properties

[69] Interview with John Elfrey, Deputy Managing Director.

[70] See, for example: "$60 Million and Counting: The Cost of Vacant and Abandoned Properties to Eight Ohio Cities," Community Research Partners (February 2008); "Vacant Properties: The True Costs to Communities," National Vacant Properties Campaign (2005); "The Municipal Cost of Foreclosures: A Chicago Case Study," Homeownership Preservation Foundation (February 27, 2005).

[71] "Determining the Cost of Vacancies in Baltimore," Government Finance Review (June 1, 2009).

[72] Fires are investigated only if two engines and two ladders responded, if the cause was undetermined, if the fire was arson or if there was a fatality. Interview with James Bonner, Deputy Chief and Fire Marshal.

designated as vacant and unsafe for at least one month, and police and fire department budgets, all for FY 2010. The call data and vacant property information was used to construct an econometric model that measured the statistical relationship between the number of properties designated as vacant and unsafe on a block and the amount of time police and fire personnel spent on that block. In the analysis, "officer minutes" and "fire fighter minutes" were the base measures used, indicating one minute of time for one officer called to a specific block. The analysis found a significant increased police and fire cost for vacant properties. This cost per officer or fire fighter minute was multiplied by the marginal increase in public safety response minutes associated with each additional vacant and unsafe designated property on a given block. The additional cost was measured to be $1,472.[73]

To apply the Baltimore analysis to Philadelphia, it is essential to identify differences between the two cities that might alter the public safety costs associated with vacant properties. While the cities share a history of long term vacancy and abandonment, there are several important differences. Baltimore has half the number of vacant properties, roughly 19,000. Baltimore has a little less than half the population of Philadelphia. Also, it is probably not accurate to apply Baltimore's incremental cost per vacant and unsafe property to Philadelphia's entire inventory of vacant parcels, especially since the vast majority of those parcels are empty lots, which are not likely to be as costly in terms of police and fire expenditures.[74] Conservatively, Baltimore's cost per property is applied only to the small fraction of Philadelphia's inventory that has a structure or structures on it, yielding an estimated total Police and Fire cost of $5.9 million (see Figure C.2).

[73] The analysis does not address whether the vacant properties caused the increase in cost or whether increased criminal activity might have caused an increase in vacancies. But, because of the econometric component to the analysis, it is correct to say that the $1,472 amount represents an incremental amount over and above expenditure levels associated with non-vacant properties.

[74] "Vacant Home" (2,416) and "Adjacent Building" (54) total 2,470 out of 39,896 vacant parcels, or 6.2 percent of the inventory. It is likely that some of the 35,575 parcels designated "Vacant Lot" are misclassified and actually have structures on them. Drawing from a random sample of 100 of those parcels and viewing them on Google Earth, it was found that 15 of them had structures on them. The 95 percent confidence interval for the proportion of parcels designated "Vacant Lot" that actually have structures on them is 9.3 to 23.3 percent, so to be conservative, the low-end figure of 9.3 percent is used, thus making for an additional 3,312 parcels that have structures on them, for the purposes of calculating an incremental increase in police and fire costs.

This yields a total of 5,782 parcels, which, when multiplied by a per unit police and fire cost of $1,028, means an estimated $5.95 million in extra police and fire costs. In fact, it is likely that the number of vacant parcels in the city that have structures on them is far higher than 5,782. RDA estimates that, based on previous reports conducted by the US Postal Service and by the City's Commerce and Licenses & Inspections departments, that the figure is closer to 15,000. This would yield total Police and Fire costs associated with vacant parcels of over $15 million.

Figure C.2 – Estimated Annual Police and Fire Cost Associated with Vacant Parcels within the City of Philadelphia, Based on FY 2008 per Parcel Costs for City of Baltimore: $6 Million per Year

	Philadelphia
FY 2010 Fire Budget	$188.7M
FY 2010 Police Budget	$522.5M
FY 2008 Population	1,45M
Fire $ per Capita	$130
Police $ per Capita	$361
Total $ per Capita	$491
Estimated $ per Vacant Parcel[75]	$1,028
# Vacant Parcels with Structures	5,782
Total Police/Fire $	**$5.95M**

Source: Government Finance Review (2009), US Census Bureau (2009), City of Baltimore (2009), City of Philadelphia (2009), Econsult Corporation / May 8 Consulting (2010)

[75] Assuming proportionate cost to Baltimore.

APPENDIX D – CHARACTERISTICS OF VACANT PARCELS WITHIN THE CITY OF PHILADELPHIA THAT ARE TAX DELINQUENT

Figure D.1 – Distribution of Vacant Parcels That Are Tax Delinquent, by Amount of Time Delinquent: Total Amount Owed is $70 Million; 66 Percent of Accounts and 89 Percent of Amount Owed is More Than 10 Years Delinquent

# Years Delinquent	*Total Amount Owed*[76]	*%*	*Total # of Accounts*	*%*
1	$1,432,475	2%	1,366	8%
2	$1,106,930	2%	774	5%
3	$690,893	1%	623	4%
4	$449,908	1%	429	3%
5	$379,339	1%	339	2%
6	$548,587	1%	269	2%
7	$508,032	1%	248	1%
8	$598,761	1%	256	2%
9	$895,918	1%	947	6%
10	$849,022	1%	402	2%
11+	$61,970,582	89%	11,055	66%
Total	**$69,430,448**	**100%**	**16,708**	**100%**

Source: Philadelphia Water Department (2010), Philadelphia Revenue Department (2010), Econsult Corporation (2010)

[76] I.e. total amount owed by accounts that are a certain number of years delinquent.

Figure D.2 – Distribution of Vacant Parcels That Are Tax Delinquent, by Amount Owed (including Interest and Penalties)

Amount Owed	*Total Amount Owed*[77]	*%*	*Total # of Accounts*	*%*
<$1K	$1,922,777	3%	4,854	29%
$1K to $2K	$4,851,360	7%	3,239	19%
$2K to $3K	$4,926,924	7%	1,980	12%
$3K to $4K	$4,888,423	7%	1,408	8%
$4K to $5K	$4,849,082	7%	1,085	6%
$5K to $6K	$4,684,567	7%	857	5%
$6K to $7K	$4,376,107	6%	676	4%
$7K to $8K	$3,491,165	5%	465	3%
$8K to $9K	$3,200,079	5%	378	2%
$9K to $10K	$2,590,787	4%	273	2%
>$10K	$29,649,177	43%	1,493	9%
Total	**$69,430,448**	**100%**	**16,708**	**100%**

Source: Philadelphia Water Department (2010), Philadelphia Revenue Department (2010), Econsult Corporation (2010)

[77] I.e. total amount owed by accounts whose balances are within a certain range of amount owed.

Figure D.3 – Distribution of Vacant Parcels That Are Tax Delinquent, Total Aggregate Amount Owed: About $70 Million in Lost Property Taxes

# Yrs Delinquent / *Amount Owed*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11+*	***Total***	***%***
<$1K	$236,737	$191,171	$173,271	$146,100	$105,553	$93,780	$68,621	$52,908	$295,831	$135,636	$423,171	**$1,922,777**	**3%**
$1K to $2K	$71,667	$93,098	$131,437	$72,019	$83,100	$58,333	$87,587	$99,300	$136,308	$103,904	$3,914,608	**$4,851,360**	**7%**
$2K to $3K	$29,951	$57,905	$37,835	$37,339	$46,038	$47,957	$59,366	$88,245	$88,124	$94,402	$4,339,760	**$4,926,924**	**7%**
$3K to $4K	$21,279	$35,916	$20,124	$34,074	$21,322	$47,495	$42,820	$58,005	$59,398	$84,103	$4,463,889	**$4,888,423**	**7%**
$4K to $5K	$18,056	$9,122	$17,053	$36,617	$55,885	$35,750	$26,145	$53,631	$39,589	$58,711	$4,498,521	**$4,849,082**	**7%**
$5K to $6K	$21,620	$10,651	$27,948	$10,708	$27,322	$32,233	$21,639	$50,075	$44,853	$49,111	$4,388,408	**$4,684,567**	**7%**
$6K to $7K	$6,273	$6,350	$13,360	$6,356	$0	$32,872	$19,995	$33,018	$46,853	$44,606	$4,166,424	**$4,376,107**	**6%**
$7K to $8K	$7,750	$0	$22,131	$15,434	$7,010	$7,126	$7,356	$30,601	$0	$21,652	$3,372,105	**$3,491,165**	**5%**
$8K to $9K	$8,427	$8,761	$8,832	$8,363	$0	$8,023	$8,233	$16,742	$17,151	$8,738	$3,106,809	**$3,200,079**	**5%**
$9K to $10K	$9,892	$0	$28,701	$18,435	$9,230	$37,332	$0	$18,806	$0	$0	$2,468,392	**$2,590,787**	**4%**
>$10K	$1,000,823	$693,957	$210,202	$64,464	$23,880	$147,685	$166,270	$97,430	$167,811	$248,160	$26,828,495	**$29,649,177**	**43%**
Total	**$1,432,475**	**$1,106,930**	**$690,893**	**$449,908**	**$379,339**	**$548,587**	**$508,032**	**$598,761**	**$895,918**	**$849,022**	**$61,970,582**	**$69,430,448**	**100%**
	2%	**2%**	**1%**	**1%**	**1%**	**1%**	**1%**	**1%**	**1%**	**1%**	**89%**	**100%**	

Source: Philadelphia Water Department (2010), Philadelphia Revenue Department (2010), Econsult Corporation (2010)

Figure D.4 – Distribution of Vacant Parcels That Are Tax Delinquent, Total Count of Accounts: About 17,000 Parcels That Are Vacant and Delinquent

# Yrs Delinquent / *Amount Owed*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11+*	***Total***	***%***
<$1K	1,269	654	477	334	232	161	127	94	763	217	526	**4,854**	**29%**
$1K to $2K	52	69	97	50	62	42	62	69	95	73	2,568	**3,239**	**19%**
$2K to $3K	12	23	16	15	18	20	25	36	35	39	1,741	**1,980**	**12%**
$3K to $4K	6	11	6	10	6	13	12	17	17	24	1,286	**1,408**	**8%**
$4K to $5K	4	2	4	8	12	8	6	12	9	13	1,007	**1,085**	**6%**
$5K to $6K	4	2	5	2	5	6	4	9	8	9	803	**857**	**5%**
$6K to $7K	1	1	2	1	0	5	3	5	7	7	644	**676**	**4%**
$7K to $8K	1	0	3	2	1	1	1	4	0	3	449	**465**	**3%**
$8K to $9K	1	1	1	1	0	1	1	2	2	1	367	**378**	**2%**
$9K to $10K	1	0	3	2	1	4	0	2	0	0	260	**273**	**2%**
>$10K	15	11	9	4	2	8	7	6	11	16	1,404	**1,493**	**9%**
Total	**1,366**	**774**	**623**	**429**	**339**	**269**	**248**	**256**	**947**	**402**	**11,055**	**16,708**	**100%**
	8%	**5%**	**4%**	**3%**	**2%**	**2%**	**1%**	**2%**	**6%**	**2%**	**66%**	**100%**	

Source: Philadelphia Water Department (2010), Philadelphia Revenue Department (2010), Econsult Corporation (2010)

APPENDIX E – ESTIMATING AVERAGE ANNUAL UNCOLLECTED PROPERTY TAXES FROM TAX DELINQUENT VACANT PARCELS

	# Years Delinquent	*Total Amount Delinquent, Principal Only*[78]	*Annualized Amount, Principal Only*
Considered Still Collectible: $2.0 Million in Principal	1	$1,432,474	$1,432,474
	2	$871,739	$435,869
	3	$510,510	$170,170
Considered Uncollectible: $3.0 Million in Principal	4	$303,078	$75,770
	5	$241,909	$48,382
	6	$364,882	$60,814
	7	$313,435	$44,776
	8	$330,871	$41,359
	9	$495,535	$55,059
	10+[79]	$25,985,828	$2,598,583
	Total	**$30,850,261**	**$4,963,256**

Source: Philadelphia Water Department (2010), Philadelphia Revenue Department (2010), Econsult Corporation (2010)

[78] I.e. principal amount owed by accounts that are a certain number of years delinquent.

[79] All amounts 10 or more years delinquent are considered 10 years delinquent and thus are divided by 10 to arrive at an annualized amount.

APPENDIX F – HEDONIC REGRESSION MODEL METHODOLOGY AND ADDITIONAL DETAIL FOR VALUATION OF VACANT PARCELS

F.1 Methodology

The land valuation model developed to estimate the value of the 40,000 vacant parcels within the city of Philadelphia is a hedonic regression that used all arms-length transactions of land in the city from the first quarter of 2008 to the first quarter of 2010. The data was provided by merging deeded title transfers from the City's Department of Records with tax roll data from the Board of Revision of Taxes (BRT). It includes detailed information on the terms of sale, plus the characteristics of each parcel, including sale date, sale price, buyer, seller, address, lot size, lot shape, lot slope and tax status.

The data was carefully screened and cleaned to remove non-arms-length sales, such as transactions between family members and transactions where the buyer and/or seller was a state or federal government agency or bank.[80] In addition, observations with missing or implausible characteristics were also dropped.

From the original dataset of nearly 2,800 transactions, 1,540 met the criteria of being arms-length transactions with complete and accurate data, and were used in the estimation of the regression mode. The dependent variable in the model is the natural log of price divided by the square footage of the lot (see Figure F.1).[81]

Figure F.1 – Hedonic Regression Analysis of Land Sales within the City of Philadelphia, 2008 to Q1 2010

N=1,540, Adj. R-sq.=.7077, Method=OLS, Dep. Var.=Ln(Price/SqFt)

Variable	*Description*	*Coeff. Est.*	*S.E.*	*t Value*	*Pr > |t|*
Intercept		4.18291	0.1654	25.29	<.0001
dist_cbd	distance to City Hall (mi.)	-0.72753	0.1449	-5.02	<.0001

[80] Since so many transactions were blanket sales involving multiple properties changing hands for a single blanket price, Econsult was reluctant to drop them, since it would significantly reduce our sample size. Instead, average price per square foot was computed for blanket transactions by dividing the recorded blanket price by the total square footage of the parcels that transacted.

[81] By using the natural log of price, rather than price itself, as the dependent variable, the coefficients have the interpretation of being the percent change, rather than dollar change, in the price of residential land as a result of a change in the independent variables. This makes the valuation less sensitive to price inflation (or deflation) over time, which certainly occurred during the 2008-2010 period.

N=1,540, Adj. R-sq.=.7077, Method=OLS, Dep. Var.=Ln(Price/SqFt)

Variable	*Description*	*Coeff. Est.*	*S.E.*	*t Value*	*Pr > |t|*
dist_cbd_sq	dist_cbd^2	0.17688	0.0416	4.26	<.0001
dist_cbd_cubed	dist_cbd^3	-0.01337	0.0045	-2.97	0.0031
dist_cbd_quart	dist_cbd^4	0.00030048	0.0002	1.89	0.0595
ltsqft_dist	lot_sqft*dist_cbd	-0.00000333	7.88E-07	-4.22	<.0001
ltsqft_dist_sq	ltsqft_dist^2	8.20E-13	1.83E-13	4.48	<.0001
dist_corr	distance to nearest comm. Corr.	-0.10411	0.0454	-2.29	0.0221
Lot_Sqft	lot square feet	0.00000424	3.51E-06	1.21	0.2282
frontage	frontage of lot (feet)	-0.00000498	2.62E-06	-1.90	0.0579
depth	depth of lot (feet)	0.00010204	5.14E-05	1.98	0.0474
large_lot	dummy if lot>1 acre	-0.1881	0.0519	-3.62	0.0003
corner_dum	dummy if lot on corner	-0.07419	0.1236	-0.60	0.5484
irregular	dummy if lot irregularly shaped	0.08899	0.0538	1.65	0.0985
above_street	dummy if lot above street grade	-0.37934	0.1388	-2.73	0.0064
view_dum	dummy if lot has a view	-0.61209	0.1668	-3.67	0.0003
xmpt	dummy if parcel is tax exempt	0.29944	0.0963	3.11	0.0019
parking_lot	dummy if zoned as parking lot.	-0.4495	0.0888	-5.06	<.0001
commercial	dummy if zoned commercial	-0.05657	0.0904	-0.63	0.5317
industrial	dummy if zoned industrial	-0.47604	0.1105	-4.31	<.0001
spec_flag	dummy if speculative sale	-0.33206	0.0558	-5.95	<.0001
RDA_sell	RDA grantor	-0.91302	0.1074	-8.50	<.0001
PHA_sell	PHA grantor	0.20392	0.1537	1.33	0.1849
PAID_sell	PAID grantor	1.52025	0.3635	4.18	<.0001
PHDC_sell	PHDC grantor	-0.41151	0.2008	-2.05	0.0406
CITY_sell	Other City agency grantor	-1.48568	0.2789	-5.33	<.0001
PIDC_sell	PIDC grantor	-1.85717	0.2549	-7.28	<.0001
PHDC_buy	PHDC grantee	-2.43772	0.2448	-9.96	<.0001
fam_flag	inter-family transfer	-1.0141	0.1318	-7.69	<.0001
num_sales_qtr_mi2	# land sales within 1/4 mile	-0.00067848	0.00041	-1.67	0.0951
avg_pricesf2	avg land value/sf within 1/4 mile	0.00802	0.00033	24.50	<.0001
sd_pricesf2	std dev of land value/sf within 1/4 mile	-0.00224	0.00044	-5.08	<.0001
year_2008	dummy if sale was in 2008	0.06476	0.0571	1.13	0.2567
year_2009	dummy if sale was in 2009	0.01286	0.0573	0.22	0.8226

Source: Board of Revision of Taxes (2010), Econsult Corporation (2010)

F.2 Results

The R-squared of the model is 71 percent, which indicates that 71 percent of the variation in land values in the city is explained by this model (100 percent indicates a perfect regression). This is a rather high R-squared for a land value regression, because land is considered the most difficult category of real estate to value (its true value is a function of it highest and best use, which is a subjective opinion), and also because the market for urban land is generally thin, non-transparent, and subject to great variation. In addition, almost all of the variables in the model meet the criteria of "statistical significance," having t-values exceeding 1.64. This indicates that these variables are meaningful explanatory variables in determining land values, and hence contribute to the model's predictive power.

The valuation model is applied to all 9,000 City-controlled parcels (see Figure F.2, Figure F.3, Figure F.4, Figure F.5, and Figure F.6) as well as all 40,000 vacant parcels (City-controlled and not City-controlled) within the city (see Figure F.7, Figure F.8, Figure F.9, Figure F.10, and Figure F.11), by inserting that parcel's characteristics into the equation, multiplying by each coefficient, and summing to obtain the predicted price per square foot for a particular parcel. Notably, the vast majority of vacant parcels are very small (94 percent of City-controlled vacant parcels and 92 percent of all vacant parcels are smaller than 1/10-acre) and low-valued (75 percent of City-controlled vacant parcels and 68 percent of all vacant parcels are worth less than $14 per square foot), and most of the value of the inventory in aggregate is concentrated within a small proportion of parcels (the top 1 percent of City-controlled vacant parcels, by estimated value, represents 52 percent of the total value of City-controlled vacant parcels, and the top 1 percent of all vacant parcels, by estimated value, represents 51 percent of the total value of all vacant parcels).

Figure F.2 – Distribution of City-Controlled Vacant Parcels, by Estimated Price per Square Foot: 75% of City-Controlled Vacant Parcels are Worth Less Than $14/SF

$/SF	*Proportion, by # Parcels*
$0-$10/SF	18%
$10-$11/SF	14%
$11-$14/SF	43%
$14-$21/SF	19%
>$21/SF	7%

Source: Philadelphia Water Department (2010), Econsult Corporation (2010)

Figure F.3 – Distribution of City-Controlled Vacant Parcels, by Parcel Size: 92% of City-Controlled Vacant Parcels are Smaller Than 1/10-Acre

Parcel Size	*Proportion, by # Parcels*
0 to 1/40 acre	58%
1/40 to 1/10 acre	36%
1/10 to 1/2 acre	3%
1/2 to 1 acre	1%
> 1 acre	1%

Source: Philadelphia Water Department (2010), Econsult Corporation (2010)

Figure F.4 – Distribution of City-Controlled Vacant Parcels, by Estimated Parcel Value: The Top 1% of City-Controlled Vacant Parcels by Value Represent Over Half of the Aggregate Value of City-Controlled Vacant Parcels

	Estimated Value (in $M)	*% of Total Value*
All City-Controlled Parcels	$410	100%
Top 1% by Parcel Value	$214	52%
Top 2% by Parcel Value	$244	60%
Top 10% by Parcel Value	$302	74%
Top 20% by Parcel Value	$327	80%

Source: Philadelphia Water Department (2010), Econsult Corporation (2010)

Figure F.5 – Distribution of City-Controlled Vacant Parcels, by Parcel Size: The Top 1% of City-Controlled Vacant Parcels by Acreage Represent Over Half of the Aggregate Acreage of City-Controlled Vacant Parcels

	# Acres	*% of Total Acres*
All City-Controlled Parcels	823	100%
Top 1% by Parcel Size	447	54%
Top 2% by Parcel Size	537	65%
Top 10% by Parcel Size	634	77%
Top 20% by Parcel Size	672	82%

Source: Philadelphia Water Department (2010), Econsult Corporation (2010)

Figure F.6 – Distribution of Predicted Parcel Price per Square Foot for City-Controlled Vacant Parcels, by Parcel Size

	0 to 1/40 acre	*1/40 to 1/10 acre*	*1/10 to 1/2 acre*	*1/2 to 1 acre*	*> 1 acre*	***Total***
$0-$10/SF	7%	8%	1%	0%	1%	**18%**
$10-$11/SF	9%	4%	0%	0%	0%	**14%**
$11-$14/SF	27%	15%	1%	0%	0%	**43%**
$14-$21/SF	11%	7%	1%	0%	0%	**19%**
>$21/SF	4%	3%	0%	0%	0%	**7%**
Total	**58%**	**36%**	**3%**	**1%**	**1%**	**100%**

Source: Philadelphia Water Department (2010), Econsult Corporation (2010)

Figure F.7 – Distribution of All Vacant Parcels, by Estimated Price per Square Foot: 68% of All Vacant Parcels are Worth Less Than $14/SF

$/SF	*Proportion, by # Parcels*
$0-$10/SF	16%
$10-$11/SF	13%
$11-$14/SF	39%
$14-$21/SF	21%
>$21/SF	12%

Source: Philadelphia Water Department (2010), Econsult Corporation (2010)

Figure F.8 – Distribution of All Vacant Parcels, by Parcel Size: 92% of All Vacant Parcels are Smaller Than 1/10-Acre

Parcel Size	*Proportion, by # Parcels*
0 to 1/40 acre	53%
1/40 to 1/10 acre	39%
1/10 to 1/2 acre	6%
1/2 to 1 acre	1%
> 1 acre	1%

Source: Philadelphia Water Department (2010), Econsult Corporation (2010)

Figure F.9 – Distribution of Estimated Value of Vacant Parcels within the City of Philadelphia: The Top 1% of All Vacant Parcels by Value Represent 43% of the Aggregate Value of All Vacant Parcels

	Estimated Value (in $M)	*% of Total Value*
All Parcels	$1,899	100%
Top 1% by Parcel Value	$823	43%
Top 2% by Parcel Value	$951	50%
Top 10% by Parcel Value	$1,318	69%
Top 20% by Parcel Value	$1,483	78%

Source: Philadelphia Water Department (2010), Econsult Corporation (2010)

Figure F.10 – Distribution of All Vacant Parcels, by Parcel Size: The Top 1% of All Vacant Parcels by Acreage Represent 49% of the Aggregate Acreage of All Vacant Parcels

	# Acres	*% of Total Acres*
All Parcels	3,555	100%
Top 1% by Parcel Size	1,740	49%
Top 2% by Parcel Size	2,075	58%
Top 10% by Parcel Size	2,637	74%
Top 20% by Parcel Size	2,849	80%

Source: Philadelphia Water Department (2010), Econsult Corporation (2010)

Figure F.11 – Distribution of Predicted Parcel Price per Square Foot for All Vacant Parcels, by Parcel Size

	0 to 1/40 acre	*1/40 to 1/10 acre*	*1/10 to 1/2 acre*	*1/2 to 1 acre*	*> 1 acre*	**Total**
$0-$10/SF	6%	7%	2%	1%	1%	**16%**
$10-$11/SF	8%	4%	0%	0%	0%	**13%**
$11-$14/SF	23%	14%	1%	0%	0%	**39%**
$14-$21/SF	10%	9%	1%	0%	0%	**21%**
>$21/SF	6%	4%	1%	0%	0%	**12%**
Total	**53%**	**39%**	**6%**	**1%**	**1%**	**100%**

Source: Philadelphia Water Department (2010), Econsult Corporation (2010)

APPENDIX G – ESTIMATED LAND VALUES FOR ALL VACANT PARCELS

Based on Econsult's land valuation model, market values were estimated for all 40,000 vacant parcels within the city of Philadelphia.[82] The results have been provided to the City's Redevelopment Authority in .pdf and .xls format.

[82] Out of 40,000 vacant parcels, 250 either could not be matched in the Board of Revision of property file, could not be geo-coded into a recognizable location within the city, or had estimated values generated by the land valuation model that were implausible. For these, the median parcel value per square foot of $12.15 was applied. These 250 parcels have been flagged as "1" in the field, "modify_flag."

APPENDIX H – COSTS AND BENEFITS OF DIFFERENT CHOICES THE CITY HAS FOR EACH VACANT PARCEL

H.1 Choices That Emerge from a Reformed Process

A reformed process for managing and disposing of vacant parcels creates **choices for policymakers, enabling more effective and strategic decision-making as it relates to individual vacant parcels as well as the entire inventory of parcels**. Essentially, the City would want to be able to consider from among a universe of at least seven choices for any and all vacant parcels within the city, and could in fact make decisions concerning vacant parcels within the framework of these alternatives and of the relative advantages and disadvantages of each alternative (see Figure H.1):[83]

1. Hold the parcel[84]

   1.1. Maintain the status quo, which often means little or no maintenance. (A)

   1.2. Maintain to a baseline quality of standard of care, which will likely involve higher expenditures than the status quo. (B)

   1.3. Clean and green the parcel. (C)

2. Prior to interfacing with the general public concerning parcels that are or are not available, City agencies that are vacant land holders could discuss with the City Planning Commission and other City entities as to whether any parcels are attractive candidates for alternative public uses, such as permanent open space or other public facilities. In such cases, an internal transaction could take place to deed those parcels over to the appropriate entity within the city to manage upfront implementation and ongoing operations. This option thus represents a mix of "hold" and "release" – the parcel is being released by the present owner, but it is being held by the City for a permanent public purpose. (D)

3. Release the parcel[85]

[83] It is understood that these alternatives may not be the same in terms of the amount of organizational capacity required by the City to initiate and/or maintain them. It is also understood that these alternatives may not be the same in terms of political feasibility and popular attractiveness. For the purposes of this simplistic example, these organizational and perceptional considerations are not taken into account.

[84] In this case, a further consideration is how long the parcel should be held.

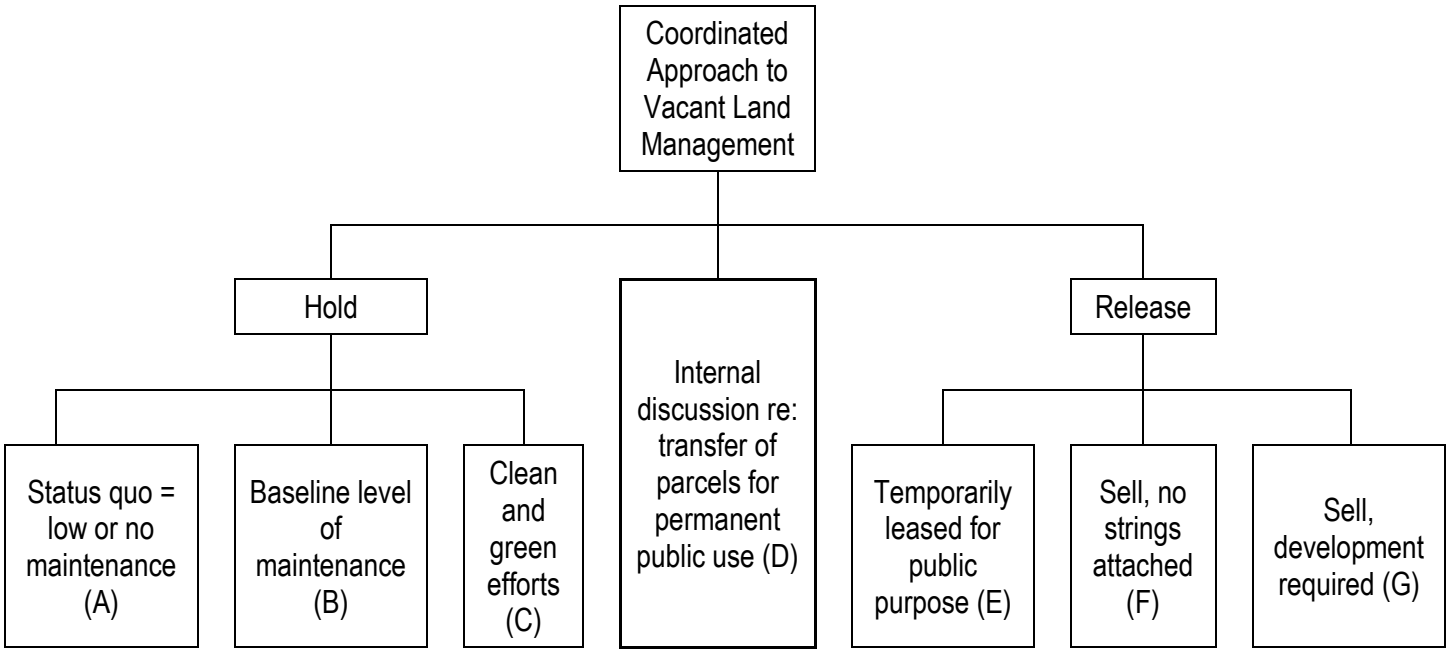
[85] In this case, a further consideration is what sale or lease price the parcel should be made available.

3.1. Make the parcel available for urban agriculture or other public uses, via a temporary lease arrangement.[86] (E)

3.2. Sell the parcel with no restrictions concerning if and when the parcel is developed. (F)

3.3. Sell the parcel with the restriction that the parcel must be developed within a certain time period and/or for a certain use or else it reverts to its previous owner. (G)

Figure H.1 – Universe of Choices Available to the City Concerning Each Vacant Parcel



Source: Econsult Corporation (2010)

[86] For example, see "Urban Agriculture and Land Use Policy," Econsult Corporation (June 3, 2010).

H.2 Costs and Benefits of Each Available Choice

These seven choices each have their respective pros and cons. Together they provide a menu of options for policymakers to consider on an individual and aggregate basis as it relates to vacant parcels they control, and a framework for understanding the costs of continued inefficient vacant land management and the benefits of a more strategic and comprehensive approach. Then, choices concerning individual vacant parcels or sets of vacant parcels can be made within a strategic framework that considers their relative advantages and disadvantages, and is mindful of the costs imposed upon the City and its residents by continued vacancy: the cost of uncollected property taxes, the cost of maintenance, and the cost in reduced household wealth. Decisions about vacant parcels can therefore be mindful of the following criteria (see Figure H.2 and Figure H.3).

1. Tax delinquency/generation – Whether the action will continue the tax delinquency status of the vacant parcel or lead to an increase in the property tax base and in the generation of property tax revenues over time

2. Maintenance costs – Whether the action will lead to no change in the bearing of maintenance expenditures or, alternatively, shift that burden to a private party

3. Blighting effect – Whether the action will continue, stem, or reverse the blighting effect of the vacant parcel on nearby properties

4. Sales revenue generation – Whether the action will lead to upfront or ongoing revenue generation in the form of sale or lease payments

5. Tax revenue generation – Whether the action will increase the property tax base and generate property tax revenues over time

6. Job creation – Whether the action will create construction, maintenance, or other jobs

7. End use – What end use will result on the vacant parcel as a result of taking the action

8. Opportunity cost – What alternative uses are temporarily or permanently foregone as a result of taking the action

9. Development and growth – whether the action leads to development and to an expansion of the property tax base

10. Public purpose development opportunity – whether additional public policy objectives, such as workforce housing, can be achieved

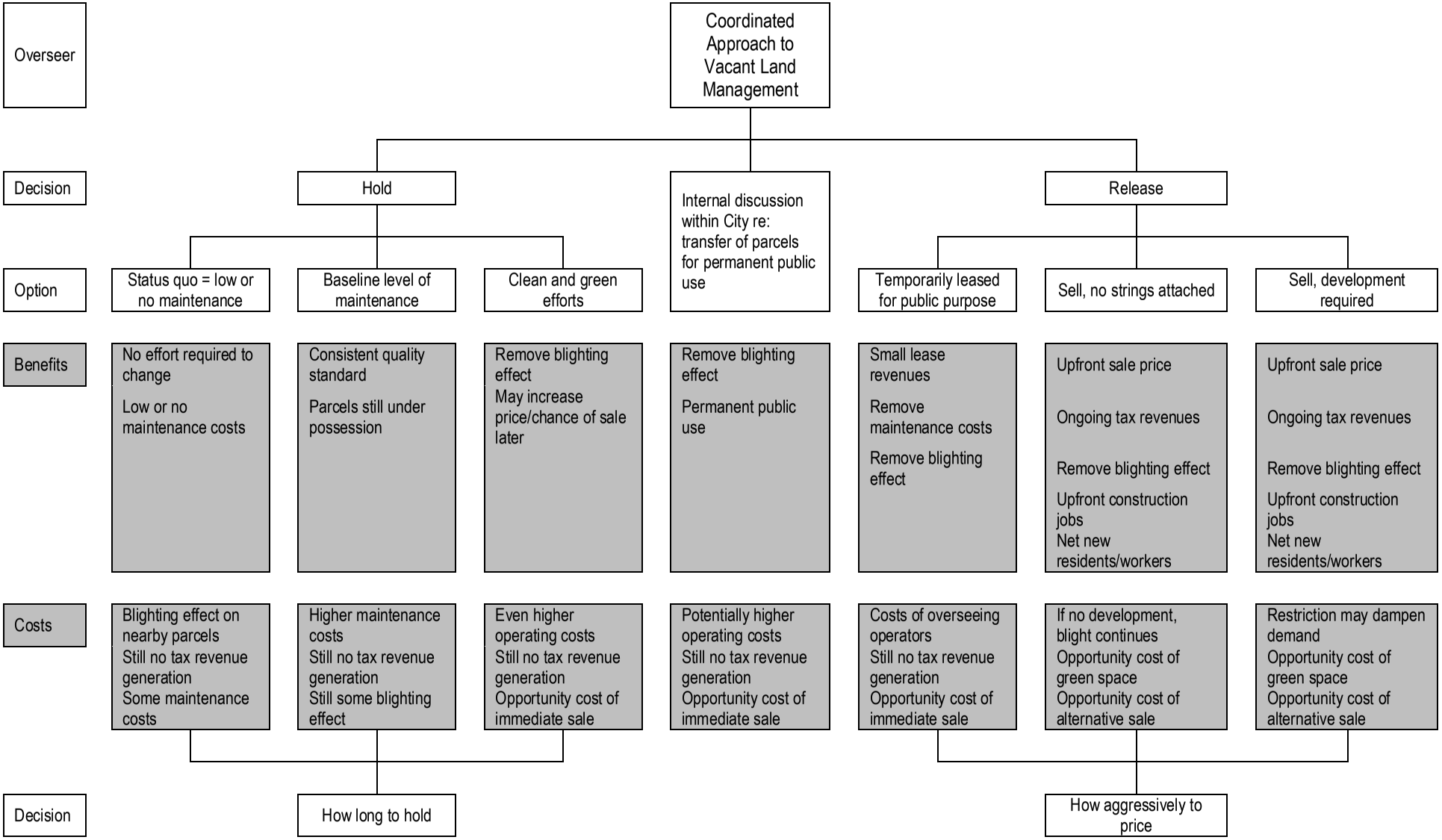
Figure H.2 – Costs and Benefits of the Choices Available to the City Concerning Each Vacant Parcel (Summary)

<table>
<tr><th></th><th>Status quo = low or no maintenance (A)</th><th>Baseline level of maintenance (B)</th><th>Clean and green efforts (C)</th><th>Transfer of parcels for permanent public use (D)</th><th>Temporarily leased for public purpose (E)</th><th>Sell, no strings attached - subsequently not developed (F1)</th><th>Sell, no strings attached - subsequently developed (F2)</th><th>Sell, development required (G)</th></tr>
<tr><td>Tax delinquency/ generation</td><td colspan="5">Does not remedy the problem of uncollected taxes</td><td colspan="3">Generates taxpaying accounts</td></tr>
<tr><td>Maintenance costs</td><td colspan="4">Continues to require the outlay of funds for maintenance, with magnitude of amounts in ascending order</td><td colspan="4">Shifts that burden to a private party</td></tr>
<tr><td>Blighting effect</td><td colspan="2">Does not remedy the problem of vacant parcels' deleterious effect on the property values of nearby parcels</td><td colspan="2">Remedies the problem, at the City's expense</td><td>Remedies the problem, at the expense of a private party[87]</td><td>Does not remedy the problem</td><td colspan="2">Remedies the problem, at the expense of a private party</td></tr>
<tr><td>Sales revenue generation</td><td colspan="3">No revenue generation</td><td>Potentially internal transfer between agencies</td><td>Small lease payments</td><td colspan="3">Upfront parcel sale price</td></tr>
<tr><td>Job creation</td><td colspan="2">Little or none</td><td colspan="2">Some, paid for by City</td><td colspan="2">Little or none</td><td colspan="2">Some, paid for by private entity</td></tr>
<tr><td>End use</td><td colspan="2">Maintains the parcel as vacant</td><td colspan="3">Transforms the parcel into an outdoor amenity</td><td>Maintains the parcel as vacant</td><td colspan="2">Transforms the parcel into active use</td></tr>
<tr><td>Opportunity cost</td><td colspan="3">Can still be deployed for open space or development opportunity</td><td colspan="2">Cannot be deployed for development</td><td colspan="3">Cannot be deployed for open space or for alternative development opportunity</td></tr>
<tr><td>Development and growth</td><td colspan="6">No net new development, growth, or expansion of tax base</td><td colspan="2">Net new development, growth, and expansion of tax base</td></tr>
<tr><td>Public purpose development opportunity</td><td colspan="2">No public use</td><td>Open space</td><td colspan="2">Used for public purpose</td><td colspan="3">Some ability to influence development towards public policy ends</td></tr>
<tr><td>Additional decision to consider</td><td colspan="3">How long to hold the parcel</td><td colspan="5">How aggressively to price the parcel</td></tr>
</table>

Source: Econsult Corporation (2010)

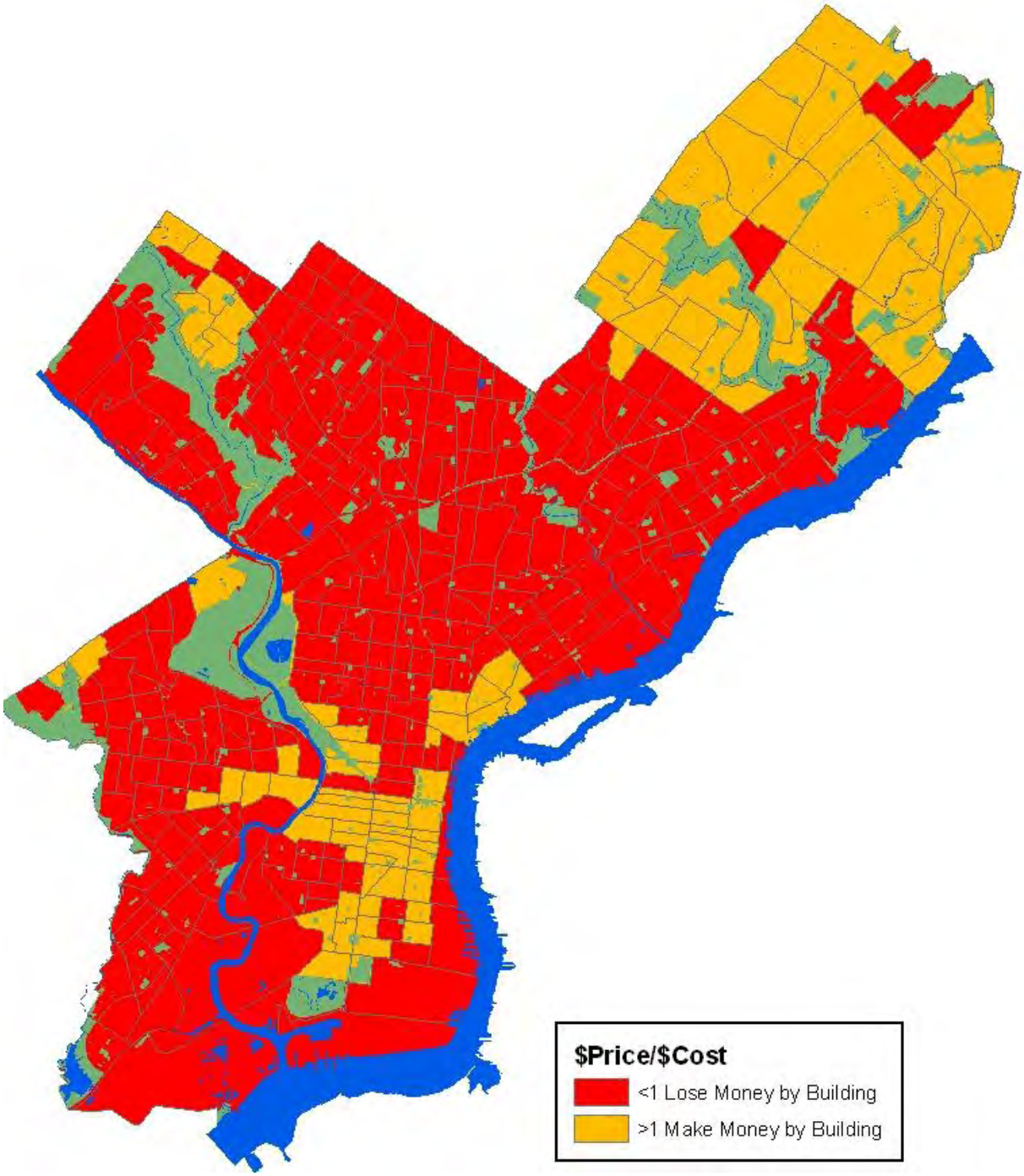
[87] Although with some City expenditure due to the cost of overseeing operators.

Figure H.3 – Costs and Benefits of the Choices Available to the City Concerning Each Vacant Parcel (Detailed)



Source: Econsult Corporation (2010)

APPENDIX I – AVERAGE CURRENT HOUSE PRICES VS. AVERAGE CONSTRUCTION COSTS, BY CENSUS TRACT



Source: Board of Revision of Taxes (2010), Philadelphia Department of Records (2010), Marshall & Swift (2010), Econsult Corporation (2010)

APPENDIX J – ADDITIONAL DETAIL ON NEW SINGLE-FAMILY AND MULTI-FAMILY UNITS ADDED BETWEEN 1997 AND 2008

Year Built	*# Units*	*Median Living Area (SF)*
1997	174	1,647
1998	247	1,560
1999	238	1,617
2000	364	1,879
2001	253	1,800
2002	351	1,716
2003	312	1,948
2004	788	2,000
2005	1,079	1,853
2006	3,094	1,305
2007	2,986	1,139
2008	613	1,408
1997-2008 Average	**875**	
1997-2008 Weighted Average		**1,455**

Source: Board of Revision of Taxes (2010), Econsult Corporation (2010)

APPENDIX K – ADDITIONAL DETAIL ON ECONOMIC AND FISCAL IMPACT ESTIMATES ASSOCIATED WITH VACANT LAND REFORM

Figure K.1 – Net New Real Estate Transfer Tax Revenues per Year: $4.1 Million per Year

# Net New Residential Units Added Each Year (Based on 2010 Econsult Estimate)	679
x Estimated Average House Price[88]	$200,000
x Real Estate Transfer Tax Rate (City only)	3%
= Net New Real Estate Transfer Tax Revenue per Year (in $M)	**$4.07**

Source: Econsult Corporation (2010)

Figure K.2 – Net New Property Tax Revenues per Year: $3.6 Million per Year[89]

# Net New Residential Units Added Each Year (Based on 2010 Econsult Estimate)	679
x Estimated Average House Price[90]	$200,000
x Equalization Ratio[91]	32%
x Property Tax Rate (City and School District)	8.26%
= Net New Property Tax Revenue per Year (in $M)	**$3.59**

Source: Econsult Corporation (2010)

[88] Assuming the 2010 average construction cost per square foot of $128, the 1997-2008 average new single-family and multi-family house size of 1,455 square feet, and a 10 percent profit, and assuming that the price of land is zero, the mean price of a new house would be $205,000.

[89] The existence of the City's 10-year property tax abatement program means that any net new property tax revenues associated with new construction would commence after Year 10.

[90] Assuming the 2010 average construction cost per square foot of $128, the 1997-2008 average new single-family and multi-family house size of 1,455 square feet, and a 10 percent profit, and assuming that the price of land is zero, the mean price of a new house would be $205,000.

[91] Assumes accurate assessments and an Actual Value approach.

Figure K.3 – Net New Population Added per Year: 800 Residents per Year

# Net New Residential Units Added Each Year (Based on 2010 Econsult Estimate)	679
x Average Household Size (Based on 2008 Census Estimates)	2.34
x % Households That Are Net New to the City[92]	50%
= Net New Population Added per Year	**795**

Source: US Census Bureau (2009), Econsult Corporation (2010)

Figure K.4 – Net New Wage Earners Added per Year: 340 Wage Earners per Year

# Net New Residential Units Added Each Year (Based on 2010 Econsult Estimate)	679
x Average Wage Earners per Household (Based on Econsult Estimate)	1
x % Wage Earners That Are Net New to the City[93]	50%
= Net New Wage Earners Added per Year	**340**

Source: Econsult Corporation (2010)

[92] It is conservatively assumed that the addition of new houses results in only one-half the addition of new residents and wage earners. So if 100 new houses are added to the city and are filled by 234 residents (2.34 residents per house) and 100 wage earners (1 wage earner per house), it is assumed that the number of net new residents in the city is 117 (half of 234) and that the number of net wage earners in the city is 50 (half of 100). Consider that even if new houses are occupied by residents who currently reside within the city, they vacate a housing unit that can then be occupied by a resident who currently resides outside the city.

Said another way, the addition of new houses leads to a filtering process that ultimately results in one of three outcomes: 1) residents move in from outside the city, 2) residents currently within the city are more spread out (i.e. two families that used to share one housing unit now have separate housing units, and/or 3) housing units are abandoned and demolished. Compared with a parallel scenario in which new housing units are not being added, likely resulting in net loss in residents, it seems reasonable to assume that the addition of new houses results in one-half the addition of new residents.

[93] See previous footnote.

Figure K.5 – Net New Wage Tax Revenues per Year: $500,000 per Year

# Net New Wage Earners Added per Year (Based on 2010 Econsult Estimate)	340
x Median Household Income (Based on 2008 Census Estimates)	$37,090
= Net New Household Income Added per Year (in $M)	$12.59
x Wage Tax Rate	3.93%
= Net New Wage Tax Revenue Added per Year (in $M)	**$0.49**

Source: Econsult Corporation (2010)

Figure K.6 – Net New Sales Tax Revenues per Year: $25,000 per Year

Net New HH income Added per Year (in $M) (Based on 2010 Econsult Estimate)	$12.59
x Estimated % Spent on Taxable Retail Purchases	10%[94]
x Sales Tax Rate (City Only)	2%
= Net New Sales Tax Revenue Added per Year (in $M)	**$0.025**

Source: Econsult Corporation (2010)

[94] This estimate may be too conservative. As a point of reference, Visual Economics estimated that, using data from the US Bureau of Labor Statistics, the average American household had income of $49,638 and purchases of sales tax eligible items of $8,125, or 16.4 percent of income (if items that are sometimes sales tax eligible are included, that yields annual purchases of $11,445, or 23.1 percent of income): "How The Average U.S. Consumer Spends Their Paycheck," Visual Economics (July 10, 2009). Given that the City exempts a number of categories from sales taxation, and that city residents spend some of their income outside of the city, a lower figure of 10 percent was used.

APPENDIX L – ECONOMIC AND FISCAL IMPACT MODEL METHODOLOGY

L.1 Economic Impact Model

The methodology and input-output model used in this economic impact analysis are considered standard for estimating such expenditure impacts, and the results are typically recognized as reasonable and plausible effects, based on the assumptions (including data) used to generate the impacts. In general, one can say that any economic activity can be described in terms of the total output generated from every dollar of direct expenditures. If an industry in a given region sells $1 million of its goods, there is a direct infusion of $1 million into the region. These are referred to as *direct expenditures*.

However, the economic impact on the region does not stop with that initial direct expenditure. Regional suppliers to that industry have also been called upon to increase their production to meet the needs of the industry to produce the $1 million in goods sold. Further, suppliers of these same suppliers must also increase production to meet their increased needs as well. These are referred to as *indirect expenditures*. In addition, these direct and indirect expenditures require workers, and these workers must be paid for their labor. These wages and salaries will, in turn, be spent in part on goods and services produced locally, engendering another round of impacts. These are referred to as *induced expenditures*.

Direct expenditures are fed into a model constructed by Econsult Corporation and based on data provided by the US Department of Commerce's Bureau of Economic Analysis through its Regional Input-Output Modeling System (RIMS II). The model then produces a calculation of the total expenditure effect on the regional economy. This total effect includes the initial direct expenditure effect, as well as the ripple effects described, the indirect and induced expenditure effects.

Part of the total expenditure effect is actually the increase in total wages and salaries (usually referred to as earnings), which the model can separate from the expenditure estimates. Direct payroll estimates are fed into the "household' industry of the input-output model. Impacts of this industry are estimated using the personal consumption expenditure breakdown of the national input-output table and are adjusted to account for regional consumption spending and leakages from personal taxes and savings. The direct, indirect, and induced earnings represent a component of the total economic impact attributable to wages and salaries. Finally, the model calculates the total expenditures affecting the various industries and translates this estimate into an estimate of the total labor (or jobs) required to produce this output.[95]

[95] In the input-output model, the estimate of increased employment will always be in terms of the employment required for a given level of production, usually referred to as person-years of employment. As such, these estimates cannot be interpreted as specifying permanent jobs.

In short, the input-output model estimates the total economic activity in a region that can be attributed to the direct demand for the goods or services of various industries. This type of approach is used to estimate the total economic activity attributable to the expenditures associated with various types of spending in the region.

L.2 Fiscal Impact Model

The RIMS II model provides estimates of the economic impact of a new project or program on the regional economy. It does not, however, estimate the fiscal impact of the increased economic activity on state and local governments. Econsult has constructed a model that takes the output from the RIMS II model and generates detailed estimates of the increases in state and local tax collections that arise from the new project. Those revenues are in fact a part of the total economic impact of a new project that is often ignored in conventional economic impact analyses.

The RIMS II model provides estimates of direct, indirect, and induced expenditures, earnings, and employment within the defined region. The Econsult fiscal impact model combines the RIMS II output with U. S. Census Bureau County Business Patterns data to produce estimates of the distribution of additional employment and earnings by county. In addition, the 2000 Census "Journey to Work" data on commuting flows are utilized to estimate income earned by residents of each county within the region, regardless of where they work. The fiscal model can then estimate the increase in earned income taxes by county and for the state as a whole resulting from the new project. For complex cases, like Philadelphia, the model can differentiate between residents and nonresidents and apply the proper wage tax rate. Pennsylvania state business and sales taxes, as well as business taxes in Philadelphia, are estimated based on the most recent data on average sales tax base per employee by major industry, as contained in publications from the Pennsylvania Department of Revenue.

Figure L.1 – Glossary of Terms for Input-Output Models

- **Multiplier Effect** – the notion that initial outlays have a ripple effect on a local economy, to the extent that direct expenditures lead to indirect and induced expenditures.
- **Economic Impacts** – total expenditures, employment, and earnings generated.
- **Fiscal Impacts** – local and/or state tax revenues generated.
- **Direct Expenditures** – initial outlays usually associated with the project or activity being modeled; examples: one-time upfront construction and related expenditures associated with a new or renovated facility, annual expenditures associated with ongoing facility maintenance and/or operating activity.
- **Direct Employment** – the full time equivalent jobs associated with the direct expenditures.
- **Direct Earnings** – the salaries and wages earned by employees and contractors as part of the direct expenditures.
- **Indirect Expenditures** – indirect and induced outlays resulting from the direct expenditures; examples: vendors increasing production to meet new demand associated with the direct expenditures, workers spending direct earnings on various purchases within the local economy.
- **Indirect Employment** – the full time equivalent jobs associated with the indirect expenditures.
- **Indirect Earnings** – the salaries and wages earned by employees and contractors as part of the indirect expenditures.
- **Total Expenditures** – the sum total of direct expenditures and indirect expenditures.
- **Total Employment** – the sum total of direct employment and indirect employment.
- **Total Earnings** – the sum total of direct earnings and indirect earnings.

Source: Econsult Corporation (2009)

APPENDIX M – ALTERNATIVE, LONG-RANGE APPROACH TO ESTIMATING MARKET ABSORPTION[96]

M.1 Methodology

An alternative way to estimate the magnitude of demand increase resulting from vacant land reform, which may hold some guidance as to long-range market absorption, is to consider that, based on a study conducted by Econsult on the effect of the ten-year property tax abatement program of the City of Philadelphia, a 15 percent increase in house prices (which is the level to which the cost savings effect of the property tax abatement was capitalized) led to a 20 percent increase in housing density. This study thus drew a link between price increases and density increases, and found that a policy action (the property tax abatement program) led to a 15 percent increase in house prices within the city, and resulted in an increase in the total number of housing units within the city increasing by 20 percent over time.[97]

For the purposes of this analysis, that increase in housing density was conservatively diminished such that each percentage point in house price increase was considered to result in a percentage point increase in housing density (i.e. instead of a 15 percent increase in house price resulting in a 20 percent increase in housing density, it would result in a 15 percent increase in housing density). Since it has been estimated that the blighting effect of vacant parcels on nearby properties results in a 6.5 percent diminution in property values, the elimination of that blighting effect would result in the equivalent of a 6.5 percent increase in property values, and therefore a 6.5 percent increase in housing density. Given that there are about 449,000 occupied single-family units within the city, a 6.5 percent increase in housing density is equivalent to adding about 29,000 units.

Conservatively, it is assumed that that increase would take place over a 50-year period, which would represent the addition of about 580 units per year.[98] This is taken to mean that **a reformed vacant land management process is estimated to result in about 580 new residential units being added each year within the city**. This result is not too far removed in

[96] The benefit calculations in this appendix are based on the best available data and statistical techniques, but because of the very imprecise nature of this exercise, they are merely intended to be rough estimates for the purposes of understanding the relative orders of magnitude of impact involved. Where possible, conservative assumptions were used, so resulting figures should be considered as lower bound estimates.

[97] Because developers only build when it is profitable to build, and because costs exceeded prices in much of the City, the effect of the property tax abatement increasing prices throughout the City led to an increase in the places where building became profitable. "Building Industry Association: Philadelphia Tax Abatement Analysis," Econsult Corporation (September 2006).

[98] 449,233 occupied single-family units x 6.45 percent = 28,976 units ÷ 50 years = 580 units per year. Of course, a less conservative roll-out period would yield more net new units added per year: for example, a 30-year process would mean about 1,000 units per year.

magnitude from the result estimated via the short-term approach described in Section 4, of 3,400 new units within five years, or 680 new units per year.

Two caveats must be made here. First, there is a wide range for the estimated negative impact of vacant parcels on nearby property values; eliminating that impact may have little or no impact in high-value neighborhoods with few vacancies, and a very high impact in low-value neighborhoods with many vacancies, so it is uncertain whether this will result in an increase in citywide density that is higher or lower than 6.5 percent. Second, and on a related note, it is uncertain how sensitive real estate markets are in different neighborhoods; in some cases, the tiniest of changes may yield a "tipping point" moment in which a disproportionately high density increase takes place, while in other cases, changes may be minimal and disproportionately low.

Taking these two caveats together, though, it does not appear that this assumption is too high and in fact it could be too low. The very neighborhoods that are lowest in value, and therefore where the gap between market prices and construction costs is greatest (since construction costs are relatively the same across the city but market prices are clearly not, and where market prices are lower than construction costs, market-rate development will not occur), are anticipated to have the greatest property value increases if vacant parcels are dealt with. Conversely, the neighborhoods that are highest in value, where market rate development is most attractive, are anticipated to have lower property value increases if vacant parcels are dealt with. Thus, reducing or eliminating the negative effect of vacant parcels is likely to have a positive effect on residential construction as projected in this illustrative scenario.

Nevertheless, there is significant uncertainty associated with understanding how real estate markets will respond to vacant land reform. Current price levels account only for existing inventory, not for yet-to-be-built new inventory. The existence and level of various reform efforts are unknown. How quickly these units can be absorbed depends on a number of variables. The subsequent economic and fiscal impact estimates should therefore be seen as illustrative, associated with an estimated level of net new development, with actual impact amounts being higher or lower depending on the extent and amount of reform efforts.

Ultimately, the actual number of parcels developed in any given year will depend on a number of factors, including where in the business cycle the local and national real estate markets are, whether the City is adding residents and wage earners or losing them, and what construction costs and house prices are doing within the city and within competing markets. It will also depend on how aggressively the City acts to facilitate disposition: land prices can be set at below market or even at zero, and faster and more definitive clearing of liens and other encumbrances has a similar effect on improving the viability of a particular parcel for development.

M.2 Estimated Results

Assuming that about 580 residential units are added each year as a result of a reformed vacant land management system, there are a number of net new economic and fiscal impacts that proceed. Construction activity generates economic and fiscal impacts, new housing units lead to more real estate transfer tax revenues and property tax revenues, and new residents and wage earners lead to more wage tax revenues and sales tax revenues.

To begin with, that much construction results in **jobs created, as well as other economic and fiscal impacts that proceed from that net new construction activity**. Based on estimated direct net new construction activity of about $108 million per year,[99] it is estimated that total annual economic impacts will result of $160 million supporting 680 jobs and $26 million in earnings and generating $1.6 million in tax revenues to the City (see Figure M.1, Figure M.2, and Figure M.3).[100] Since it is anticipated that 580 residential units will be added on annual basis, those estimated amounts represent impacts that will occur each year.

[99] 580 new housing units x 1997-2008 citywide average square footage per new single-family and multi-family house unit of 1,455 x current citywide average construction cost per square foot of $128 = $108 million.

[100] Net new construction activities have significant spillover effects, resulting from two kinds of additional expenditures that occur as a consequence of the net new direct expenditures:

- First, indirect expenditures are those expenditures resulting from all intermediate rounds of production in the supply of goods and services. For example, upfront construction will necessitate various contractors increasing their purchases of materials, thus creating a spillover effect on those suppliers.
- Second, induced expenditures are those expenditures that are generated through the spending of earnings generated by the direct activities as well as by the indirect activities of supplying firms. For example, workers on a construction site will themselves spend their earnings on various items, such as food, clothing, and housing.

Citywide economic impacts, in the form of the sum of direct, indirect, and induced expenditures, and of the employment and earnings supported by that composition and scale of total expenditures, can be estimated by utilizing input-output models and multipliers. Input-output modeling is a standard way to measure the total economic impact of any net new economic activity.

Econsult constructed an economic impact model for this purpose, which incorporates data from the US Department of Commerce's Bureau of Economic Analysis. Econsult also developed a fiscal impact model to generate detailed estimates of the increases in state tax collections that result from these expenditures, employment, and earnings. See Appendix L for more information on these economic and fiscal impact model methodologies.

Figure M.1 – Net New Construction Expenditures per Year: $108 Million per Year (Alternative, Long-Range Methodological Approach)

Net New Residential Units Added Each Year (Based on 2010 Econsult Estimate)	580
x Average Construction Cost per SF (2010 City Average)	$128
x Average SF/unit (2009 City Average)	1,455
Net New Construction Expenditures per Year (in $M)	$108

Source: Econsult Corporation (2010)

Figure M.2 – Economic Impact from Net New Construction Activity and from Resulting Indirect and Induced Activity (in $M): $160 Million in Total Expenditures Supporting 680 Total Jobs and $26 Million in Total Earnings (Alternative, Long-Range Methodological Approach)[101]

	Annual	*In Year 5*	*In Year 10*	*In Year 20*	*In Year 30*	*In Year 40*	*In Year 50*
Net New Construction Expenditures	$108	$108	$108	$108	$108	$108	$108
Indirect and Induced Expenditures	$51	$51	$51	$51	$51	$51	$51
Total Expenditures	**$159**	**$159**	**$159**	**$159**	**$159**	**$159**	**$159**
Total Employment	**681**	**681**	**681**	**681**	**681**	**681**	**681**
Total Earnings	**$26**	**$26**	**$26**	**$26**	**$26**	**$26**	**$26**

Source: US Department of Commerce Bureau of Economic Analysis (2009), Econsult Corporation (2010)

[101] If one assumes that expenditure levels grow at the same rate of inflation, these dollar figures can be taken to represent inflation-adjusted amounts.

Figure M.3 – Fiscal Impact from Net New Construction Activity and from Resulting Indirect and Induced Activity (in $M): $1.9 Million in Tax Revenues Generated (Alternative, Long-Range Methodological Approach)[102]

	Year 1	*Year 2*	*Year 3*	*Year 4*	*Year 5*
Wage Tax Revenues	$1.1	$1.1	$1.1	$1.1	$1.1
Sales Tax Revenues	$0.1	$0.1	$0.1	$0.1	$0.1
Business Privilege Tax Revenues	$0.6	$0.6	$0.6	$0.6	$0.6
Fiscal Impact from Construction Expenditures	**$1.9**	**$1.9**	**$1.9**	**$1.9**	**$1.9**

Source: US Department of Commerce Bureau of Economic Analysis (2009), Econsult Corporation (2010)

Furthermore, each of those residential units, when sold, will generate **real estate transfer tax revenues**. It is conservatively estimated that adding about 580 residential units represents $116 million in home sales transactions per year. Thus, if about 580 residential units are added each year, that means the City will gain $3.5 million in real estate transfer tax revenues annually (see Figure M.4).[103]

[102] If one assumes that expenditure levels grow at the same rate of inflation, these dollar figures can be taken to represent inflation-adjusted amounts.

[103] Conservatively, this only accounts for real estate transfer tax revenues associated with initial sales, not with any subsequent sales of those units in the future.

Figure M.4 – Net New Real Estate Transfer Tax Revenues per Year: $2.2 Million per Year (Alternative, Long-Range Methodological Approach)

# Net New Residential Units Added Each Year (Based on 2010 Econsult Estimate)	580
x Estimated Average House Price[104]	$200,000
x Real Estate Transfer Tax Rate (City only)	3%
= Net New Real Estate Transfer Tax Revenue per Year (in $M)	**$3.48**

Source: Econsult Corporation (2010)

Though **property tax revenues** will be abated in the first ten years, after that time period the units will continue to add to the property tax base. In Year 1, it is estimated that adding about 580 residential units within the city will mean adding $37 million in assessed value and therefore $3.1 million in property tax revenues; and, because of the ten-year property tax abatement, that is the amount that will be added to the property tax rolls in Year 11. In Year 2, it is estimated that the city will add an additional 580 residential units, which, in addition to the newly added residential units from year 1, results in a $74 million increase in assessed value and therefore $6.1 million in property tax revenues; and, because of the ten-year property tax abatement, that is the amount that will be added to the property tax rolls in Year 12. Assessed value base and property tax revenues thus continue to accumulate in this fashion and are added to the property tax rolls ten years later (see Figure M.5).[105]

[104] Assuming the 2010 average construction cost per square foot of $128, the 1997-2008 average new single-family and multi-family house size of 1,455 square feet, and a 10 percent profit, and assuming that the price of land is zero, the mean price of a new house would be $205,000.

[105] Conservatively, this only accounts for real estate transfer tax revenues associated with initial sales, not with any subsequent sales of those units in the future.

Figure M.5 – Net New Property Tax Revenues per Year: $770,000 per Year (Alternative, Long-Range Methodological Approach)

# Net New Residential Units Added Each Year (Based on 2010 Econsult Estimate)	580
x Estimated Average House Price[106]	$200,000
x Equalization Ratio[107]	32%
x Property Tax Rate (City Only)	8.26%
= Net New Property Tax Revenue per Year (in $M)	**$3.07**

Source: Econsult Corporation (2010)

Finally, the new units will also generate **net new residents and workers for the City**, resulting in **wage tax revenues and sales tax revenues**. It is conservatively estimated that the addition of about 580 residential units will result in about 680 new residents and about 290 new wage earners being added each year,[108] leading to $420,000 in net new wage tax revenues and $20,000 in net new sales tax revenues each year (see Figure M.6, Figure M.7, Figure M.8, and Figure M.9).[109] As with assessed value base and property tax revenues, these amounts also accumulate: since, each year, net new residents and workers are being added as a result of net new residential units being added, each successive year's addition in wage and sales tax revenues is greater and greater, since net new residents and workers that are added in one year remain within the City in subsequent years.

[106] Assuming the 2010 average construction cost per square foot of $128, the 1997-2008 average new single-family and multi-family house size of 1,455 square feet, and a 10 percent profit, and assuming that the price of land is zero, the mean price of a new house would be $205,000.

[107] Assumes accurate assessments and an Actual Value approach.

[108] It is conservatively assumed that the addition of new housing units leads to one-half of the amount of net new residents and wage earners, to account for internal shifts.

[109] Conservatively, this only accounts for real estate transfer tax revenues associated with initial sales, not with any subsequent sales of those units in the future.

Figure M.6 – Net New Population Added per Year: 680 New Residents per Year (Alternative, Long-Range Methodological Approach)

# Net New Residential Units Added Each Year (Based on 2010 Econsult Estimate)	580
x Average Household Size (Based on 2008 Census Estimates)	2.34
x % Households That Are Net New to the City[110]	50%
= Net New Population Added per Year	**679**

Source: US Census Bureau (2009), Econsult Corporation (2010)

Figure M.7 – Net New Wage Earners Added per Year: 290 New Wage Earners per Year (Alternative, Long-Range Methodological Approach)

# Net New Residential Units Added Each Year (Based on 2010 Econsult Estimate)	580
x Average Wage Earners per Household (Based on Econsult Estimate)	1
x % Wage Earners That Are Net New to the City[111]	50%
= Net New Wage Earners Added per Year	**290**

Source: Econsult Corporation (2010)

[110] It is conservatively assumed that the addition of new houses results in only one-half the addition of new residents and wage earners. So if 100 new houses are added to the City and are filled by 234 residents (2.34 residents per house) and 100 wage earners (1 wage earner per house), it is assumed that the number of net new residents in the City is 117 (half of 234) and that the number of net wage earners in the City is 50 (half of 100). Consider that even if new houses are occupied by residents who currently reside within the City, they vacate a housing unit that can then be occupied by a resident who currently resides outside the City.

Said another way, the addition of new houses leads to a filtering process that ultimately results in one of three outcomes: 1) residents move in from outside the City, 2) residents currently within the City are more spread out (i.e. two families that used to share one housing unit now have separate housing units, and/or 3) housing units are abandoned and demolished. Compared with a parallel scenario in which new housing units are not being added, likely resulting in net loss in residents, it seems reasonable to assume that the addition of new houses results in one-half the addition of new residents.

[111] See previous footnote.

Figure M.8 – Net New Wage Tax Revenues per Year: $420,000 per Year (Alternative, Long-Range Methodological Approach)

# Net New Wage Earners Added per Year (Based on 2010 Econsult Estimate)	290
x Median Household Income (Based on 2008 Census Estimates)	$37,090
= Net New Household Income Added per Year (in $M)	$10.76
x Wage Tax Rate	3.93%
= Net New Wage Tax Revenue Added per Year (in $M)	**$0.42**

Source: Econsult Corporation (2010)

Figure M.9 – Net New Sales Tax Revenues per Year: $20,000 per Year (Alternative, Long-Range Methodological Approach)

Net New HH income Added per Year (in $M) (Based on 2010 Econsult Estimate)	$10.76
x % Spent on Taxable Retail Purchases	10%
x Sales Tax Rate (City Only)	2%
= Net New Sales Tax Revenue Added per Year (in $M)	**$0.02**

Source: Econsult Corporation (2010)

All together, the tax revenue gain to the City resulting from the additional of these residential units each year would be about $5 million in Year 10, increasing to about $7 million in Year 5 and about $9 million in Year 50, for **a cumulative ten-year gain to the City of about $75 million** (see Figure M.10). These benefits would be over and above the gains associated with the minimization or elimination of $3.6 billion in property value loss, over $20 million per year in expenditures associated with the maintenance of vacant parcels, and $2 million in uncollected property taxes from delinquent vacant parcels.

Figure M.10 – Aggregate Fiscal Impact from Net New Construction Activity and from Net New Residents and Wage Earners (in $M): Cumulative $75 Million in New Revenues to the City over Ten Years (Alternative, Long-Range Methodological Approach)[112]

	In Yr 1	*In Yr 5*	*In Yr 10*	*In Yr 20*	*In Yr 30*	*In Yr 40*	*In Yr 50*
Real Estate Transfer Tax Revenues	$3.5	$3.5	$3.5	$3.5	$3.5	$3.5	$3.5
Property Tax Revenues	$0.0	$0.0	$0.0	$12.3	$24.5	$36.8	$49.1
Wage Tax Revenues	$1.4	$3.0	$5.2	$9.4	$13.6	$17.8	$22.1
Sales Tax Revenues	$0.1	$0.2	$0.3	$0.5	$0.7	$1.0	$1.2
Business Privilege Tax Revenues	$0.6	$0.6	$0.6	$0.6	$0.6	$0.6	$0.6
Total Fiscal Impact	$5.5	$7.3	$9.5	$26.2	$42.9	$59.6	$76.3
Cumulative Fiscal Impact	$5.5	$32.0	$75.1	$262.1	$616.1	$1,137.3	$1,825.5

Source: US Department of Commerce Bureau of Economic Analysis (2009), US Census Bureau (2009), Econsult Corporation (2010)

[112] If one assumes that revenue and expenditure levels grow at the same rate of inflation, these dollar figures can be taken to represent inflation-adjusted amounts.

APPENDIX N – NEIGHBORHOOD EXAMPLE: EASTERN NORTH PHILADELPHIA

The **Eastern North Philadelphia** neighborhood is a section of North Philadelphia bounded by York Street to the north, American Street to the east, Berks Street to the south, and 9th Street to the west, which is the focus area for the non-profit agency Asociación Puertorriqueños en Marcha, Inc., which provides health, human services, community, and economic development resources. APM's coordinating role, combined with significant investment of public resources in affordable housing development and the City's ten-year property tax abatement program, enabled the successful introduction, on previously vacant or blighted parcels, of over 200 affordable rental units and over 150 affordable units of homeownership for low- and moderate-income families, as well as over 100,000 square feet of retail and restaurant space and a 800-unit student residential facility; a proposed mixed-use project of 164 units of affordable and market-rate housing and ground floor retail around the Temple University Regional Rail Station between 9th and 10th Streets and between Norris and Berks Streets would represent a significant transit-oriented development success story for the City.

Reclamation of vacant land has been an important aspect of this transformation. Between 1998 to 2001, half of the 4,500 parcels between 4th and 9th Streets and between York and Oxford Streets were identified as being either empty buildings or untended lots; since then, 63 percent of those vacant parcels have been redeveloped, greened and maintained by the Pennsylvania Horticultural Society, or converted to privately tended green space or drive-ways.[113] All told, APM has helped make possible the stabilization of 22 acres of previously vacant land and the investment of $90 million since 1990 in a neighborhood that was significantly impacted by factory closures and urban slum clearance initiatives in the 1970's and 1980's.[114]

[113] "John Kromer: APM and the Reclamation of Abandoned Eastern North Philadelphia," Philadelphia Association of Community Development Corporations (Spring 2010).

[114] Interview with Rose Gray, Vice President for Community Economic Development at APM (June 10, 2010); "Mayor: Housing to Renew Area around Temple Rail Station," Philadelphia Inquirer (June 8, 2010); "Implementing Transit Revitalization Investment Districts in Philadelphia," Econsult Corporation (October 15, 2008); "Philadelphia's Community Development Corporations: Building Livable Communities," LISC Philadelphia (2005).

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