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**THE ROLE OF BROWNFIELDS REDEVELOPMENT IN THE
REJUVENATION OF AN OLDER INDUSTRIAL CITY:
A CASE STUDY OF TWO SUCCESSFUL BROWNFIELDS REUSE PROJECTS
IN BALTIMORE, MARYLAND**

By

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Bachelors of Arts, University of Montana, Missoula, Montana, 1993

Thesis

**presented in partial fulfillment of the requirements
for the degree of**

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in Geography**

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The Role of Brownfields Redevelopment in the Rejuvenation of an Older Industrial City:
A Case Study of Two Successful Brownfields Reuse Projects in Baltimore, Maryland

Chairperson: Dr. David Shively

The industrialized world is littered with tens of thousands of acres of vacant, decaying, and often contaminated industrial and commercial sites. These sites, commonly referred to as “brownfields,” scar the landscape of communities, expose citizens to possible health risks, deteriorate surrounding land values, and erode the tax base of municipalities. Vacant and abandoned industrial sites are present in every state, but the blight associated with brownfields is worst in America’s “rustbelt,” the chain of once great industrial cities and towns stretching along historic canals and rail lines from Baltimore to Boston, and west to Milwaukee. This thesis investigates federal and state brownfields policies and reviews contemporary brownfields literature and through a case study approach, it explains how state and federal policies created a climate conducive to brownfields redevelopment in Baltimore, Maryland. By analyzing two successful Baltimore projects, the research shows how the reuse of brownfields had a positive “ripple-effect” that helped precipitate neighborhood-level investment and revitalization. To help clarify the intricacies often associated with the reuse of brownfields, documentation on financing mechanisms, tax incentives, and state-level Voluntary Cleanup Program application materials are analyzed and described. The impact of the two case study sites on surrounding neighborhoods is researched quantitatively by comparing citywide tax assessed values, real property sales records, and building permit data. The datasets were collected for three years (1995, 2001, and 2007) each representing a distinct time period in Baltimore’s recent history of brownfield redevelopment. Lastly, to help establish comparable rates of neighborhood investment, this thesis uses location quotients based on building permit applications. The quotients compare Baltimore’s citywide building activity to building activity in neighborhoods with reclaimed brownfield sites.

This thesis and the work it represents is dedicated to my wife, Linda. She made it possible to fulfill my dream of changing my career path, which has forever changed my life for the better.

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LIST OF ACRONYMS

B&O: Baltimore and Ohio (Railroad)

BCRLF: Brownfields Cleanup Revolving Loan Fund

BDC: Baltimore Development Corporation

BEDI: Brownfields Economic Development Initiative

BMI: Baltimore Museum of Industry

BRIP: Brownfields Revitalization Incentive Program

CBD: Central Business District

CDBG: Community Development Block Grant

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act

CFCV: Current Full Cash Value

DBED: Department of Business and Economic Development

HUD: Housing and Urban Development

LQ: Location Quotient

MDE: Maryland Department of the Environment

PFA: Priority Funding Area

RFP: Request For Proposal

SARA: Superfund Amendments and Reauthorization Act

USEPA: United States Environmental Protection Agency

VCP: Voluntary Cleanup Program

I. INTRODUCTION TO BROWNFIELDS AND BACKGROUND

As a result of centuries of human exploitation of our planet, the panorama of the industrialized world has become littered with tens of thousands of acres of abandoned, decaying, and potentially contaminated former industrial sites (Vey 2007). The size, nature, history, and current state of these properties vary tremendously, making it difficult to uniformly classify the widespread problem. In the mid-1980s the United States Environmental Protection Agency (USEPA) coined the word brownfield— an all-encompassing term now used to describe the nation’s quandary of vacant and blighted sites. The USEPA’s official definition of a brownfield is “abandoned, idled, or underutilized industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination (USEPA 2000, 1).” Researchers estimate that the United States suffers the effects of having somewhere between five hundred thousand and one million brownfield sites (Amekudzi and Fomunung 2004).

No state in the union is without the brownfields problem. Rural states like Vermont and Maine are spotted with crumbling mill towns, many of which are depressed with high unemployment rates, vacant homes, and abandoned mill sites (Kelly 2006). Even rural Montana, with its long history of mining and timber activities, is marred with countless brownfields. According to the Montana Department of Environmental Quality, mining and wood processing sites are so numerous and often so remote and widely dispersed that simply cataloging the tainted lands is currently an insurmountable task for the agency (Schmidt 2006). Still, the brownfields problem is worst in America’s Northeast and Midwest—the “rustbelt.” Buffalo, Hartford, Detroit, Pittsburgh,

Philadelphia, Youngstown, Cleveland, Baltimore—the former great cities of industry, transportation, and American ingenuity are riddled with lands that epitomize blight and abandonment. Even though some aging cities have seen significant improvement and rejuvenation, many still suffer from disinvestment and deteriorating properties still saturate entire neighborhoods (Vey 2007). Changes in transportation modes and aging infrastructure contributed to a trend of decentralization, wherein urban industrial and manufacturing plants fled rail and harbor linked cities to interstate-connected undeveloped tracts of land beyond city cores and close-in suburbs (Amekudzi and Fomunung 2004). Globalization of labor, suburb driven planning, and racial tensions have exacerbated decentralization and amplified the brownfields problem (Lazare 1991; Fisher 2007).

Problem Statement: Cancerous Blight and Fear of the Unknown

Vey suggests that there are an estimated “5 million acres of abandoned industrial sites in cities alone—roughly the same amount of land occupied by 60 of the country’s largest cities (Vey 2007, 23).” Unfortunately, the visible deterioration and blight associated with brownfields has far reaching consequences for surrounding neighborhoods and communities. All too often, abandonment attracts further disinvestment and properties adjacent to vacant sites usually suffer disastrous economic impacts. For example, a study conducted by the Wharton School of Business illustrated that property in Philadelphia adjacent to vacant lots and brownfields were 20 percent below the average property value for the city (Wachter et al. 2008).

Central cities that once based their economic stability in manufacturing and industrial production have been hemorrhaging from nearly epidemic population loss and

abandonment of the built environment. A recent New York Times article about the “scourge” of vacant properties highlighted some of the worst vacancy problems in the country (Belson 2007). For example, Buffalo, NY has suffered population losses of over 50 percent in the last fifty years. Today the city demolishes nearly 1,000 abandoned homes a year, but of Buffalo’s remaining structures, 3.4 percent are vacant or abandoned. St. Louis tops the vacant building list at 3.7 percent and Baltimore rounds out the top three vacancy rate cities with 3.2 percent of its remaining structures lying fallow (Belson 2007). The vacant structure and brownfields site conundrum drops property values and attracts poverty. Harvard Economics Professor Glaeser (2007) described one “subtle” impact of abandonment as follows:

Declining areas also become magnets for poor people, attracted by cheap housing. This is exactly what happened in Buffalo, whose median home value is just \$61,000, far below the state average of \$260,000. More than 10 percent of Buffalo’s residents in 2000, it’s worth noting, had moved there since 1995. The influx of the poor reinforces a city’s downward spiral, since it drives up public expenditures while doing little to expand the local tax base (Glaeser 2007, 2)

The problem Glaeser (2007) outlines is not unique to Buffalo. In many rustbelt communities the scars caused by vacancy and abandonment act like a cancer, spreading blight to nearby neighborhoods (Watcher et al. 2008). The result continues to be a crippling cycle of population loss, more abandonment, disinvestment, and unchecked potential for spreading environmental hazards.

The brownfields dilemma has long been complicated by stigma and fear of dire health consequences, and making matters worse, human perceptions about industrial pollution are often worsened by media coverage (Yount and Meyer 1994). The concern that uncovering environmental hazards might lead to litigation has halted cleanup action

on a great number of idle lands. For decades, potential real estate developers turned away from brownfields fearing that lurking contaminants would open a quandary of future law suits. Nobody wanted to take ownership of a property that may someday be cited as the cause for communitywide health problems (Greenburg and Shaw 1992). In addition to developers backing away from brownfield sites, bankers and lenders found the brownfields quagmire simply not worth being pulled into. Therefore, even if owners did want to clean up their industrial land it was virtually impossible to obtain financing (Yount and Meyer 1994; Byrne and Greco 1997).

To address the human health concerns and stymie litigation worries, the USEPA developed specific brownfields legislation and most states adopted liability limiting Voluntary Cleanup Programs (VCPs) throughout the 1990s and early twenty-first century. Additionally, to assist with the tremendous financial burden associated with contaminant removal or capping, the Federal and state governments instituted tax incentives and/or revolving loan funds specifically for brownfield projects.

In many cases the legislation and creation of brownfields programs has been enough to entice developers to mitigate and re-invest in blighted sites. However, developers citing “fear of the unknown,” tend to back away from brownfields that might harbor unforeseeable cleanup costs or that are located in areas thought to be economically challenged (Howland 2003; Lange and McNeil 2004). In such cases, traditional lending sources and state revolving loan funds may not be adequate to cover potentially exorbitant expenses. When this is the case, state and local authorities need increase their participation and help jumpstart redevelopment by using complex and creative, layered financing schemes, or very aggressive tax incentives (Paull 2007).

Herein lies a twofold problem, 1) high or unknown remediation costs are hard to justify in low-market areas, and 2) state and federal policies and incentive programs can be viewed as overly cumbersome. The result is that both planning officials and developers may shy away from complicated brownfield reuse projects altogether. Furthermore, if the economic benefits are not clear, planners and developers might continue to avoid redeveloping brownfields and opt to develop in areas outside of urban centers (Lange and McNeil 2004). All of these factors demonstrate a need for adequate and positive information about brownfields reuse incentives. Plus, the long term and ancillary benefit of brownfields redevelopment needs to be highlighted and made available to municipal authorities, planners, and other stakeholders.

Thesis Questions

This study examines two relatively early brownfields remediation projects: a former Montgomery Wards retail and distribution facility and a former Proctor and Gamble soap manufacturing plant, both in Baltimore, Maryland. With the information gathered, this thesis will address the following questions: What are the relevant federal, state, and local brownfields policies and how are those policies implemented to bring about successful brownfields redevelopment? And, does successful brownfield redevelopment have a ripple effect and significantly reinvigorate surrounding neighborhoods, increase municipal ad valorem tax income, and generally work toward the rejuvenation of an aging industrial city?

This thesis is by no means the first research dedicated to the analysis of brownfields reuse. Others, for instance, have looked at the hedonic value of industrial cleanup and determined that ecosystem restoration can positively impact surrounding property values (Braden et al. 2006), but little analysis of values has been done on entire

neighborhoods surrounding redeveloped sites. Much of the foundation for this study is based on the need to further analyze the positive changes that take place after a redevelopment project. Braden (2006) surveyed entire communities to determine whether or not homeowners would be willing to pay more for real estate if nearby brownfield sites were remediated. The research did not track actual purchases, only the opinions of survey participants were measured. The participants did indicate that they would pay more for homes if the area was remediated; but, since the remediation had not actually taken place, the study could not track whether or not values truly increased.

The research of Watcher (2008) was also a cornerstone of this thesis. Her research on vacant properties' influence over adjacent home values indicates that there is a significant link between redevelopment and value appreciation. This research will expand on Watcher's type of work and look at the possible influence of much larger redevelopment projects on entire neighborhoods rather than only adjacent properties.

Planners and urban geographers wishing to gain insight on how best to utilize brownfields redevelopment to curb land-consuming sprawl, often turn to questions similar to those found in this thesis (Daniels 2001). A better understanding of how and why state and federal policies exist and highlighting significant economic benefits will help push reuse projects to the forefront of America's need to address steady population growth and associated land development needs (Leinburger 2007) .

Organization of the Thesis

Major sections of this work, primarily Chapter II, are dedicated to an overview of federal and state brownfields programs and policies. Additionally, a section of Chapter II is a revue of contemporary scholarly literature on brownfields. Chapter III provides an

overview of research methods employed for this thesis. However, before the policies, and before the reuse projects, there is a story to be told on how and why Baltimore came to have its scars of an industrial past. The beginning of Chapter IV is dedicated to the historical and geographical “story” behind Baltimore’s industrial legacy. Subsequently, historical narratives about each site help illustrate the severity of commercial and industrial closings in Baltimore. Chapter IV then moves into in-depth descriptions of each case study site and the various reuse attributes associate with reclaiming the vacated properties.

Chapter V is dedicated to quantitative analysis and is aimed at identifying the case study sites’ impact on municipal property tax income and whether or not the projects had an influence on real property sales in each surrounding neighborhood. Most importantly, Chapter V, through the use of location quotients, investigates the projects’ potential influence on investment in the immediate area. The conclusion, Chapter VI, ties together the role of policy, the setting of Baltimore, various aspects of each case study redevelopment plan, and the quantitative analysis to illustrate the role of brownfields redevelopment in the rejuvenation of Baltimore. Chapter VI also identifies avenues for additional brownfields study that could help solidify the importance of reuse projects in revitalizing not only Baltimore, but many older industrial cities.

In short, this thesis is a collection of stories: the story of brownfields policy; the story of industrial Baltimore; the story(s) of two abandoned sites; and lastly, the quantifiable story of success. These stories all tie together to answer the aforementioned research questions—what are the brownfields policies, and do those policies revitalize aging industrial cities?

II. LITERATURE REVIEW: BROWNFIELDS POLICIES AND SCHOLARLY ASSESSMENTS

The following sections examine the evolution of federal and state brownfields legislation. The final section of this chapter is a review of scholarly literature that explores both policy and brownfield redevelopment successes and failures.

Early Brownfields Policy

Since the first environmental contamination legislation in 1980, the USEPA has worked continuously to create extensive policies for contaminated lands. Throughout the 1980s and 1990s, the American public was becoming more and more aware of the devastating health consequences associated with industrial pollution and, subsequently, there was a significant rise in high-profile, high-dollar law suits linked to industrial sites. Consequently, owners of land with (perceived or real) contamination often elected to erect high fences and simply “mothball” their idle real estate (De Sousa 2004).

Fifteen years after the earliest cleanup legislation, the USEPA established the Brownfields Pilot Program in 1995. The program’s goal was to help remedy the growing social and environmental problems (USEPA 2006a) associated with former industrial sites. The USEPA set out to develop a program designed to combat the ubiquitous negative stigma surrounding brownfields.

Comprehensive Environmental Response, Compensation, and Liability Act

The first piece of legislation addressing contaminated sites passed by Congress on December 11, 1980, was labeled the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The CERCLA title and many of law’s

original provisions remain in effect today, but the “CERCLA” label, for the most part, applies only to very large and/or severely contaminated sites. Properties listed by the USEPA under this act are considered a national priority and are commonly referred to as “Superfund Sites.” The 1980 law created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment (USEPA 2006a). The legislation also set forth standards for closed and abandoned hazardous waste sites and established a cleanup trust fund to finance remediation of areas where no responsible party could be identified. One of the most significant portions of the legislation set out to establish who could be held liable for the releases of hazardous waste (USEPA 2006a). The early CERCLA provisions enacted aggressive “joint and several liability” measures that allowed for virtually any owner in the chain of title of a contaminated site to be deemed responsible for cleanup and/or remediation.

Unfortunately, CERCLA brought about many unintended consequences and negative perceptions of vacant industrial sites began to swell (Yount and Meyer 1994). Because of the joint and several liability clauses and the wide interpretation of who could be held responsible, this early legislation increased litigation fears among property owners and commercial lending institutions. The passage of CERCLA and subsequent media coverage heightened the general public’s awareness, and fear, of potential environmental dangers. By the mid-1990s, rather than putting vacated sites back into productive use and alleviating blighted areas, the litigious tone of the law had caused the nation’s inventory of brownfields to grow.

In 1986, the original CERCLA laws were amended with the Superfund Amendments and Reauthorization Act (SARA). Changes to the original CERCLA language placed more emphasis on permanent contamination treatment and the use of innovative technology for remediation. With an increased focus on human health problems associated with industrial contamination, the USEPA increased the CERCLA trust to \$8.5 billion, increased state participation, and began to emphasize the importance of citizen participation (USEPA 2006b).

Even with the changes enacted in SARA, the litigation aspect of CERCLA policy of the 1980s and early 1990s remained simple: the “polluter pays.” It was perceived that the USEPA could cast a “very broad net” in determining who a responsible party could be (Newlon 1997). In the program’s early years there was a perception that virtually any industrial site could be classified as a “superfund site.” Lacking a less inflammatory statute, the fear of property owners, developers, and lending institutions was that almost any abandoned industrial area could fall under the definition of a CERCLA site. Hence, the legislation instigated a fear that any party somehow affiliated with the management of a company, at any time, might somehow be liable for irresponsible polluting.

The intent of the CERCLA litigation provision was to impose strict liability on any person who “owned” and/or “operated” facilities at the time of the release of any contamination or industrial waste. However, defining ownership in litigious environmental cases is not always straightforward and banking/lending institutions grew concerned about being pulled into environmental court cases. Consider the following legal opinion from Greenberg and Shaw (1992): “It is important to consider how ‘ownership’ is defined by state common law. In states that utilize a title theory for

mortgages (as opposed to a lien theory), the mortgagees (lenders) hold actual title to the secured property and thus can be considered owners of the property” (Greenberg and Shaw 1992, 1214).

Democratic Representative John J. LaFalce of New York succinctly described the lender’s point of view on CERCLA policies at a legislative hearing with the following:

There is no certainty to the potential lender. The lender says: ‘What ... is USEPA going to do, what are the courts going to do? I do not know. Why should I create a headache for myself?... [I] do not know what the costs [for the cleanup of hazardous waste] are going to be, so if [I] make a \$10,000 loan [I] might be liable for a \$2 million cleanup,’” Democratic Representative John J. LaFalce of New York (cited in Greenberg and Shaw 1992, 1211).

Federal policy makers finally addressed the major concern of perceived lender liability in 1996 with the passage of the Asset Conservation, Lender Liability, and Deposit Insurance Protection Act. Though the act did not totally alleviate a banker’s liability in cases of potential environmental contamination, the act took tremendous strides in advancing the financing of brownfields projects. The 1996 amendments to CERCLA centered on clarifying the concepts of participation in management and foreclosure (Byrne and Greco 1997.). The new legislation allowed for a bank to lend and, if need be, foreclose on a property and not be considered the property owner. Byrne and Greco explain that “Post-foreclosure actions such as maintaining business operation, preparing the property for sale or disposing of assets are protected so long as the lender is actively moving to divest the property” (Byrne and Greco 1997, 89).

In summary, the key provisions of CERCLA or, “Superfund,” did the following:

- Identified land-based toxic contamination as a public health issue
- Gave responsibility to federal authorities to lead efforts to clean toxic-waste sites

- USEPA was given response authority to act quickly in cases where the public health is threatened.
- Provided for a public funding mechanism to pay for initial cleanup at sites where public health is threatened
- Places responsibility for paying cleanup costs squarely on those who caused the contamination (Bartsch and Dean 2002; USEPA 2006a)

Brownfields Economic Redevelopment Initiative

Preceding the major CERCLA revisions in 1996 was the establishment of the USEPA Brownfields Economic Redevelopment Initiative and the Brownfields Pilot Assessment Grant Program in 1995. CERCLA was only addressing large and/or highly contaminated properties and the majority of idle industrial land remained a local (or state) dilemma that was not being addressed by federal lawmakers. The USEPA had been pouring billions of dollars into CERCLA, but policy analysts continued to call for significant change and for the creation of a new program that addressed smaller sites not on the CERCLA list. For instance Rosenberg stated:

There have been numerous attempts to reform the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), also known as Superfund, since its inception. The act originally promulgated \$1.6 billion in funding to provide for the rapid cleanup of those sites designated as the most dangerous and placed on the National Priorities List (NPL). In 1986, Congress increased the amount of the Superfund to \$8.5 billion and added another \$5.1 billion in 1990. Overall, it is estimated that the total amount of money spent on the Superfund program is between 25 and 30 billion dollars. While current Superfund reform continues to unfold, Congress has promised to provide a more sensible approach to environmental cleanup, including the possible repeal of retroactive, strict and joint and several liability up to a fixed point in time (Rosenberg 1995, 53).

The above referenced “more sensible approach” Congress came up with in 1995 was the USEPA Brownfields Economic Redevelopment Initiative program. The new initiative was “designed to empower states, cities, tribes, communities, and other

stakeholders in economic redevelopment to work together in a timely manner to prevent, assess, safely clean up, and sustainably reuse brownfields (USEPA 2000, 1).” The USEPA aimed to start a program that could begin analyzing the myriad of abandoned industrial lands that had not been identified as a “superfund” site. Under the new pilot program, states, municipalities, tribal governments and other eligible stakeholders could apply to the USEPA for assessment grants up to \$200,000. With these grants, the recipients could inventory, characterize, assess, and conduct planning and community involvement related to brownfield sites (USEPA 2000). An early goal of the Brownfields Economic Redevelopment Initiative was to fund at least fifty Brownfields Pilots in 1995 and 1996 with the monies to be used for the assessment of sites potentially contaminated by hazardous substances or petroleum. Consequently, one of the first Brownfields Pilot \$200,000 grants was awarded to the City of Baltimore in July of 1995 (USEPA 1997).

A second financial aspect of the USEPA Brownfields Economic Redevelopment Initiative was the creation of the Brownfields Cleanup Revolving Loan Fund (BCRLF). The loan program set up \$1 million revolving loans to be used over a five-year period to provide financial assistance for the environmental cleanup of brownfields (USEPA 2000). Again, the City of Baltimore was an early recipient of BCRLF dollars. In September of 1997, the USEPA awarded Baltimore with a \$350,000 dollar revolving loan to fund cleanup on properties anywhere in the city (USEPA 1997).

From 1995 to 2002 the USEPA brownfields program was operated as a “pilot;” meaning that the program was experimental and not fully authorized by Congress. Finally, the 107th Congress enacted the Brownfields Act in 2002 and the site assessment

grants and the revolving loan funds of the programs became actual federal policy (USEPA 2006a).

Along with assessment grants and revolving loans, a third major component of federal encouragement to cleanup and reuse brownfield sites was the creation of various tax incentives made available to proactive landowners and developers. The major federal tax legislation of 1997, the Taxpayer Relief Act, contained a substantial section pertaining to brownfields and environmental remediation. The language of section 198 of the act allows for the “Expensing of Environmental Remediation Costs (IRS 1997).”

The language of the act reads as follows:

(a) In General.--A taxpayer may elect to treat any qualified environmental remediation expenditure which is paid or incurred by the taxpayer as an expense which is not chargeable to capital account. Any expenditure which is so treated shall be allowed as a deduction for the taxable year in which it is paid or incurred (IRS 1997, 111).

The original 1997 language of the tax law placed various geographic restrictions on brownfields eligible for the tax benefit, however, in 2000 several amendments to the original language made it possible for virtually all owners of contaminated properties to benefit from the federal tax incentive. Adding to the tax incentives for development of abandoned industrial and commercial facilities is the IRS tax incentive for distressed properties located in federal empowerment zones. Originally written in 2001, with the latest version of the credit written in 2004, IRS policy allows for taxpayers in designated federal empowerment zones (areas often laden with brownfields) to achieve a wide array of tax credits. Some of the benefits listed by the IRS for reuse of facilities in distressed areas include: Tax-exempt Bond Financing, Qualified Zone Academy Bonds, Work

Opportunity Credits, Welfare-to-Work Credits, and possible capital gain exclusions (IRS 2004).

State Voluntary Cleanup Programs

The federal government's clarification of liability and the three-pronged financial package (assessment grants, revolving loan funds, and tax credits) truly helped with the genesis of brownfields reuse projects. The USEPA had successfully developed a brownfields program with a dual design: a program that both enhanced job development through economic stimulation in downtrodden areas, and which eliminated environmental hazard risks to people living near contaminated sites (Greenberg et al. 2001). However, the USEPA grants were, and still are, relatively small at only \$200,000. Additionally, the federal revolving loan fund maximum loan amounts often fall far short of the monies needed to remediate a brownfield. And finally, clarification that the classification of a "Superfund" would be reserved for our country's most contaminated sites, left the majority of brownfields oversight in the hands of individual states.

In response to CERCLA only addressing high priority sites, states (starting with Minnesota in 1988, Illinois 1989, and Oregon in 1991) began implementing state-level brownfields offices and VCPs (Bartsch and Dean 2002). Today, all fifty states have some sort of brownfields program enacted by their legislatures (USEPA 2006a). In the mid-1990s there was a huge rise in state run VCPs. Maryland, along with Florida, Hawaii, Iowa, Kansas, New Mexico, Oklahoma, Utah, Virginia, Washington, and West Virginia all passed their first Brownfields acts and/or established VCPs in 1997 (Bartsch and Dean 2002).

Brownfields Programs Take Hold at the State Level in Maryland

By 1997 state run brownfields programs had passed (or had legislation pending) in a majority of states. In Maryland, lawmakers unanimously passed two major pieces of legislation aimed at stimulating the redevelopment of idle and abandoned properties. The measures created a VCP to be administered by the Maryland Department of Environment (MDE) and developed the Brownfields Revitalization Incentive Program (BRIP) within the Maryland Department of Business and Economic Development (DBED)(Carey and Arnold 2002).

As part of a guide to redeveloping brownfield properties, Carey and Arnold summarize the major provision of the bills with the following five points:

1. Establishes a Voluntary Cleanup Program administered by MDE and a program of financial incentives administered by DBED.
2. Allows a participant in the voluntary cleanup program to choose among cleanup standards, including uniform numeric risk based on site-specific risk assessments. Background based on federal or state maximum contaminant levels, or other federal or state cleanup standards.
3. Provides for the release of Voluntary Cleanup Program participants from MDE enforcement actions and from contribution actions by responsible persons. As well as from further liability for remediation of contamination identified in the program application papers.
4. Set criteria for the Brownfields Revitalization Incentive Program under which DBED may select brownfields sites within participating local jurisdictions to receive financial incentives. Including low-interest loans, grants and property tax credits.
5. Includes safe harbor provisions for lenders to encourage participation in brownfields projects by reducing the risk of liability under state law. (Carey and Arnold 2002, 625-626)

The Maryland programs, federal assessment funding, and major revision of CERCLA were finally coming together to create a climate in which insightful developers could begin to remediate brownfields and refurbish Maryland's vast stock of vacated industrial complexes. Pre-1997 liability fears coupled with severely low marketability

actually had created an incentive for many landowners to simply keep their sites as abandoned or idle real estate (Howland 2000; De Sousa 2004). Finally, the USEPA changes and Maryland legislation had paved the way for dozens of redevelopment efforts to begin statewide—but especially in the City of Baltimore.

Similar to federal tax incentives for cleanup, Maryland began to offer real property tax credits to brownfields that qualified for remediation assistance from the Maryland BRIP. In order to receive any of the financial benefit, the property owner must participate in the state's VCP. Brownfield sites meeting the state's criteria can receive a real property tax credit between 50 and 70 percent of the new increment of taxes on the increased value of the site. If the site is within an Enterprise Zone, the tax credit may last for up to 10 years (Maryland 2007).

The Maryland VCP and brownfields tax incentives were part of a much larger state growth management policy initiated under the administration of then governor Parris Glendening. The Glendening administration developed a multitude of planning policies, named "Smart Growth," which aimed at preserving open space by directing growth to existing urban areas. The Smart Growth policies of Maryland developed zones, "Priority Funding Areas (PFAs)," in which state money would go to assist with the development of infrastructure. Developers electing to build outside of PFAs would not be eligible for any state assistance. Additionally Maryland created one of the most lucrative historic tax credits in the county to incentivize the reuse of existing structures within already populated areas of the state (Daniels 2001; Sams 2007a).

Later sections of this thesis will highlight how the Smart Growth policies helped to create a climate ideal for the reuse of brownfield sites long thought to be too risky for

investment and redevelopment. First however, many scholars and analysts have weighed in on various aspects of brownfields and the following section reviews a sampling of articles and papers focused on the implications of brownfields policy.

Scholarly Assessment of Brownfields Policy and Value Implications

The level of success of federal brownfields initiatives have been closely tracked by policy analysts and researchers throughout the program's twenty-plus year history. For the most part, early feedback from the mid-1990s was that CERCLA, to date, had been a failure. Industry might have stopped blatant polluting, but many properties remained idle and very little was being done about industrial contaminants already in soils and groundwater. Other than a few high-profile and often high-dollar law suits, the vacant industrial quagmire remained a huge national problem (Rosenberg 1995). The following excerpt from a 1995 paper published in the *Pollution Engineering Journal* captured what many analysts were saying about the first ten to fifteen years of CERCLA:

One thing is for certain, there is increased recognition that, despite good intentions, the federal Superfund law has been a dismal failure and a major deterrent to the redevelopment of industrial urban areas and contaminated properties. In need of a fix and with an obsessive desire to remove the stigma long associated with the Superfund program, the USEPA will hang its hat on the Brownfields Initiative. This initiative is intended to demonstrate ways to return contaminated, unproductive, abandoned urban sites to productive use and ensure that future development is accomplished in a sustainable, environmentally sound manner (Rosenberg 1995, 53).

In the above passage, Rosenberg (1995) is writing on the cusp of the creation of USEPA's Brownfields Initiative. As previously stated, the program was established in 1995 and operated as a pilot program until the 107th Congress passed the Brownfields Act in 2002. Of course, the program still has its critics, and undoubtedly every stakeholder could probably recommend revisions to

current statute, but for the most part researchers and analysts have written favorably about the program (Wernstedt 2004). Again, a brief quotation from a paper published in a professional journal touches on the history of brownfields legislation:

If one compares the state of affairs vis-à-vis the redevelopment of brownfields today to that of 10 years ago, it is clear that federal and state promotion of brownfields has yielded numerous success stories of idled and underutilized contaminated properties that now house a variety of economic activities (Eisen 2007, 3).

Additionally, the brownfields programs have been labeled a success by the environmental justice community (Felten 2006). When the USEPA forged the Brownfields program in 1995 out of the existing CERCLA initiatives, administrators listened to requests from citizen groups like the National Environmental Justice Advisory Committee and made citizen participation a basic principle of brownfields redevelopment. In an article discussing the positive impacts of national brownfields policy, Felten (2006) explained that brownfields redevelopment legislation implemented in the mid-1990s demonstrated a federal and state commitment to community participation.

Although not a major factor in either case study site selected for this thesis, public participation is considered an important aspect in the reuse of many urban brownfield projects (Greenberg and Lewis 2000; Solitare and Greenberg 2002; Felten 2006; Gute and Taylor 2006). Greenburg and Lewis (2000) uncovered a unique aspect of public participation after surveying over 200 residents in the City of Perth Amboy, NJ. Again, one of the original intents of the USEPA's brownfields program was economic stimulus through attracting new industry and business to brownfields sites, however, the authors'

survey that found that residents placed economic stimulus behind other brownfield reuses. Given a choice on what to do with a brownfield, the survey participants placed highest preference on recreational, cultural and other community facilities, followed by new housing. In addition, over three quarters of those surveyed indicated a desire to participate in the redevelopment process (Greenberg and Lewis 2000).

Further study of the importance of public participation was discussed by Gute and Taylor (2006) in their case study of brownfields redevelopment in Bridgeport, CT. Gute and Taylor used lessons learned from two major brownfields redevelopment sites to outline the importance of a strong communication process between both government officials, stakeholders, and the general public. A major recommendation of the authors states:

All stakeholders need to be thoroughly involved in the conceptualization, planning and each decision-making node of the redevelopment process. This is particularly true for those stakeholders that will be the actual users or abutters of the redeveloped site (Gute and Taylor 2006, 555).

In his article, Ellerbusch (2006) looks deeper into public participation and compares early brownfields policy to our nation's first—usually unsuccessful—urban renewal programs. He points out that lack of community participation in 1960s-era urban renewal programs may have led to increased crime, segregation, and isolation of impoverished citizens. In short, the first government programs designed to improve downtrodden urban conditions lead to a “massive federally subsidized economic risk redistribution program (Ellerbusch 2006, 559)” that actually exacerbated disinvestment in urban areas. Ellerbusch looks at brownfields redevelopment through a lens of risk, and suggests that without ample public participation, risk is merely transferred from one group of residents to another. For example, if an abandoned brownfield site is heaping

with trash, the property represents a risk to nearby residents. However, if the trash is not properly removed and remediated, the risk could simply be transferred to another population group.

Greenburg (1999) addressed this exact scenario when describing a brownfield site in Rahway, NJ. In Rahway, trash removal helped one group of residents, but another group of residents suffered ill-health affects (increased air pollutants and increased truck traffic) when the garbage was moved and burned in another neighborhood's incinerator (Greenberg et al. 1998). Ellerbusch (2006) suggests that the transfer of risk in such a case could have been mitigated with increased public participation.

In seeking to understand if the USEPA was employing many of the community participation, environmental justice, and economic revitalization goals of the pilot brownfields legislation of the early 1990s, Solitare (2002) analyzed the distribution of USEPA site assessment grants. The author used economic data from the 1990 Census to determine if the USEPA was awarding brownfields pilot grants to cities most in need of federal assistance. The study did find that a disproportionate number of grants were given to economically distressed communities, and therefore Solitare hailed the program as an environmental justice success.

Other scholarly articles have looked at the real estate and neighborhood impacts of brownfields redevelopment (Howland 2000; Leigh and Coffin 2000; Kaufman and Cloutier 2006; Ellerbusch 2006; Gute and Taylor 2006). Howland (2000) studied land transactions in Baltimore to determine whether or not contamination had a significant impact on property value. The study did find that when a site's price was lowered to compensate buyers for the risk of acquiring a brownfield, the actual number of land

purchases was not deterred. Suggesting that federal and state liability limiting legislation was having a positive impact, Howland (2000) actually disproved the notion that contamination reduced the demand for industrial land in desirable locations. Her study clearly showed there was an active market for industrial land located close to gentrified neighborhoods and downtown Baltimore (Howland 2000).

Leigh and Coffin (2000) used a hedonic pricing model to help understand the relationship of property values and their proximity to brownfield sites. In their study, the researchers analyzed values and brownfield sites in Cleveland and Atlanta. Their hedonic models demonstrated that the closer a property was to a brownfield site the more likely it was to have a decreased value, even if the site had been remediated. The authors suggested that high concentrations of non-remediated industrial sites close to remediated sites continued to have negative impact on surrounding property values. The researchers compared property values before and after the USEPA unveiled the Brownfields Pilot Program in 1995. The study found that for the heavily industrialized city of Cleveland, awareness of known sites (listed brownfields) led to “considerable uncertainty” before 1995, while federally supported efforts to clean up listed sites after that date helped reduce that uncertainty (Leigh and Coffin 2000). In short, the paper suggests that, even though values are depressed around brownfield sites, more real estate transactions were likely to occur in industrial cities after authorities enact brownfields policies. Unfortunately, in Atlanta, a city without a strong industrial legacy, the federal policies did not initially lead to increased real estate transactions and higher values. Leigh and Coffin (2000) postulate that because Atlanta’s citizens were not as accustomed to

industrial land as were Cleveland citizens, new brownfields policies may have heightened, rather than dispelled, local concerns about contamination.

With the exception of early policy impacts in Atlanta most scholarly papers suggest that federal and state brownfields policies play a significant role in property values (Leigh and Coffin 2000; Howland 2000; Ellerbusch 2006; Kaufman and Cloutier 2006).

The following chapter outlines the methods used in this thesis to document the transformation of the two sites in this case study. Chapter III also describes the methods used to determine both changing property values and neighborhood investment resulting from significant brownfields legislation both in Maryland and at the federal level.

III. METHODOLOGY

The methods used in this research are a blend of the case study approach and quantitative analysis. The first thesis question, ‘what are the relevant federal, state, and local brownfields policies and how are those policies implemented to bring about successful brownfields redevelopment?’ is primarily answered through the preceding literature and policy review and the following case studies. In order to answer the second thesis question, ‘does successful brownfields redevelopment have a ripple effect and significantly reinvigorate surrounding neighborhoods, increase municipal ad valorem tax income and generally work toward the rejuvenation of an aging industrial city?’ this research turns to the case studies and quantitative analysis. How these methods were employed is expanded in the following sub-sections.

Case Study

As stated in Chapter I, the nature of this thesis is one of in-depth case studies of two unique former industrial sites within Baltimore’s city limits. Each site was chosen for very distinct, yet similar reasons. The development firms of both sites filed applications with the MDE within the same year and both sites completed the environmental remediation phase of work in 2001. Both sites made a transition from abandonment to office and mixed-use properties, and both sites are currently the headquarters of each respective development firm.

In total, 458 VCP applications had been filed with Maryland’s cleanup program as of December 20, 2006. Over one-third (170) of the applications were for sites in Baltimore (MDE 2006b). Many applications represent small cleanup activities, such as soil removal at an existing auto mechanic shop, while others were large scale public sites,

such as the grounds surrounding Camden Yards, Baltimore's professional baseball stadium. In addition, many of the brownfield sites in Baltimore are located in federal empowerment zones and/or state enterprise zones. The two sites selected represent early projects where commercial/industrial buildings were left intact and created office spaces in neighborhoods that traditionally had few or no office buildings. Both are located in the relatively large Maryland Enterprise Zone, which enables business owners to qualify for several state tax incentives. One the sites, Montgomery Park, is situated in a Federal Empowerment Zone, areas wherein businesses qualify for a list of federal tax incentives (HUD 2007b; Empower Baltimore 2008). These redevelopment sites are unique in the fact that they represented the first redevelopment of a brownfield in each respective neighborhood.

The case study gives a researcher the ability to understand a larger dynamic by analyzing single settings (Eisenhardt 2002). The approach has been used by academics, research institutes, policy analysts, and governmental agencies to highlight successful projects and develop effective legislation and national policies (Greenberg et al. 2001). As with this thesis, many studies analyzing the impacts of brownfields redevelopment on property values have continually looked to the case study (Howland 2000; Leigh and Coffin 2000). Schoenbaum (2002) turned to the case study approach to elucidate changes in industrial property values within Baltimore's city limits. In another Baltimore study analyzing the relationship of public subsidy and "successful" brownfields redevelopment, Howland (2003), compared various attributes of three major brownfields redevelopment projects.

History, Literature and Document Review, and Stakeholder Discussions

Historical Context

This thesis dedicates significant attention to the historical and geographical context—the *why* and *how* Baltimore became an industrial giant, and then suffered from a major economic fall. Baltimore was once the second largest and one of the greatest cities in America, but today it is listed by the Brookings Institution as one of the “bottom fifth cities”—one of the lowest “sixty-five weak older industrial cities” in America (Vey 2007). Similar writings about the fall of prosperity in rust-belt cities have discussed the geographical and historical significance of a city’s rise to greatness. For example, when discussing the present state of Buffalo, NY, Glaeser (2007), details the community’s history and its link to the Erie Canal. Glaeser, of the Harvard School of Economics writes, “The history of Buffalo helps us understand why it continues to lose people and why it will be hard to reverse the trend” (Glaeser 2007, 1).

One of the unique personalities of Baltimore is the fact that its citizens seem to embrace and cherish the city’s industrial past. A marker of the peoples’ affection for their industrial roots is the success of the Baltimore Museum of Industry (BMI). Appropriately, the BMI is located on a former brownfield site, close to the city’s urban core. Situated on the Baltimore waterfront, the BMI serves as a devoted reminder of the city’s industrial pride. Administrators and historians at the BMI were exceptionally helpful in finding documentation and assisting the researcher with understanding the significance of Baltimore’s industrial past.

The format of meetings with BMI representatives took place as open discussions and note-taking by the researcher. The museum curator granted access to BMI files

containing a variety of information and sources pertaining to the region's industrial roots. Documentation in BMI files is as diverse as Baltimore's past and ranges from reports on the beer making process (beer was a top industry in the blue collar city for well over a century), to newspaper clippings describing the closure of industrial plants. Meeting with representatives, touring the museum, and obtaining literature gave the basis for the establishment of time and place, essentials of geographical research.

Voluntary Cleanup Program Documentation and the Maryland Department of the Environment Processes

The application process for the VCP within the Brownfields Division of MDE is lengthy, requiring preliminary environmental assessments and tremendous documentation. Although considered streamlined in comparison to many states, Maryland's VCP is still time consuming, costly, and perplexing to developers and/or researchers first attempting to understand its procedures. As a non-participant, the researcher attended informational meetings between MDE Brownfields Division staff and stakeholders associated with the cleanup and redevelopment of sites. Meeting attendees typically included representatives from the party or company who currently owned or were in the process of purchasing a brownfield site, a development firm representative (if new development was planned for the area), and a scientist or representative from an environmental consulting firm. Also in attendance were two to four MDE staff scientists (geologists and toxicologists), MDE contact people assigned to each VCP application, and brownfields program leadership.

In all, the researcher attended four informational meetings. The order of business at each meeting ranged from familiarizing first-time VCP participants with Maryland's voluntary cleanup regulations and program, to second level meetings where cleanup had

begun on a site and environmental consultants were sharing findings and searching for MDE approval to begin construction. Attendance at each of these sessions proved to be extremely informative and helped to explain printed materials offered by the state. One of the advancements in Maryland's VCP is the fact that the brownfields group, as standard practice, provides these informational meetings to all applicants to the VCP. The research method used was observation and note-taking.

Attendance at the informational meetings also made it possible to establish relationships with MDE personnel and gain access to all documentation pertaining to the cleanup of each site. Completed VCP files frequently grow to be hundreds of pages in length. Soils data, remediation methods and proposals, and various requests for future land uses were all made available to the researcher. The documentation was vital to understanding the cleanup process and helped reveal the scope and magnitude brownfields reuse projects. This method included a review of remediation work and costs associated with the efforts required to obtain a "Letter of No Further Action" from MDE.

To further understand the assorted concepts and factors involved in brownfields reuse projects, the researcher also gathered financing information about each project from various sources. However, some of the private financial matters were not available in detail and the research relied on general tax and loan program guidelines. In some cases, the researcher contacted, in person or via telephone, people key to the development of each site. These stakeholders included project managers, Baltimore Development Corporation (BDC) representatives, MDE officials, and facilities managers. The

conversations gave a unique perspective on the reclamation of brownfields and helped clarify federal and state financing opportunities for brownfields redevelopment.

Quantitative Analysis

On June 20, 2007, the researcher met with officials from the City of Baltimore in the offices of Baltimore Housing. In attendance was the Director of Baltimore Housing, Stephen Janes, and Research Specialist, Brenda Davies. The researcher, Mr. Janes, and Ms. Davies concluded that in order to track economic investment and activity in a neighborhood, three datasets depicting three different time periods would be needed. The datasets would be 1) all sales data for the entire city, 2) all building and improvement permits pulled for the entire city, and 3) all tax assessments and city appraisal records, known as Current Full Cash Value (CFCV). These three datasets were collected for three years: FY1995, FY2001, and FY2007 and include all property types (e.g., residential, commercial, industrial).

The sales records help to quantify increases or decreases in real estate value as determined by willing buyers and sellers. Actual sales records are perhaps the most accurate indication of market value. However, sales may take place sporadically and high- or low-value outliers may easily skew the findings. Tax records provide data on all real estate parcels and help to determine overall value changes in both individual sites and entire neighborhoods. Although, tax appraisals are not done on an annual basis and assessments may significantly lag behind actual appreciation. Finally, the researcher obtained building permit data to help understand what level of building/investment activity is taking place in a neighborhood during a very specific time period. Building permit requests are filed with the city for a wide range of construction and site

improvement activity. On a permit request form the owner or contractor states the type of work to be completed and the estimated cost of improvements. These records give the researcher immediate insight into improvement activity (i.e., investment) taking place in a specified location.

Determining years to compare

The CFCV records are the values of land and improvements set by the state tax assessor's office for all tax parcels. The appraisals in Baltimore City are done on a three-year cycle making it important to obtain data only in three-year increments. If years were chosen at random, or if the researcher wanted to evaluate specific years (e.g., the year a building became vacant or the year a project was completed), information might not accurately represent assessed values when comparing more than one site. By studying neighborhoods in six-year intervals (two three-year assessment cycles), the researcher can accurately compare changes in tax assessed value. The six-year interval alleviates the possibility that one set of records comes from early in the three year assessment cycle and the second or third set of records comes later in the assessment cycle. With six-year intervals, the researcher will be comparing the same time-period within the cycle with each evaluation.

For the purpose of this study, luckily, the data align with three distinct periods in Baltimore. In FY1995, both of the case study properties were vacant or in the process of ceasing operations. Additionally, the governor's Smart Growth package and brownfields legislation had not been passed by the state legislature. In the second period, FY2001, both case study sites were nearing completion but were not yet occupied. For example, MDE sent Struever Bros., Eccles and Rouse (the Proctor and Gamble site developer) a letter of "No Further Requirements Determination" which essentially meant the

completion of the VCP process, on August 20, 2001 (Metz 2001a). The “No Further Requirements Determination” letter was sent to Himmelrich and Associates (the Montgomery Park developer) on February 5, 2001 (Metz 2001b). The final period, FY2007, for which the most recent data are available, captures what impact the redevelopment projects might have had on the surrounding neighborhood.

The majority of the analysis for this research focuses on how brownfields redevelopment impacted the surrounding neighborhood and, consequently, how that neighborhood compared to the rest of the city. This comparison was done with the use of location quotients.

Permit Data Location Quotients

To compare the requests for building and improvement permits in each neighborhood to the rest of Baltimore City, the researcher has calculated a permit data location quotient (LQ) for each of the three years analyzed. Location quotients are generally used to compare a city or a region’s economic activity to that of the nation as a whole. For example, economists employ location quotients to understand the economic relationship of an urban area to the national economy. As described by Leigh (1970) a “normal” economic characteristic of a single urban area is assumed to be a microcosm of the nation as a whole. The concept is described by the following:

On the assumption that a ‘normal’ urban economy is a microcosm of the national economy, a location quotient above one (1.0) for a particular urban activity is said to indicate an activity in which the given city is apparently unusually specialized, given its overall size. The higher the quotient, the greater is the local specialization in the given industry (Leigh 1970, 202).

Location quotients are a very useful tool in determining a variety of area-specific characteristics and can be applied to a variety of geographic areas. If a LQ for the

smaller region (i.e., neighborhood, city, county, etc.) is equal to “1.0” the smaller region would have the same activity (e.g., number of employees in a job sector, or number of permits pulled per tax parcel) as the larger region. For example, a neighborhood can be compared to surrounding city, and a county can be compared to the surrounding state, etc. The higher the number is above “1.0” the greater the activity is in the small region when compared to the encompassing region. If the LQ is below “1.0” the activity in the sub-region takes place at a rate less than the parent-region.

Employment rates, health care attributes, and other locally identifiable datasets can be compared to the larger, surrounding region (Moineddin et al. 2003). Location quotient research has been done at the city/neighborhood level in analyzing rates of crime to help determine “hot spots” of criminal activity (Brantingham and Brantingham 1998); however, the researcher is not aware of location quotient research applied to building permit data. With the use of location quotients, this research is able to determine the rate of investment (based on building permit requests) in the case study neighborhoods compared to the city as a whole.

As a means of control, location quotients for permit data are calculated for two neighborhoods sharing similar characteristics with the case study neighborhoods, but had no brownfield redevelopment projects. Finally, permit data for all neighborhoods with brownfields cleanup activity are aggregated and compared to all of Baltimore.

The map below identifies the case study sites, surrounding neighborhoods, and the location of all cleanup sites and respective neighborhoods. However, before analysis of tax values, sales, and neighborhood investment is discussed, the following chapter

looks at the qualitative story about the transformation of Baltimore and describes the two case study sites.

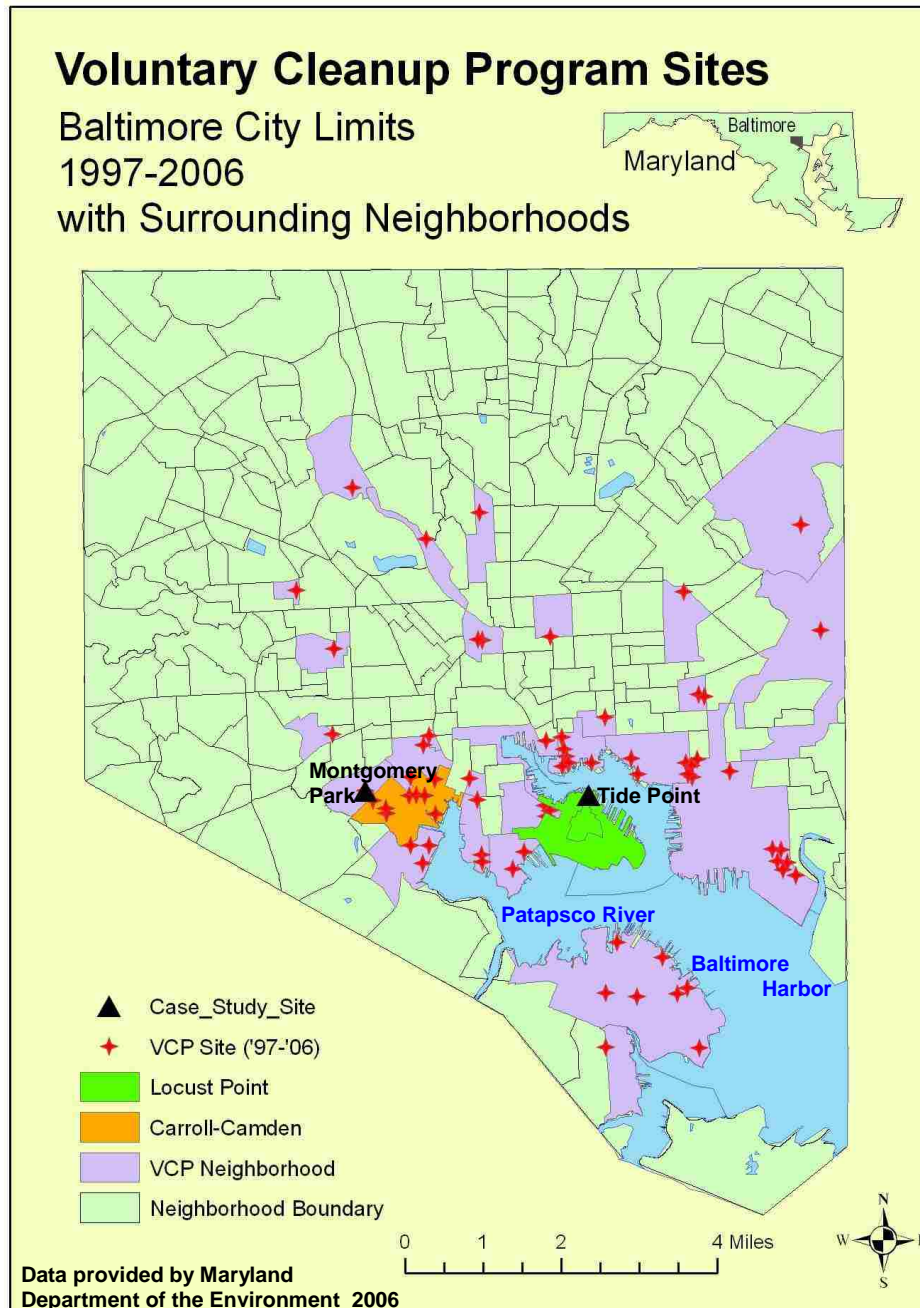


Figure 1. Map of case study sites, all VCP properties, and surrounding neighborhoods.

IV. CASE STUDIES: LOCATION AND SITES

It is important that this thesis look at the historical transition of Baltimore, the city encompassing the two sites. It is not the intention of this chapter to chronologically trace the year-by-year transformations of lands, site characteristics, and property ownership; instead, this chapter will give a broad regional history in order to establish geographical context, both historical and physical, to the selected sites of this study.

Why, out of all of the naturally occurring deep-water harbors that exist along the shoreline of the massive Chesapeake Bay, did Baltimore City end up being one of the nation's largest seaports? Why was there such a huge buildup of industrial and commercial facilities along a relatively small waterfront? Why then, after nearly two hundred years of steady industrial growth, did the city suddenly lose close to 70 percent of its industrially-based jobs? The answer to that question answers the next: how is it that a once burgeoning city, in one of the nation's wealthiest states, became so abandoned, so vitiated with industrial contaminants, and so blighted?

This thesis will only begin to touch on answers to these questions. The overall setting of Baltimore and its history plays an important role in understanding how best to address abandoned industrial sites, and therefore the first section of this chapter will help establish the historical and spatial significance of the industrial buildup in Baltimore. In this chapter's following sections, two of the hundreds of brownfields throughout Baltimore will be described to help explain how a reuse project can play a major role in the transformation of an entire city.

Establishing the Geographical and Historical Setting

“There is but one entrance by sea into this country, and that is at the mouth of a very goodly bay, 18 or 20 miles broad. The cape on the south is called Cape Henry, in honor of our most noble Prince. The land, white hilly sands like unto the Downs, and all along the shores rest plenty of pines and firs ... Within is a country that may have the prerogative over the most pleasant places known, for large and pleasant navigable rivers, heaven and earth never agreed better to frame a place for man's habitation...”

Captain John Smith, 1612 (Chesapeake 2003, 1)

In 1612, when Captain John Smith made his legendary voyage up the Chesapeake Bay, the waters were clear and marine life was plentiful. Countless species of fish were so abundant that Smith's crewmembers could scoop fish out of the water with frying pans and oyster beds were so thick that they created stone-like reefs that blocked passages to many of the bay's inlets (Chesapeake 2003).

With Smith's description declaring “heaven and earth never agreed better to frame a place for man's habitation” (Chesapeake 2003) it didn't take long for thousands of European settlers to discover the bounties of the Chesapeake. Assiduous early immigrants learned relatively quickly how to marry the region's agriculture to its natural ports and small harbors, and in 1631 Maryland's farmers embarked into the extremely prosperous cultivation of tobacco (Borio 1997). Within thirty years of Smith's renowned explorations of the Chesapeake, much of Maryland became settled by Europeans. In 1642, Annapolis (already a bustling seaport community) was declared the region's capitol. Many small ports and towns dotted the coastline of the Chesapeake Bay and farming settlements checkered the Maryland landscape.

Throughout most of the seventeenth and early eighteenth centuries, the economy of colonial Maryland was based on tobacco farming and, like much of the mid-Atlantic

region, Maryland emerged as rural and bucolic, marked only by a series of quaint farming villages and small seaport towns. Tobacco only needed to be harvested, dried and brought to ships for transport. The crop required no expensive infrastructure for refining before it was sold: no grist milling, shucking, or labor intensive processing. Economies of this sort had little need for large cities to provide labor forces, factories, and warehousing facilities. A network of roads leading to a port town was all a farmer needed to exchange his crop (Zembala 1995).

When describing Baltimore's past, historians often refer to the years between mid-1600s and mid-1700s as the "Empty Century." "Empty" because there were very few inhabitants along the banks of the Patapsco River, the mouth of which forms the now famous Baltimore Harbor. A few structures existed within today's Baltimore city limits, but for the most part the immediate area was a sparsely inhabited, dense wilderness (Olson 1980). The terrain of the area was steeper than many other large Chesapeake Bay inlets. Unlike the wide navigable streams near Annapolis and throughout Maryland's Eastern Shore, a network of several rivers rushed down hilly valleys to the Patapsco River. Located on the fall-line of the Appalachian Mountains, the topography of Baltimore falls approximately 700 feet in about seven miles. These streams were not useful for an agrarian economy and the shipment of tobacco. However, the cascading waters or "fells" would eventually prove ideal for hydraulic mills and power generation. The hydro-energy linked to Baltimore's landscape and streams, though, would not be put to use until the 1770s, just a few years before the signing of America's Declaration of Independence (Zembala 1995).

Even though much of Maryland was adequately situated for tobacco cultivation, eighteenth century farmers learned of the outstanding potential for corn and wheat production throughout the mid-Atlantic state. But, unlike tobacco, corn and wheat *do* need milling and processing. Consequently, just a few miles to the west of present day Baltimore City lies the site of the state's first major flour mill. Established by three Quaker brothers hailing from Buck's County (Pennsylvania), John, Andrew and Joseph Ellicott not only constructed a successful milling center, but also laid the foundations for a major agricultural and economical change for the Baltimore region. In 1772, their "Ellicott Mill" was completed and the industrious trio of brothers began persuading nearby farmers to plant wheat instead of tobacco. To enhance wheat production, the Ellicotts introduced fertilizer to revitalize the depleted soil and Maryland's agricultural practices were soon completely transformed (Howard 2007). No longer would Baltimore be a small village in the midst of a picturesque wilderness. The completion of the flourmill, advancements and changes in agricultural methods, and the use of the area's cascading waters marked the beginning of the industrialization of the city. The use of the land's unique topography helped generate the production of literally hundreds of milled and manufactured goods.

A second major industrialization invention, the railroad, further strengthened Baltimore City and the Patapsco River port. Many historians consider Baltimore a true American "City of Firsts," and perhaps most distinguished on the list of early accomplishments is the development of the Baltimore and Ohio (B&O) railroad. The B&O is recognized as being the first permanent rail system in the United States.

The following list of “firsts” is a testament to how rapidly Baltimore grew as an industrial city: first dredger in the world (1783), first sugar refinery in the U.S. (1796), first electric refrigerator (1803), first manufacturers of silverware in the U.S. (1815), first American umbrella factory (1828), first railroad for commercial transportation of passengers and freight (1828), first coal burning steam locomotive (1830), first steamboat company (1840), first commercial stomach antacid seltzer (1891)—these are just a few from a list of many (Baltimore City 2007). The complete list truly demonstrates just how the city grew to be one of the greatest manufacturing centers in the United States.

However, as with many of the American rustbelt cities, the industrial greatness of Baltimore began a downhill slide in the middle of the twentieth century. Economic changes, mainly influenced by globalization of labor and racial/class motivated population shifts (Lazare 1991; Fisher 2007), have marked a fifty-plus year history of Baltimore’s downfall. In 1950 the population of Baltimore City was 949,708— over one half of Maryland’s entire population (Planning 2000). The 2005 census estimates show Baltimore City having a total population of just 635,815, only a little over 10 percent of Maryland’s 2005 population estimate of 5,600,388 (U.S. Census Bureau 2005). One of the only glimmers of Baltimore’s past industrial greatness is the Baltimore Port; still economically vibrant, the port remains one of the Eastern seaboard’s top shipping and docking facilities. Today, the Baltimore harbor facilities rank first nationally for roll-on/roll-off cargo and the port is the second busiest in the nation for automobile importing and exporting (Scher and Barber 2006).

However, even with the impressive port rankings, the legendary industrial and manufacturing sectors have, for the most part, vacated the shores of the mouth of the

Patapsco River. For example, General Motors capitalized on Baltimore's geography and labor force and built a large automobile manufacturing facility in 1934. As the automaker increased production throughout the twentieth century the Baltimore plant grew to encompass 160 acres. At the peak of the facility's production in 1979, the plant employed approximately 7000 workers (Zembala 1995). With increased overseas competition, aging facilities, and decreased auto sales, GM completely closed the plant in 2005 and the majority of the buildings in the complex were razed in the summer of 2006 (Mirabella 2006).

The history of Baltimore's Bethlehem Steel Corporation represents an even more dramatic example of the de-industrialization of the harbor city. The steel company was situated on a massive 2500-acre harbor headland known as Sparrows Point. By the late 1950s Bethlehem's Baltimore plant was the second largest steel mill in the county and employed 35,000 workers. Throughout the United States, cities like Pittsburg, Youngstown, Philadelphia, and Allentown have seen steel mills close. Following the national trend, Bethlehem Steel filed for bankruptcy in 2001 and the Baltimore plant closed. Today, Sparrow's point is nearly vacant and represents another of our nation's massive brownfield sites (Moore 2004). Figure 2 (below) captures not only the immense size of Bethlehem's ship building yards, but also the vast industrial landscape of Baltimore.



Figure 2. The enormity of Bethlehem Steel and Baltimore's industrial landscape (with permission from the BMI 2006).

At one time industrial workers comprised over 20 percent of Baltimore's workforce. By the early 1990s that number was less than 10 percent (Zembala 1995). The 2005 American Community Survey prepared by the U.S Census reports such workers to be less than 8 percent of the city's population (U.S. Census Bureau 2005). The dramatic shrinking of Baltimore's industrial workforce is a reflection of the city's idle and abandoned industrial land. Because of varying perceptions and definitions of a

brownfield site it has been difficult for city officials to exactly quantify the problem. Some experts estimate that the city is burdened with over 1000 vacant or underutilized industrial sites, and nearly half of those are larger than an acre in size (Litt and Burke 2002).

On a brighter note, even with staggering economic declines and decades of social strife, Baltimore has been re-emerging as a vibrant, diverse, and charismatic city (Vey 2007). The city has done extensive work on the inner harbor, which is considered a major tourism highlight of the Eastern Seaboard. But what has happened to the millions of square feet of abandoned, blighted, and potentially contaminated industrial real estate left behind after the manufacturing sector left the city? Countless vantage points throughout the Baltimore display a seemingly endless array of Victorian-era brick factories and warehouses. The following two sections of this chapter will examine how two of the abandoned properties were transformed from industrial blight to showcase mixed-use properties.

Montgomery Park

Interstate 95 runs diagonally northeast through America's "megapolis," the densely populated eastern seaboard expanse of seemingly continual cities and suburbs stretching from Washington D.C. to Baltimore, Philadelphia, New York City and Boston. On the southwest edge of Baltimore's urban core, I-95 motorists cannot miss seeing Montgomery Park—a massive concrete art-deco structure, painted bright white.

The former Montgomery Wards building was constructed in 1925 to be the catalog retailer's behemoth east coast distribution center, warehouse, and regional retail store. The eight-storey structure was built of poured concrete and boasted well over one-

million square feet of usable space; making it the largest building in the state of Maryland (Delpizo 2006). After more than a century of internationally successful mail order and large-scale storefront sales, Montgomery Wards' profits declined sharply as America's buying habits turned to shopping at mega-malls and away from catalog retailers. By the mid-1980s, the retail giant had shrunk to only a handful of sparsely stocked stores. In 1989 Montgomery Wards filed for bankruptcy and ultimately closed its doors. The downfall of Montgomery Wards left the prominent Baltimore retail and distribution facility a vacant eyesore on the western edge of the city. The idle building typified Baltimore's exorbitantly high commercial and industrial vacancies of the early and mid 1990s. To make matters worse, the building's adjacency to the mid-Atlantic super-highway, Interstate 95, served as a constant reminder to travelers of the urban blight, unemployment, and overall economic instability evermore haunting the former industrial power of Baltimore City.

The Role of the Baltimore Development Corporation

In 1993, the BDC was established as a private organization dedicated to the recruitment of new, and the preservation of current, businesses in Baltimore. The BDC receives approximately 80 percent of its funding from its one client, the City of Baltimore, making the group a quasi-governmental organization which is assigned the primary task of promoting and motivating businesses to take advantage of the financial opportunities present within Baltimore's city limits. New and maintained business growth means, of course, continuous and healthy tax income for the city's governmental coffers (Brodie 2006).

A major early goal of BDC was the reuse of the gigantic vacant Wards building situated only blocks from downtown. The group knew that the building could be a huge

source of income for the city if put to good use; but a fitting adaptation for such a monstrous and archaic building would be a sizable challenge. The structure was within a crumbling neighborhood in a sector of the city burdened with high poverty and troubling crime rates. The acreage and empty buildings had become an overwhelming tarnish in an already suffering urban zone. Adding to its perils, the building was fraught with lead paint, asbestos and leaking storage tanks. Cleaning facilities were tainted with chemical spills and an abandoned motor pool was saturated with petroleum (Metz 2001b). The BDC knew it had to find and entice a creative developer willing to take on such a high-risk site (Brodie 2006). Along with finding a developer, the BDC knew it would have to help lure tenants to the crime and poverty stigmatized neighborhood in which the Wards building was located.

The Maryland Department of the Environment and a Redevelopment Initiative

The Maryland Department of the Environment is the state government agency dedicated to the oversight and management of the preservation of quality air, water, and soils within the state of Maryland. The agency is charged with the administration and regulation of such things as incinerators, chemical plants, and the cleanup of any potentially toxic substances.

MDE's mission is to protect and restore the quality of Maryland's air, land, and water resources. The agency does this while fostering economic development, healthy and safe communities, and quality environmental education for the benefit of the environment, public health, and future generations (MDE 2006a, 1).

Given Maryland's dense population and strong industrial and agricultural heritage, such a mission is a monumental task, especially given the fact that Maryland is situated around the Chesapeake Bay, a delicate environmental treasure and world's largest marine estuary. This charter has caused the agency to grow tremendously

throughout its fifty-year history. As outlined in Chapter III, in 1997 the Maryland State Legislature enacted legislation that called for the creation of a department within MDE to monitor and oversee the voluntary cleanup of brownfield sites. With the addition of the new brownfields group, the agency became the workplace of nearly nine hundred Marylanders.

In the late 1990s, MDE primarily occupied a facility just outside of Baltimore's city limits and several small specialized buildings throughout the state. Expanding oversight duties and increasing technology in the workplace created a need for either a major renovation of their headquarters or a move to a new facility. Simply put, MDE had outgrown its facilities and the state budget would have to contend with the massive expenditure of updating or relocating the home of one of the state's largest agencies. A review of documents obtained from the Secretary of the Environment's office indicated that moving, rather than updating, the headquarters would be tremendously expensive, but necessary, due to space and technology limitations and due to the fact that MDE's rent for their existing facility had increased at a rate of 35 percent from FY1999 to FY 2002 (Nishida 2002).

With the need for a move clear, MDE released a Request For Proposal (RFP) in 1999 to the general public indicating the search for a new building. Parts of the document presumably read like many other such requests: MDE was seeking to combine two field offices with current headquarters and would therefore need nearly 235,000 square feet of office space, 23,000 square feet of heated warehouse/storage space, daycare facilities, a lunch room, and ample free parking for employees and visitors. Any new building up for consideration would also need to meet a list of technology

requirements in order to accommodate the hundreds of computers and the lab equipment necessary for daily MDE operations.

For the most part, this initial grocery list of requirements was spelled out like almost any request for a new building. However, several points in the MDE request were unique to its situation. Contained within the RFP was a great example of the MDE's commitment to environmentally conscious development. The document specifically stated that preference would be given to a "green" facility: "Preference will be given for the use of environmentally sound features and materials such as energy efficient lighting and HVAC systems, water conservation fixtures, use of recycled materials, and any other pollution prevention or conservation features (MDE 1999, 2)." The document continued with a statement indicating that the relocation criteria must be based on the "Governor's Smart Growth Executive Order," signifying that interested parties must refer both to the RFP and Governor Glendenning's Smart Growth criteria in order to fully meet the site requirements of the RFP.

The Governor's Smart Growth Executive Order outlined a list of both "required" and "priority" criteria. For example, the verbiage under "requirements" of the executive order include phrases such as "revitalizing existing communities, improving the environment, and utilizing targeted State/Federal/Local capital funding," and "location should preserve open space, farmland, natural beauty, critical environmental areas, and reduce sprawl." It should also be noted that the RFP indicated that the search area lay within the "Baltimore Beltway," an interstate highway pattern encircling the city limits of Baltimore (MDE 1999).

The specific criteria set forth in the RFP made it possible for only four area properties to make the short list for consideration. However, the review of various letters and departmental memoranda made it clear that the Governor's Office and the Department of Environment had their attention focused on the massive, vacant Montgomery Wards—a building ideally located only blocks from downtown and just off of Interstate 95.

Simultaneous Efforts Lead to a Successful Project

Identifying one specific event that spurred the successful redevelopment of this particular brownfield is difficult to pinpoint. Did the BDC set the Montgomery Park reuse project in motion by aggressively looking for a developer to negotiate with Wards officials in Chicago? Or, did the MDE see an opportunity to perpetuate smart growth initiatives and environmentally conscious development by reusing the former Wards site? It seems that both had to take place practically simultaneously in order to transform the site into the development success story enjoyed today by thousands of Marylanders.

In an interview with M.J. "Jay" Brodie of the BDC, it was pointed out that city transportation officials were eyeing the Montgomery Ward site for parking and maintenance of the city's public transportation fleet. The main structure would have to be demolished and about fifty city employees would work at the facility. Mr. Brodie saw much greater potential for the Wards building and solicited several local developers to approach the ailing Montgomery Wards Corporation about selling their Baltimore real estate. After several developers failed to come to terms with Wards, Samuel Himmelrich, proprietor of Himmelrich and Associates, successfully negotiated a purchase of the site (Brodie 2006).

However, the size and condition of the building made conventional commercial financing too risky for traditional loan sources. The redevelopment and financing challenges were further complicated by the fact that the building contained a litany of environmental and health hazards. The site would have to undergo extensive environmental assessment and cleanup to limit liability concerns and therefore qualify for any financing from banks and lenders. One of the few motivating factors was the site's location—close to downtown Baltimore and Interstate 95. Yet, another plus on the side of the Wards building was the fact that the site also qualified for Maryland's extremely favorable Historic Preservation Tax Credits and was situated within a Federal Empowerment Community and a State Enterprise Zone—two more lucrative tax incentives.

Still, however, the size, age, and contamination affecting the site practically made any groundbreaking reuse project financially out of reach. Well aware of these hurdles, the City of Baltimore and its teammate, the BDC, worked with the USEPA to secure a \$1 million grant for initial site assessment and preliminary cleanup. Along with the grant, the city secured an \$8 million Housing and Urban Development (HUD) loan to be used as substantial seed money for the project. Processing, administration, and servicing of the loan would be handled by BDC. (Details on the \$1 million grant and the \$8 million HUD loan are described in the following section.)

For initial construction and renovations to get underway, another \$27 million would be needed. Himmelrich found financing at lending giant Citibank, but bank underwriters would only grant the loan contingent upon the signing of at least one major new building tenant. Herein, the circle becomes complete and in September of 2000,

Governor Parris Glendening announced the State had reached an agreement on a ten-year lease and would move the MDE headquarters to the Montgomery Park Business Center — the site of the former Montgomery Wards building in Southwest Baltimore (Office of the Governor 2000).

This announcement signified more than the relocation of a government agency — the MDE move was a culmination of private development, a quasi-government corporation, municipal government, state agencies, gubernatorial initiative, tax incentives, and federal grants and loans. These groups and initiatives all worked together to turn an abandoned eyesore into a successful commercial site and home to literally thousands of Baltimore employees. Along with providing an economic boon for the city of Baltimore, the Montgomery Ward Business Park exemplifies modern environmentally “green” building practices. A letter from the governor’s office to a Maryland House Delegate touches on a few of the environmental amenities of the reused structure.

Specifically, Montgomery Park perfectly fit the Governor's Smart Growth Initiative and Neighborhood Conservation Policy as it is in an Enterprise Zone, Empowerment Zone and is a Brownfields development site. The green building attributes include 75% waste minimization during the deconstruction/construction phase, 50% savings in energy cost, 33% savings in lighting cost (day lighting sensors, low mercury fluorescent bulbs), 50% reduction in storm-water runoff, low water/rainwater bathroom fixtures, a green vegetative roof, zero/low VOC sealants, and workstations containing mostly recycled and sustainable materials and 100% recycled carpet (Nishida 2002, 1).

Today, the Montgomery Wards Warehouse and Retail store is still owned by the development firm, Himmelrich and Associates, who has named the building complex “Montgomery Park.” The adaptive reuse of the 1925 structure is approximately 75 percent leased with tenants including MDE, state lottery offices, a major bank processing center, a health club, insurance services, a collection agency, a food court, and an interior

architecture firm (Delpizo 2006). The following paragraph, taken from the Montgomery Park internet site, succinctly describes the state of the building today:

The landmark Montgomery Ward Catalog House is becoming a place where entrepreneurs celebrate healthy commerce, businesses thrive in flexible space and the spirit of productivity abounds. Conjured from a former industrial shell, Montgomery Park is a powerful model for innovative development. It unveils the hidden potential of an historic landmark, embodies a vision for ecologically minded revitalization, supports a vibrant urban core and is a crucible for economic growth (MontgomeryPark 2006, 1).

Figure 3 shows Montgomery Park as it exists after millions of dollars of remediation and updating. Details about the multiple local, state, and federal roles in the rehabilitation of the site are described in the following sub-section.

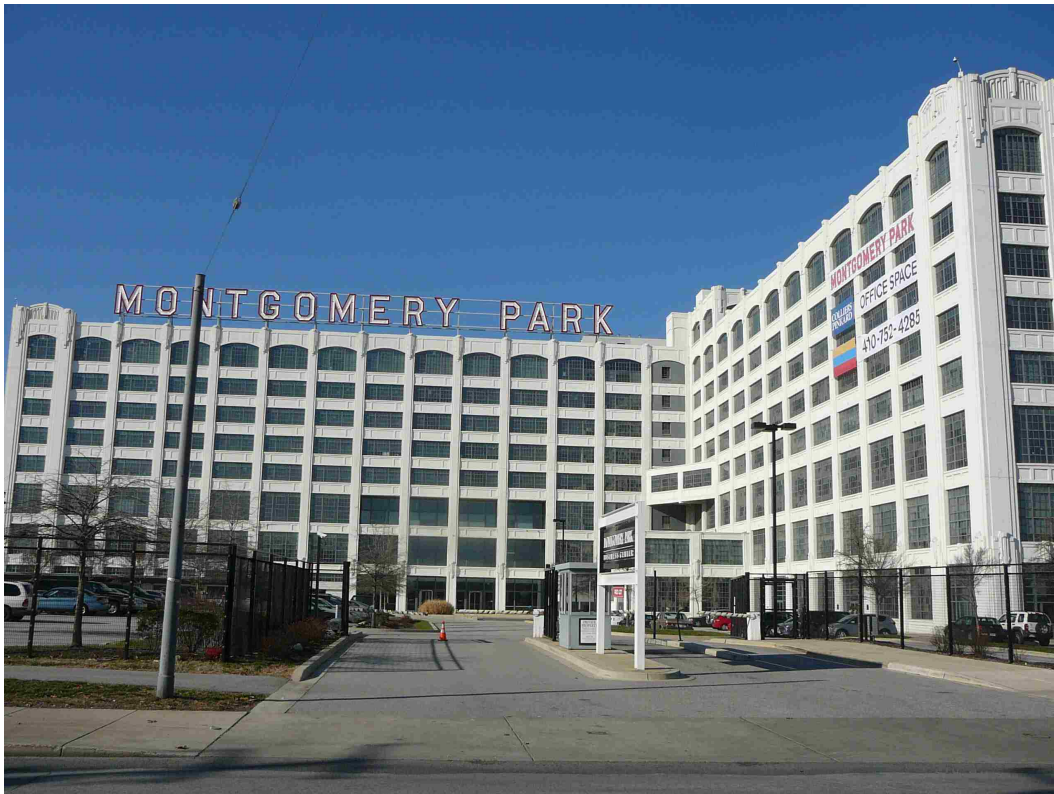


Figure 3. Montgomery Park as a modern office building (photo by author).

The Third Factor: Federal Public Subsidy

It is recognized that brownfield sites are often not on a level playing field when compared to undeveloped land (greenfields) (Siegal and Meyer 2007). In the case of Montgomery Park, Himmelrich and Associates were confronted with the removal of underground storage tanks, soil remediation, and elimination of millions of square feet of chipped and peeling lead-based paint. It was estimated that the steep upfront site cleanup costs and the desired use of environmentally conscious building systems left Montgomery Park with a financing gap of \$8 million (Paull 2007).

In addition to environmental cleanup and green building design costs, Montgomery Park was located in an underutilized industrial neighborhood. Many of the surrounding land parcels were vacant and nearby residential neighborhoods were areas of significant blight, vacant buildings, low property values, and real and/or perceived high rates of crime. The project, as is typical in many brownfield sites, presented costs and hurdles not generally encountered on undeveloped, greenfield, sites.

Recognizing the additional challenges and the \$8 million financing disparity the BDC sought to aggregate a multitude of public subsidies. At the top of the list was Baltimore City's creative use of HUD section 108 funds. Housing and Urban Development section 108 funds are loans made available to localities for the purpose of community development. The economic stimulus tool was developed in the early 1990s and, throughout the decade, over \$4 billion in community development investments was supported with Section 108 funding (Walker et al. 2002). Municipalities are able to borrow up to five times their annual entitlement to Community Development Block Grant (CDBG) funds. However, the major caveat to using HUD 108 loan funds is that the city's future CDBG funding is used as collateral (Walker et al. 2002). City Housing

Officials were reluctant to place federal grant dollars in jeopardy and concerns over the stability of the Montgomery Park project generated months of negotiations, but an extremely creative solution made the loan possible (Paull 2007). The following list paraphrases the creative “deal” struck between BDC and city officials to mitigate the risk of losing valuable CDBG funding if Montgomery Park went into default on the HUD section 108 loan:

- First, the \$1 million HUD grant awarded to the project (see below) was retained in an interest reserve account
- A second lien for the amount of the HUD 108 loan was placed on the property. The security for the lien was equity based on a “subject to completion” appraised value. (Once completed it was estimated that the property would be worth several times the initial purchase price.)
- The developer committed to a \$2 million personal guaranty
- A \$6 million debt service reserve account was established. The account was funded from net income after payments were made to the first mortgage, HUD 108 debt service, and 3% return to tax credit investors. Distributions to the developer for return on investment (up to 25% of true equity) occur only after the debt service reserve account reaches \$6 million
- City Economic Development Loan funds were pledged as a final backdrop of security (Paull 2007)

The \$1 million funding from HUD came from a Brownfields and Economic Development Initiative (BEDI) grant. Brownfields and Economic Development Initiative grants piggyback on HUD 108 loans to help provide stimulus for brownfields reuse projects that have a focus on establishing economic opportunities to low- and moderate-income persons. As was done with Montgomery Park, BEDI funds are usually used to enhance the security or to improve the viability of a project financed with a HUD section 108 loan (HUD 2006).

The financing structure behind the redevelopment of Montgomery Wards involved many levels of governmental and private sector cooperation. Fortunately, Maryland’s smart growth incentives also contained favorable tax credits that, presumably, made the complicated project well worth the developer’s efforts.

The State Subsidies: Tax Credits and Brownfields Incentives

The timing of the redevelopment of Montgomery Park made it possible for the developer to capitalize on the most lucrative historic tax credit structure ever offered by the state of Maryland. In 1999, as part of the Governor’s push for smart growth, the state legislature approved a generous amendment to the state’s historic tax credit. The amendment, which stayed on the books for only two years, provided developers with a 25 percent, uncapped, refundable credit for rehabilitation costs. For Montgomery Park this amounted to \$16.2 million dollars (Sams 2007a).

The last innovative smart growth concept program Montgomery Park participated in was Maryland’s BRIP. The Brownfields Revitalization Incentive Program, administered by the Maryland Department of Business and Economic Development, granted a \$2 million dollar below market rate loan to the project. Table 1 outlines all of the public financial incentives utilized by the developer on Montgomery Park:

Table 1. Layers of public financing and tax incentives for Montgomery Park.

Type of Incentive/Public Subsidy	Amount
<i>Maryland Historic Tax Credits</i>	<i>\$16.2 (used as security for BRIP loan)</i>
<i>Maryland BRIP Loan</i>	<i>\$2 million (below market rate)</i>
<i>Maryland Brownfields Tax Credits</i>	<i>Converted to \$16 million in equity</i>
<i>Federal HUD Section 108 Loan</i>	<i>\$8 million</i>
<i>Maryland BEDI Grant</i>	<i>\$1 million</i>
<i>Federal Empowerment Zone Loan</i>	<i>\$4.5 million</i>
<i>Private Lender Financing</i>	<i>\$27 million</i>

The multiple layers of financing required for the reclamation of Montgomery Park demonstrate how intricate and complicated it can be to finance relatively large-scale brownfield sites. The project capitalized on nearly \$32 million in state and federal loan and subsidy programs. In addition, the project required a great deal of time and effort from BDC and Baltimore City staff, and it is difficult, if not impossible, to place a dollar-value on their essential role. At the time of its completion, the project represented the largest combination of public agency efforts Maryland has ever seen in re-using a brownfield (Brodie 2006). Chapter V of this thesis helps begin to quantify whether or not the multi-tiered efforts behind Montgomery Park are paying off with a positive impact on the surrounding neighborhood and the city's tax base. Preceding the quantitative analysis, the following section takes an in-depth look at the second case study site for this thesis, Tide Point.

Tide Point

Baltimore's Industrial Harbor: the Proctor and Gamble Site

Geographically and historically significant to Baltimore, Fells Point and Locust Point jut from opposite sides into the wide, navigable Patapsco River to create one of the most vibrant and recognizable attractions to Baltimore—the city's Inner Harbor. The Inner Harbor is a true urban redevelopment success story that began in the mid 1970s when city officials successfully transformed a waterfront of decaying docks and warehouses to high-end hotels, shops, city aquarium, science center, and several historical attractions. Too small and shallow for modern shipping needs, the uppermost reaches of Baltimore's Harbor became virtually abandoned early in the twentieth century

when deeper draft and larger docking facilities were established further down the Patapsco.

Today, the industrial buildup Baltimore's Harbor starts several miles away from downtown at the mouth of the Patapsco River where it merges with the Chesapeake Bay. Industrial facilities run essentially unbroken until the waterfront pinnacle at Locust Point. With very little exception, every inch of the main "Middle Branch" of the Patapsco River shoreline has been built up with industrial sites, commercial buildings, docks, and machinery.

Directly across from Baltimore's historic Fells Point, on the largest and most formidable jetty of Locust Point, is the regional headquarters and iconic Baltimore landmark, Domino Sugars. From wherever the skyline of downtown is visible, so too is the regionally famous Domino Sugar sign. The lighted billboard is a massive testament to Baltimore's legacy of industry and acts as beacon delineating the stylish redeveloped Inner Harbor from the still industrialized main Baltimore Harbor. The sign itself is the size of a football field (literally) and requires a full time electrician to maintain (Zembala 1995). Looking from the Inner Harbor beyond Domino Sugars a Baltimore visitor can see huge storage tanks, freight ships, and massive cranes.

The first set of buildings in the shadow of Domino Sugar's sign is a grouping of six brick structures—the former soap production facilities of Proctor and Gamble. The Proctor and Gamble plant, constructed in 1929, originally consisted of fifteen buildings on a seven and one half acre site. By the early 1980s, Proctor and Gamble's Baltimore operations had added another seventeen acres of land and erected twelve additional buildings. The plant's greatest expansions took place in the late 1940s and again in 1967.

By 1979 the Locust Point facility was employing approximately 550 men and woman (McQuaid and Lippman 1995) and paid out over \$70 million to the Baltimore economy in fiscal year 1981. The local plant produced list of familiar brand name soaps— Camay, Ivory, Tide, Cheer, Oxydol, Bold, Gain, Joy, Downy, Cascade and others (White 1981).

As late as 1989 Proctor and Gamble continued to upgrade and renovate the industrial complex, but in 1990 the Baltimore plant reduced its workforce to 300. In 1993 the Proctor and Gamble Corporation announced a \$1.7 billion consolidation of facilities and the closure of thirty plants worldwide. Less than a year later, on January 13, 1994, the closing of the Locust Point plant was announced; by September the doors were closed and the final 215 employees vacated the property. After steadily operating for sixty-five years, the waterfront manufacturing plant became another one of many vacant industrial sites pock-marking Baltimore City (McQuaid and Lippman 1995).

The Transformation

While the history and location of Tide Point is a bit more colorful story than that of Montgomery Park, the site's evolution from vacant brownfield to successful redevelopment is substantially less complicated. The developers, Struever Bros. Eccles and Rouse (Struever Bros.), were able to obtain private financing for both the purchase and remediation costs, avoiding many of the intricate layers of public financing associated with Montgomery Park (Nieman 2006; Paull 2007). However, the savvy development firm did capitalize on millions of dollars worth of tax incentives bundled by Maryland's Smart Growth initiatives and the federal government.

Struever Bros. had already gained experience on the redevelopment of industrial site projects with the completion of the American-Can site in 1997 (Paull 2005). The early brownfields project, located across the Baltimore harbor from Tide Point, was a

former beer-can manufacturing facility turned into a mixed-use office and retail complex. However, the American Can project was completed before the inception of the Maryland Brownfields Tax credit, and the work at Tide Point marked the first project to take advantage of the state's rewarding tax incentive (Paull 2005).

Struever Bros. also saw opportunity in Maryland's extremely favorable historic rehabilitation tax credit. As with Montgomery Park, Struever Bros filed for the tax credit during the relatively short period of time that historic property developers were able to deduct 25 percent of all rehabilitation costs. At Tide Point this translated into \$17.7 million dollars (Sams 2007b). In subsequent years the state legislature reeled in the lucrative incentive to 20 percent and capped the total benefit to \$3 million per project (Preservation 2007). The amount of historically conscious redevelopment work, combined with good timing, helps the Tide Point project stand as the largest historic tax credit benefactor ever in the state of Maryland (Sams 2007b; Trust 2007).

According to the project manager, Struever Bros. had little concern of potential industrial contaminants (Neiman 2006). Environmental consultants had convinced the firm that Proctor and Gamble's periodic upgrades and the modern soap manufacturing procedures left the site relatively free of long-term environmental concerns.

Nevertheless, Struever Bros. elected to pay for not one, but two applications to the Maryland VCP, at a cost of \$6000 each, just for the application. Initially, the developers applied to remediate the buildings for an end use of office space and/or commercial Planned Urban Development. However, after site testing and initial remediation, the developers decided to include a child daycare facility in one of the buildings. This required the Struever Bros withdraw several sections of land from their original VCP

application and prepare a second application to the VCP in which the end use of the property could be for residential and/or daycare, a designation which carries a more stringent cleanup standard.

The developers were fortunate to find very low levels of soil and groundwater contamination on the site. The site assessment report indicated that, “The results from the data provided indicate that there is no potential increased risk from exposure to contaminants in the surface and subsurface soils through incidental ingestion, inhalations of volatiles and fugitive dust or dermal contact (Mank 2001, 7).”

As with Montgomery Park, the ownership and management of the Tide Point buildings has remained with the developer, Struever Bros. The six buildings offer a total of 400,000 leasable square feet, and the office complex contains work space for approximately 1600 people (Neiman 2006). Along with Struever Bros.’ headquarters, Tide Point is home to law offices, architecture firms, and Under Armor, the super-successful, Maryland owned and operated, line of sports apparel. The following descriptions of the current facilities at Tide Point capture the high level of innovation employed by Struever Bros when transforming the soap factory, and why so many high profile businesses call the former Proctor and Gamble plant home.

Tide Point offers amenities designed to encourage interaction among like-minded companies and to provide an opportunity to work and play in one of the most spectacular settings on Baltimore’s waterfront. Amenities include:

- **Tide Point Day Care Center** –A contemporary, 22,000 square foot daycare center for children six weeks to five years of age. The state-of-the-art center is operated by the Board of Child Care.
- **Tide Point Athletic Club** – A fully-appointed corporate fitness center operated by Merritt Athletic Clubs, Tide Point’s athletic club offers circuit weight training, an aerobic studio, wellness assessments and programs, and massage therapy in the Tide Building.

- **Harvest Table** – Harvest Table provides light fare breakfast, lunch, dinner and catering services in an architecturally distinct building that provides free WI-Fi access to meet the challenges of doing business in today’s digital age.
- **Tide Point Waterfront Park** - Baltimore’s public promenade has extended to Tide Point, giving people another exciting location to enjoy harbor views.
- **Water Taxi Transportation** – With regular stops at Tide Point, two water taxi operators command a fleet of US Coast Guard certified passenger boats serving Baltimore’s beautiful Inner Harbor.
- **“Chill Out” Room** – This ground floor location in the Tide Building is a place for employees and members of the athletic club to relax. With an outdoor patio and views of the harbor, the space boasts comfortable furniture and large screen TV.
- **Canton Kayak Club** - With dockage at Tide Point for paddle sports enthusiasts, the club provides a common ground for sharing information, ideas, good judgment, and promoting the safe enjoyment of the sport (TidePoint 2005, 1).

These amenities represented a model for high-end brownfields redevelopment projects that have taken place over the past decade (Neiman 2006). With this type of development it is understandable why it might be possible for one brownfield site to engender a ripple effect and positively influence the surrounding neighborhood.

At Tide Point, the developer was able to successfully transform a series of vacant buildings, potentially laced with industrial health hazards into first-rate office space and childcare facility. The success of the project was precipitated by several major provisions of Maryland’s Smart Growth Policies. Specifically, the assurance of liability relief provided through the VCP and attractive historic and brownfields tax credits. In short, Tide Point exemplified the fact that state policies had made top quality urban reuse projects possible, even without the significant public financing and partnerships (as were needed to redevelop Montgomery Park).

Tide Point (Figures 4-6) and Montgomery Park highlight the fact that public policies had been effective in creating a climate ideal for the redevelopment of urban sites previously considered too expensive or risky. But, did the projects have a significant impact on the surrounding neighborhood? In the following chapter this thesis quantifies the influence of both Tide Point and Montgomery Park on the areas immediately surrounding each project.



Figure 4. Rejuvenated Tide Point facing Baltimore's Inner Harbor (photo by author)



Figure 5. Industry still exists right next to Tide Point (photo by author)



Figure 6. Daycare facilities at Tide Point (photo by author)

V. QUANTITATIVE ANALYSIS

What has happened to the neighborhoods surrounding the two sites? Baltimore is a city of neighborhoods. The city limits are broken into roughly 275 distinct neighborhoods, each with its own character, identity, neighborhood association, etc. (LiveBaltimore 2007). This chapter looks at the tax assessment values, sales records, and permit data for the two neighborhoods in which the case study sites are located: Montgomery Park in the Carroll-Camden neighborhood and Tide Point in the Locust Point neighborhood.

Current Full Cash Value FY1995, FY2001, FY 2007

As shown in the following table (Table 2), the 2007 the tax assessed value or CFCV for the main parcel of land identified with Montgomery Park (Lot 001A; Block 0731) increased significantly in FY2007.

Table 2. Current Full Cash Value for main tax parcel of Montgomery Park

Montgomery Park (Lot 001A; Block 0731)			
Year	Land	Improvement	Total CFCV
1995	\$1,137,710	\$3,143,760	\$4,218,470
2001	\$1,137,000	\$2,381,100	\$3,518,100
2007	\$1,624,300	\$44,259,500	\$45,833,800

In 2007 the CFCV for the 16.24 acre parcel totaled \$45,833,800 (land value of \$1,624,300 and improvements of \$44,259,500). In the dataset for 2001, the full transfer of the property to Himmelrich and Associates had not yet taken place and the certificates of occupancy had not yet been granted when the tax assessment appraisal was completed. That same parcel, just six years earlier (2001) was assessed with a total CFCV of \$3,518,100 (land value of \$1,137,000 and improvements value of \$2,381,100). In 1995,

when the owner of record for the same parcel was “998 Monroe Corporation” and the property was vacant, the total CFCV was \$4,218,470 (land value of \$1,137,710 and improvements value of \$3,143,760). Over the six year period of vacancy from 1995 to 2001—two tax assessment cycles—the value of the vacated Montgomery Wards building dropped 16.6 percent. In the next six year period the value of the parcel increased by over 1302 percent!

The findings for the entire neighborhood (Figure 8, page 65) mirror the sixteen acre Montgomery Wards parcel. In 1995 the total CFCV for the Carroll-Camden Industrial neighborhood was \$139,690,740 for 196 taxed parcels (mean value of \$712,707). In 2001 the total CFCV dropped 4.6 percent to \$133,244,530 for 202 taxed parcels (mean value of \$659,626). However, after the completed remediation and reuse of the Montgomery Wards building, the CFCV increased 64.5 percent to \$206,512,400 for 202 tax parcels (mean value of 1,022,338). Obviously the Montgomery Park parcel significantly contributed to the increase, but even after subtracting out Montgomery Park’s assessed value, the neighborhood garnered a significant value increase. From 1995 to 2001, the total value of the neighborhood waned substantially, but after Montgomery Park was completed and occupied, the entire neighborhood had a net (without Montgomery Park) increase in assessed value of \$18,434,070, or 13.8 percent.

According to tax records, the main parcel of land encompassing the former Proctor and Gamble Soap manufacturing facilities was just less than 10 acres (9.476). Similar to the Montgomery Ward site, the Tide Point tax parcel soared precipitously after the redevelopment was complete (Table 3).

Table 3. Tax assessed value of tax parcel occupied by Tide Point

Tide Point (Lot 001; Block 1976)			
Year	Land	Improvement	Total CFCV
2007	9,746,000	40,404,900	50,150,900
2001	2,436,500	1,418,300	3,854,800
1995	3,396,290	2,919,050	6,315,340

In 1995, the site was still being taxed as an industrial/manufacturing facility and the total CFCV was relatively high at \$6,315,340 (\$3,396,290 land value and \$2,929,050 improvement value). As noted in previous sections, Proctor and Gamble actually closed the plant in 1994, but presumably, the tax appraisal was still valuing the site as an industrial facility—a property type that earns a sizeable tax value. Proctor and Gamble was still showing as the owner 1995 even though, during that same year an alcohol distilling company was in the process of purchasing the facilities with the intention of maintaining the site as an industrial production plant (Murray 1998). The distillery idea was evidently short-lived and the site actually significantly decreased in value over the next six years. By 2001 Struever Bros. had done significant work on the site and obtained a letter of No Further Action from the state environmental agency. However, the building was not yet occupied by tenants, and no longer classified as an “industrial site.” Therefore, in the 2001 assessment the CFCV was valued 6.2 percent less at \$14,809,700 (land \$9,742,200 and improvements of \$5,067,500). In 2007, when work was finished and the buildings were fully leased, the total CFCV of the Tide Point parcel more than tripled to \$50,150,900 (\$9,746,000 land and \$40,404,900 in improvements).

The significance of the Tide Point project becomes even more apparent when analyzing the CFCV valuation of the entire Locust Point neighborhood. In 1995, a relative highpoint for the site’s value, the total CFCV for Locust Point was \$317,690,380 (mean value of \$277,701). In 2001, the Locust Point neighborhood was suffering from

the impacts of the plant closings and the Struever Bros. project was not yet occupied, consequently the total CFCV valuation dropped nearly 30 percent to \$223,173,840 (mean value of \$189,130). However, in the six years between 2001 and 2007 the Proctor and Gamble factory buildings were transformed into “Tide Point” and the complex reached full occupancy (Neiman 2006); thus by 2007 the CFCV more than doubled (52 percent) over 2001 to \$460,866,670 (mean value of \$358,372). The 2007 CFCV numbers were 31 percent higher than the 1995 total neighborhood CFCV for 1995. Apparently, even without the city coffer enjoying the high tax rates of a productive manufacturing plant, Tide Point was contributing to an overall boost in neighborhood tax values.

The property CFCV valuations (Figure 7) show that the reuse of both sites provided a significant windfall to Baltimore’s tax rolls. Even though productive industrial facilities do carry a high value— sometimes substantially greater than office complexes or mixed-use properties— it is unlikely that the sites would have been reused as manufacturing facilities (Brodie 2006). Figure 8 shows the aggregate tax value of both neighborhoods decreased in 2001, but had notable increases in 2007. Most notably, the Locust Point tax value increased more than enough to make up for the loss of the local industry.

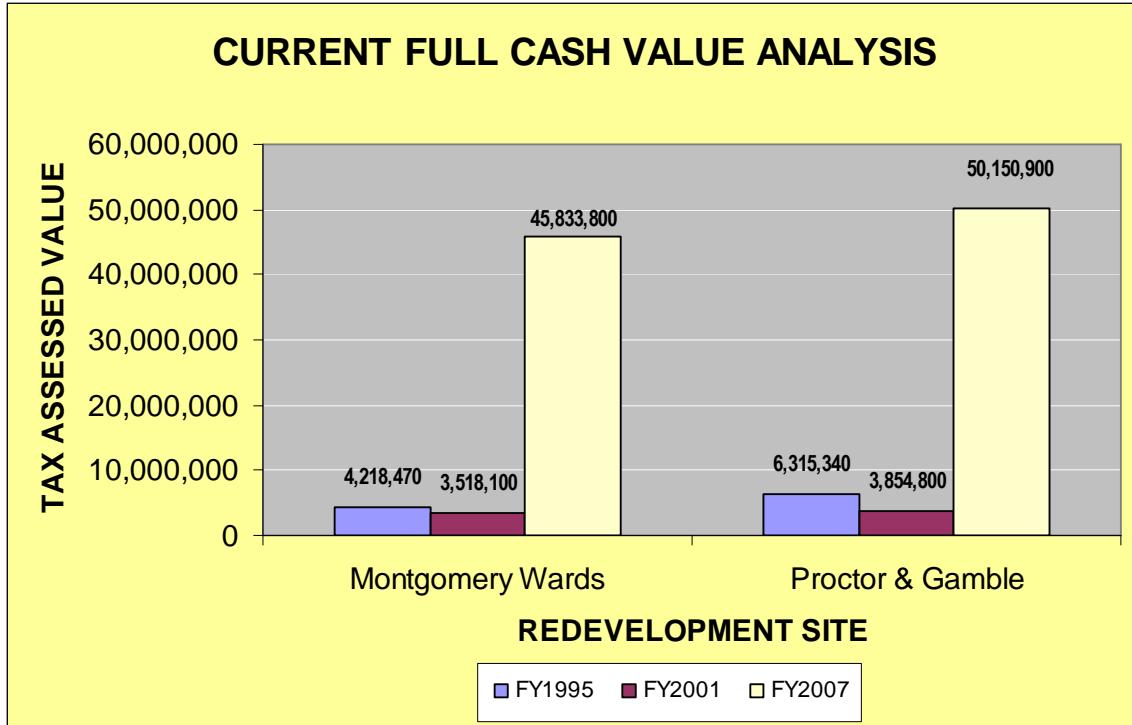


Figure 7. Tax assessed value of each case study site.

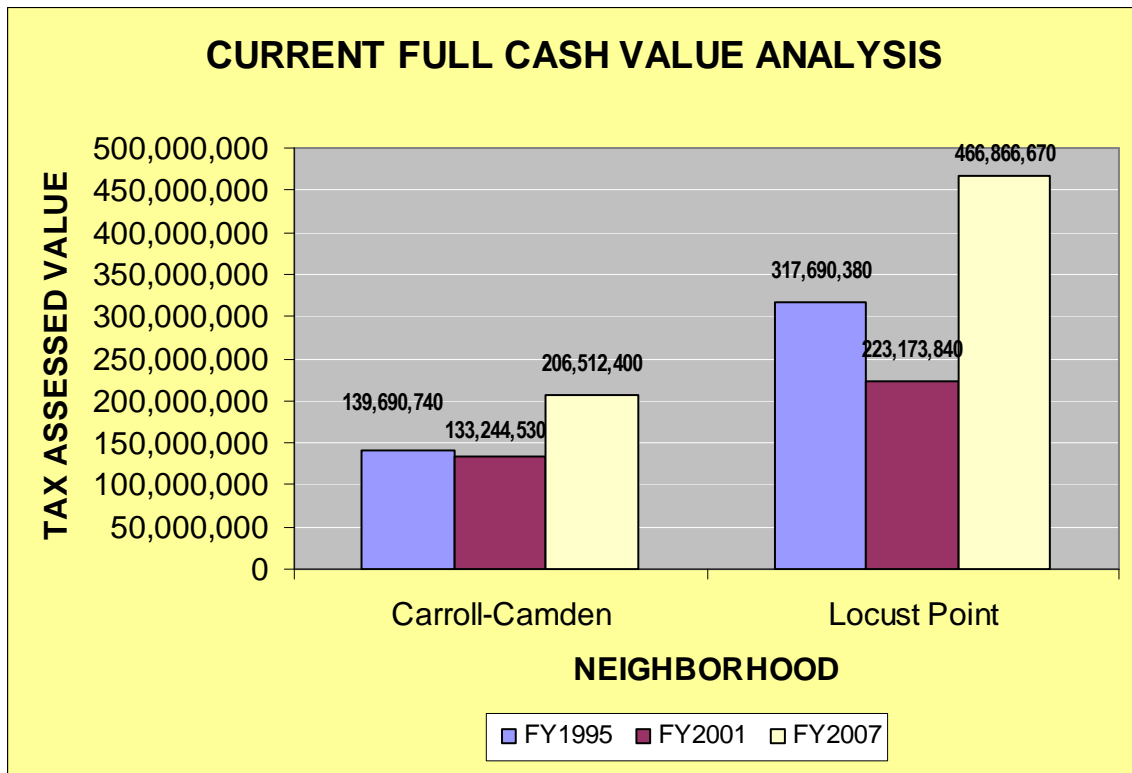


Figure 8. Aggregate tax assessed values for surrounding neighborhoods.

Actual sales data

In 1995 the Carroll-Camden neighborhood had eleven property transfers, two of which were “non-arms-length” transactions with no record of sales price (i.e., not sold on open market; transferred between parties with common interests and little or no cash was exchanged as part of the transaction). The nine arms-length (fair market) transactions totaled \$7,366,740 for an average sales price of \$669,703. In 2001 the primarily industrial neighborhood recorded 28 real estate transfers, of which fourteen were non-arms-length. The total value of arms-length sales was \$8,194,752, which translates into an average sales price of \$682,895. In the final year of data captured, FY2007, the neighborhood witnessed only five transactions, all of which were deemed arms-length. The five records boasted a total volume of \$7,570,000 and an average of \$1,514,000.

In Locust Point, a neighborhood consisting of high-density attached residential, commercial, and heavy and light industrial properties, 1995 records indicate ninety-seven property transfers. Of the ninety-seven transfers, thirty-six were considered non-arms-length transactions. The remaining sixty-one sales had a total sales volume of \$3,585,873 and an average, arms-length sale price, of \$58,785. In 2001, Locust Point real estate activity amassed 182 records of transfer; seventy-nine non-arms-length and 103 arms-length. The total arms-length volume of FY2001 was \$11,410,221 and the sales average was \$111,805. FY 2007, not exactly a banner year for real estate nationwide, the number of sales in Locust Point dropped to eighty-three—all of which were deemed arms-length- transactions. However, those eighty three sales generated \$22,960,762 in volume and an average sales price of \$276,635. Table 4, below, summarizes the sales records for the three years compared.

Table 4. Sales data for the two case study neighborhoods

Sales Records	FY1995			FY2001			FY2007		
	#	Total Volume	Ave. Price	#	Total Volume	Ave. Price	#	Total Volume	Ave. Price
Carroll Camden	9	7,366,740	669,703	14	8,194,752	682,895	5	7,570,000	1,514,000
Locust Point	61	3,585,873	58,785	103	11,410,221	111,805	83	22,960,762	276,635

The following graph, Figure 9, illustrates the change in average sales prices (Table 4) over the reviewed time periods. Even though both areas had fewer sales in FY2007 than previous years compared, both neighborhoods have witnessed significant increases in average sales price.

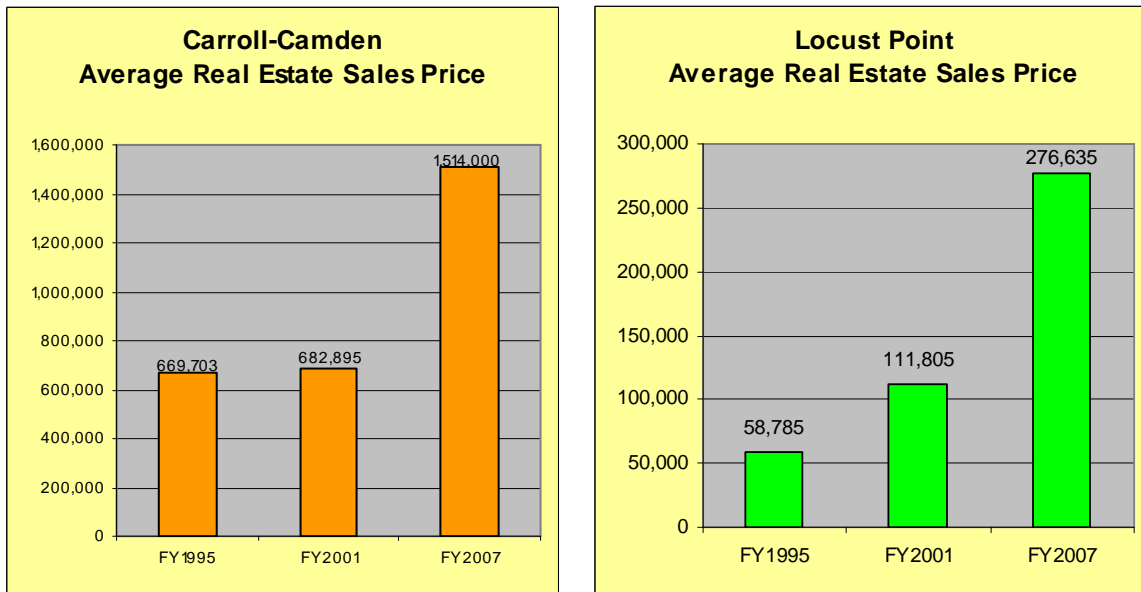


Figure 9. Bar graphs representing the increase in average sales price for each neighborhood

The graph above highlights the significant increases witnessed by the two neighborhoods. Throughout the last decade, homeowners throughout much of the county have seen significant value increases. The national average of homes actually sold in

1995 was \$157,750. The national average sales price increased by 33.8 percent from 1995 to \$211,050 in 2001 and by another 46.1 percent from 2001 to 2007 when the average sold price was \$308,275 (Econmagic 2008).

In Carroll-Camden the percent increase from 1995 to 2001 was only 1.97 percent. However, from 2001 to 2007 the industrial neighborhood outpaced even the large national average increase with a tremendous value rise of 121.7 percent. The percentages for Locust Point demonstrate a much more immediate increase in values. From 1995 to 2001 the neighborhood outpaced the national trend and the average sales price (for both residential and commercial) increased 90.2 percent. From 2001 to 2007 the average sales price for all property types surged by 147.4 percent.

Permit Data

The tax data convincingly argue that Baltimore's appraisers were assigning higher values to both Carroll-Camden and Locust Point neighborhoods and the sales records support neighborhood-wide appreciation. But how much more investment was actually going into the two neighborhoods? After all, many areas of the country have seen property value appreciation simply due to residential inflation. In some cases neighborhood values increase with very little additional investment into the actual properties. In other words, tax and market values may go up but there are actually very few "new" dollars being invested in an area. Analysis of permit data attempts to capture how the general citizens perceive an area: Is the average homeowner or small builder willing to invest real cash into an area in hopes that values will increase?

Permit data are by no means a perfect model of neighborhood investment, but an overview of permitted work done within an area does allude to overall activity.

Obviously, not all property owners will obtain permits for work on their property, but presumably the percentage of “honest,” permit-obtaining owners is relatively consistent from year to year. Therefore, comparing three snapshots in time of permits pull will illuminate tangible investment into a neighborhood.

Table 5. Total permits and total estimated value of improvements.

	1995		2001		2007	
	# Permit Requests	\$ total estimated project costs	# Permit Requests	\$ total estimated project costs	# Permit Requests	\$ total estimated project costs
Locust Point	118	\$695,836	368	\$25,663,597	684	\$76,259,689
Carroll Camden	58	\$247,550	63	\$769,582	65	\$7,511,259

The building permit numbers (Table 5) are very convincing for Tide Point. As Proctor and Gamble was pulling out of Locust Point—a neighborhood with approximately 1250 parcels— only 118 requests for permits were recorded by city officials. However in the months that Struever Bros. was completing Tide Point (FY 2001), the requests more than tripled to 368. The total estimated project costs associated with these permits soared from \$695,836 in 1995 to \$25,663,597 in 2001. In the last dataset, FY 2007, the gains in neighborhood investment was equally impressive. The 684 permits obtained in FY2007 indicated a whopping investment of \$76,259,689 into the Locust Point neighborhood.

The numbers (Table 5) are not as convincing in the Carroll-Camden area, but the permit requests can be looked at as encouraging. Carroll-Camden is only comprised of 195 tax parcels, which makes it difficult to gauge trends of investment. At first glance, the permit requests appear to be low in all three years, but the data show noticeable dollar

value increases. In 1995 permitted work accounted for only \$247,550; but by the time Montgomery Park was finished, contractors were requesting permits valued at over \$7.5 million.

As isolated numbers, the permit data do very little to determine whether or not investment was increasing because of a rejuvenated brownfield site. Therefore, it is import to analyze what the permit activity means in relation to the entire city. The following sections discuss how the use of location quotients puts the above numbers into perspective with all of Baltimore.

Location Quotients

Case Study Neighborhoods

For this analysis the number of permits filed citywide to the number of permits pulled in each neighborhood is compared. As discussed in Chapter III (Methodology), if the LQ was equal to “1.0” the neighborhood would have had the same activity (number of permits pulled per tax parcel) as the entire city; the higher the number above “1.0,” the greater the permit activity for the neighborhood in relation to Baltimore as a whole. The table on the following page (Table 6) outlines the permit data LQ for each neighborhood.

The numbers of permit requests and the location quotients (Table 6) indicate a rise in neighborhood investment/building activity. Both neighborhoods had rates of building permit activity that substantially outpaced the city as a whole. Therefore, even though the tax value of Tide Point decreased drastically after 1995 (Figures 7 and 8) the increase in permit activity (Table 5) and the high location quotients for permits in the surrounding neighborhood (Table 6) suggest that Baltimore was achieving a substantial overall economic gain because of the redevelopment of the site(s).

Table 6. Location quotient information derived from building permit data.

Location Quotient (formula)	=	# Neighborhood Permits	÷	# Citywide Permits
		# Neighborhood Tax Parcels		# Citywide Tax Parcels

Locust Point Permit Data Location Quotient				
1995	=	118 Locust Point Permits	÷	22018 Citywide Permits
LQ 1.02		1227 Locust Point Tax Parcels		233473 Citywide Tax Parcels

2001	=	368 Locust Point Permits	÷	20130 Citywide Permits
LQ 3.45		1266 Locust Point Tax Parcels		233260 Citywide Tax Parcels

2007	=	684 Locust Point Permits	÷	39327 Citywide Permits
LQ 3.33		1227 Locust Point Tax Parcels		235380 Citywide Tax Parcels

Carroll-Camden Permit Data Location Quotient				
1995	=	58 Carroll-Camden Permits	÷	22018 Citywide Permits
LQ 2.83		191 Carroll-Camden Tax Parcels		233473 Citywide Tax Parcels

2001	=	63 Carroll-Camden Permits	÷	20130 Citywide Permits
LQ 3.74		195 Carroll-Camden Tax Parcels		233260 Citywide Tax Parcels

2007	=	65 Carroll-Camden Permits	÷	39327 Citywide Permits
LQ 1.99		195 Carroll-Camden Tax Parcels		235380 Citywide Tax Parcels

Example of Control Neighborhoods: Poppleton and Holabird

In order to establish a mechanism for control, the methodology used to calculate a LQ for case study neighborhoods was applied to two neighborhoods with similar characteristics (number of tax parcels, proximity to central business district (CBD), and proximity to water). However, the control neighborhoods did not have properties that had entered into Maryland’s VCP. Of the 272 recognized Baltimore neighborhoods (a combination of 225 residential and 47 commercial/industrial) 29 contain sites that applied to the VCP.

With 1392 tax parcels, the Poppleton neighborhood is very close in size to Locust Point and a similar distance from the CBD. In 1995 there were 85 permit requests filed

with the city, compared to 118 in Locust Point. In 2001, when Locust Point property owners requested over 400 permits, Poppleton only had 47 requests. In 2007 Poppleton property owners filed for 91 permits; Locust Point witnessed 681 requests, over seven and one half times the number from Poppleton.

Table 7. Location quotients for a single control neighborhood, Poppleton.

Poppleton Permit Data Location Quotient				
1995 LQ 0.82	=	85 Poppleton Permits 1100 Poppleton Tax Parcels	÷	22018 Citywide Permits 233473 Citywide Tax Parcels
2001 LQ 0.40	=	47 Poppleton Permits 1392 Poppleton Tax Parcels	÷	20130 Citywide Permits 233260 Citywide Tax Parcels
2007 LQ 0.43	=	91 Poppleton Permits 1278 Poppleton Tax Parcels	÷	39327 Citywide Permits 235380 Citywide Tax Parcels

Holabird Industrial Park has similar traits as Carroll-Camden (i.e., mix of commercial and industrial properties), and similarly Holabird has a relatively small number of tax parcels with 107 in 1995 (Carroll-Camden had 196 in 1995). As with Carroll-Camden, Holabird is very close to the CBD, and in 1995 (prior to Maryland’s Smart Growth policies) both neighborhoods made permit requests at a similar rate. In 1995, Carroll-Camden made 68 requests for 196 parcels (34.7 percent rate), and Holabird made 51 requests for 107 parcels (47.6 percent rate). It is worth noting, however, that Holabird has the added attractiveness of actually being on the water. Although, with no brownfields reuse projects undertaken in the immediate area, the neighborhood only applied for 31 permits in 2001 and 35 in 2007. Even though the LQs are rather high, unlike Carroll-Camden, Holabird’s permit activity actually declined in 2001 and 2007.

Table 8. Location quotients for a single control neighborhood, Holabird

Holabird Permit Data Location Quotient				
1995	=	51 Holabird Permits	÷	22018 Citywide Permits
LQ 5.05		107 Holabird Tax Parcels		233473 Citywide Tax Parcels
2001	=	31 Holabird Permits	÷	20130 Citywide Permits
LQ 3.36		107 Holabird Tax Parcels		233260 Citywide Tax Parcels
2007	=	35 Holabird Permits	÷	39327 Citywide Permits
LQ 1.96		107 Holabird Tax Parcels		235380 Citywide Tax Parcels

As with Carroll-Camden, the relatively small numbers of parcels may skew the analysis and make the location quotients unconvincing statistics. Therefore, as detailed below, a broader control mechanism was applied.

Citywide Control: All Neighborhoods with Voluntary Cleanup Program Sites Compared to Neighborhoods without brownfields reuse sites

To establish a second, more significant measure of control, location quotients were calculated for all of the neighborhoods that had a property enter Maryland’s VCP from 1996 (program inception) through December of 2006. This control also serves as a means of determining investment activity that might have been influenced by brownfields reuse throughout the entire city. The total number of building permit requests and the location quotients relevant to this data are shown in the following tables.

Table 9. All permit requests for neighborhoods containing a VCP applicant property (1996-2006)

Neighborhood	# Permits 1995	# Permits 2001	# Permits 2007	#Tax Parcels
BALTIMORE HIGHLANDS	65	58	272	1065
BARRE CIRCLE	15	68	9	162
BRIDGEVIEW/GREENLAWN	53	36	38	743
CANTON	409	2263	2602	5949
CANTON INDUSTRIAL	75	71	215	250
CARROLL PARK	10	9	26	7
CHARLES VILLAGE	163	177	361	1648
CARROLL-CAMDEN	58	63	65	195
CURTIS BAY INDUSTRIAL	10	86	9	27
FAIRFIELD AREA	85	78	62	516
FELLS POINT	297	451	479	2196
FRANKFORD	291	349	429	6669
INNER HARBOR	374	505	569	806
JONES FALLS AREA	14	99	33	50
LOCUST POINT INDUST.	118	368	684	1180
MID-TOWN BELVEDERE	124	110	221	1266
OLIVER	163	76	481	2636
ORANGEVILLE INDUST.	21	22	14	62
PANWAY/BRADDISH AVE.	34	17	12	520
PORT COVINGTON	3	4	12	31
PULASKI INDUSTRIAL	93	59	66	313
RIVERSIDE	439	857	1429	2793
SHARP-LEADENHALL	41	51	105	320
SHIPLEY HILL	61	36	107	1291
SPRING GARDEN INDUST.	11	16	47	32
UPPER FELLS POINT	166	539	849	1895
WASHINGTON VILLAGE	276	155	1765	2705
WESTPORT	168	67	129	609
WOODBERRY	116	32	126	548
Totals	3753	6847	11225	36484

1995 LQ 1.09	=	3753 VCP Nghbrhd Permits	÷	22018 Citywide Permits
		36484 Tax Parcels		233473 Citywide Tax Parcels

2001 LQ 2.17	=	6847 VCP Nghbrhd Permits	÷	20130 Citywide Permits
		36484 Tax Parcels		233260 Citywide Tax Parcels

2007 LQ 2.26	=	11225 VCP Nghbrhd Permits	÷	39327 Citywide Permits
		36484 Tax Parcels		235380 Citywide Tax Parcels

Interpretation of Location Quotient (LQ) Data

The researcher speculates that the activity surrounding the major brownfields (re)construction sites was a significant enough factor to inspire homeowners and contractors to invest heavily in the surrounding neighborhoods. Unfortunately, the Carroll-Camden Industrial neighborhood has a relatively small number of residential tax parcels which makes analysis difficult. The data show that the Carroll-Camden area had permit requests being applied for at a rate far greater than that of the entire city, but so did the control neighborhood, Holabird. Nevertheless, permits filed in the Carroll-Camden neighborhood did increase in each time-period. Additionally, the rate at which Carroll-Camden permit activity was taking place was similar to all of the neighborhoods in the larger “all VCP neighborhood” control group in 2007. This suggests that the neighborhood was settling into an investment pattern on par with other VCP neighborhoods and outpacing the rest of the city.

Permit activity strongly suggests a significant increase in construction work being done in Locust Point; and the control datasets (Poppleton and All VCP neighborhoods) help to validate the location quotient methodology. The building permit story for Locust Point is extremely pointed—the area went from an average Baltimore neighborhood to one with over three times the activity of the city just as work was being done at Tide Point. Consider the following: in 1995 Locust Point had a permit data LQ of 1.06, implying that the neighborhood was on par with the rest of the city. In 2001, as construction vehicles were actively going to and from Tide Point, the surrounding neighborhood appeared to be equally busy with construction activity and permit requests outpaced the city over four-to-one with a LQ of 3.45. In 2007 the neighborhood was still substantially outpacing Baltimore’s requests for permits and the LQ was 3.33.

The analysis is even more convincing when compared to the Poppleton neighborhood. In 1995, Poppleton was reasonably consistent with the rest of Baltimore in permit requests as demonstrated with a nearly par LQ of 0.82. However, as building activity was skyrocketing in Locust Point investment rates were plummeting in Poppleton and the rate of building request dropped to an LQ of 0.40 in 2001 and 0.43 in 2007.

Still, it is quite possible that the rate of permit requests for Locust Point may be an anomaly. To control this possibility and determine if brownfields reuse was having an impact on permit requests in general, an aggregate of all neighborhoods with VCP applicants was compared to the entire city. The results appear to justify that more investment at the neighborhood level corresponds to VCP applications. Neighborhoods that had a VCP site were on par (LQ 1.09) with the city before the inception of MDE's brownfields program. (The LQ was nearly identical to Locust Point's LQ of 1.06.) However, after the brownfields program was in place, neighborhoods with one or more VCP applicants outpaced the citywide rate of requests by a two-to-one ratio (2001 LQ= 2.17 and 2007 LQ= 2.26). While the majority of the VCP sites are located near Baltimore's waterfront, the map on page 31 highlights the fact that reuse projects are dispersed throughout the city. This spatial distribution strengthens the hypothesis that the cleanup and reuse of brownfields helps to initiate investment in the surrounding neighborhood. Also, the citywide control group helps substantiate the fact the Locust Point activity was not an anomaly, but rather a trend that closely followed the redevelopment of brownfields.

VI. CONCLUSION

This thesis set out to answer two questions: 1) what are the relevant federal, state, and local brownfields policies and how are those policies implemented to bring about successful brownfields redevelopment? And, 2) does successful brownfields redevelopment have a ripple effect and significantly reinvigorate surrounding neighborhoods, increase municipal ad valorem tax income and generally work toward the rejuvenation of an aging industrial city?

What are the policies?

The first query really has no “yes” or “no” quantifiable or qualifiable answer. Instead, the thesis has given an overview of national brownfields legislation and discussed the state level brownfields program in Maryland. However, by analyzing how the brownfields policies were applied to the two case study sites, it has been possible to answer whether or not the programs were successful with rejuvenating at least portions of Baltimore.

This research answered the policy question by putting into context the history of some of our nation’s most important environmental legislation. When identifying the true beginning of the American environmental movement and our nation’s first call for pollution regulations, environmentalists usually point to the first Earth Day celebrated on 22 April 1970 (Mowrey and Redmond 1993). As was outlined in Chapter III, however, it took many years to actually begin addressing idle industrial sites. The first federal legislation addressing abandoned and contaminated land was not enacted until the 1980s and it took until the mid-1990s for truly effective policies to take hold at the state and federal levels.

Even though the policies took a long time to come about, the Brownfields Program at the USEPA and the brownfields provisions of Maryland's Smart Growth Initiatives were eventually the real stimulus behind the development of sites such as Montgomery Park and Tide Point. Because of the successful implementation of brownfields policies, it makes it possible to answer the second thesis question and determine whether or not brownfields redevelopment truly helps restore an older industrial city.

Does brownfields redevelopment work?

The researcher has not been able to find other studies analyzing permit data as a means of identifying increased economic investment in a neighborhood. The researcher postulates that both tax valuations and sales data are lagging indicators of urban revitalization efforts while analysis of permit data captures economic investment as it happens. In many instances homeowners may be increasing the values of their homes through permitted upgrades or remodeling, and generally improve the aesthetics of a neighborhood but not actually sell their homes. Therefore, research looking only at sales records will not capture value increases. Additionally, as previously indicated, cities do not appraise properties for tax purposes annually. Baltimore is on a three year rotation and research looking to quantify rejuvenation efforts through tax records may miss the overall picture.

The strongest support for the theory that tax records do not capture rejuvenation efforts is the fact that both neighborhoods studied displayed tax value drops in the years between 1995 and 2001. However, many neighborhoods experienced significant increases in requests for permits—an indication that property owners in close proximity

to redevelopment sites were acknowledging the cleanup efforts and making investments into their own properties. Therefore, it was a combination of permit data, location analysis of permit data, tax records, and sales data that helped to answer the second major question of this thesis: does successful brownfields redevelopment have a ripple effect and significantly reinvigorate surrounding neighborhoods, increase municipal ad valorem tax income and generally work toward the rejuvenation of an aging industrial city?

The answers found in this research are encouraging. The neighborhoods have seen tremendous value increases and the permit records indicate a surge in construction investment. Even though industrial properties are highly valued, transformation to mixed use brought about exponential tax assessment increases. The research shows that both the case study sites were falling in value between 1995 and 2001. Without the redevelopment, the downward trend might have continued and Baltimore's tax base could have been devastated. The combined site and neighborhood tax records are the final evidence that the brownfields policies and tax incentives are seemingly reinvigorating portions of the city and increasing ad valorem tax income.

In her article, Howland (2003) found that Baltimore brownfields projects that involved high levels of public subsidy and profuse levels of local government input were less likely to be considered "successful" projects. Of the sites Howland compared, the "least successful" site involving the most city input, was located in a very depressed and crime-ridden neighborhood. Work began on the site well before the development of the USEPA Brownfields Program in 1995 and years before Maryland's brownfields initiatives of 1997. Evidently the developers, a national residential builder, walked away from the project before constructing a single home; hence Howland's label as a "failed"

development. Howland's most successful case study site was located in a desirable downtown area, only a few blocks from Baltimore's famed "Inner Harbor" and redevelopment started *after* the inception of both the USEPA and Maryland brownfields programs. (Note: Under the direction of a new developer, construction resumed on the "failed" site in 2004. Upper price-range attached single family residential units now occupy the former brownfield site. The renewed success of the property may have something to do with its close proximity to the Oriole's baseball park... another former brownfield site.)

It is true that the neighborhood around Montgomery Park did not have the swell of new permit activity witnessed in the area around Tide Point—a fact that supports Howland's (2003) findings. After all, Montgomery Park did need a myriad of public subsidies and the neighborhood is still not necessarily booming. On the other hand, the site is now a workplace for thousands of Marylanders and the construction methods had tremendous benefits to the environment. The green roof, waterless urinals, and recycled water toilets are helping restore the water quality in the nearby Chesapeake Bay, and the urban location likely helps to reduce vehicle miles traveled and undoubtedly helped preserve undeveloped Maryland greenspace from another new office complex. One brownfields statistic states that for every one acre of brownfield site redeveloped, four and one half acres of greenfields are preserved (Deason et al. 2001). If that holds true for the sixteen-plus acre Montgomery Park, seventy-four acres of Maryland remains green.

The Tide Point developers took advantage of only a few public subsidy programs. But the Struever Bros did capitalize on the lucrative Historic Tax Credits and Brownfields Tax Credits offered at the time in Maryland, and just as with Montgomery

Park, the project would not have gotten off the ground without the creation of Maryland's VCP. In reality, the two projects appeared to rely heavily on both the VCP and the historic tax credits; the main difference between the successes seems to be the fact that each project needed one more (very different) ingredient. For Montgomery Park to be redeveloped it took substantial local, state, and federal grants and loans. For Tide Point, the real estate anecdote of "location, location, location" came into play and the developer recognized that waterfront real estate would be highly sought after, regardless of neighboring land uses.

Projects like Montgomery Park and Tide Point have likely contributed to significant change to the character and economics of Baltimore. Along with the dozens of construction cranes once again present in the city's skyline, it is not uncommon to see newspaper and business journal articles favorably describing the city's potential for business. An example from the Baltimore Business Journal notes, "Baltimore is changing. It's economic base has shifted from its blue collar, industrial roots to knowledge-based jobs in fields including financial services and biotechnology (Sernovitz 2007, 1)."

In every census count since 1950 Baltimore has lost residents while the state of Maryland has gained population (Planning 2000). However, quality revitalization efforts are reversing the trend and inspiring a resurgence of urban living and this movement is not unique to Baltimore. Other aging industrial cities fortunate to have creative and environmentally minded developers are enjoying a new-found urban vibrancy (Vey 2007; Leinberger 2007). Both in Baltimore and on the national scene developers are becoming less fearful of brownfield sites and bankers are increasingly more willing to finance

projects located on brownfields. The following statements from a recent planning journal describe the current climate of brownfields redevelopment:

Originally, many developers and lenders were wary of taking on these properties, because of liability issues and questions of expense. But now developers and others can see projects that have been completed, and buy insurance policies that limit liability, and so are more comfortable working with these properties... According to Environmental Data Resources, which aggregates and sells environmental information about specific properties to developers, lenders and other groups, 52 percent of survey respondents said the pace of brownfield redevelopment is increasing; 47 percent said it is stable (Dawkins 2007, 1)

Statements like these substantiate the fact that the policy changes of the past two decades are working and the scars of America's industrial legacy are finally healing. Today, if they exercise diligence, developers can redevelop land without fear of litigation. Recent consumer preference research estimated that thirty to forty percent of Americans want walkable urbanism, but throughout the last half century the nation's primary infrastructure investment has been in new low-density suburb development rather than land recycling and infill development (Leinberger 2007). In other words, a huge sector of the public wants to live and work in urban areas, but decades of litigation and lending practices stymied reuse and infill projects. The transformations of Montgomery Park and Tide Point were not chance occurrences. It took aggressive public policy to overcome the stigma associated with industrial properties and today the sites fill the wants and needs of thousands of Marylanders. Finally, not only have the sites become urban workplaces, the redevelopment projects are saving valuable undeveloped lands and restoring prosperity to Baltimore. Around Montgomery Park and Tide Point the blight and abandonment are gone and the neighborhoods are being transformed and rejuvenated; these are two examples of great restoration efforts in an aging industrial city.

In summary, this thesis demonstrates that creative financing and tax incentive packages instituted in Maryland in the mid-to-late 1990's were essential to bring about brownfields reuse projects. Quantitative analysis of neighborhood investment, tax values, and real estate transactions help to demonstrate that the incentive packages have been invaluable to the city of Baltimore by reversing abandonment trends and significantly adding to the city's tax base.

Recommendations for Further Research

The type of research completed in this thesis could, and perhaps should, be replicated in other cities to help understand the role of brownfields reuse in restoring prosperity to communities weakened by abandoned facilities. The location quotient is a powerful tool that easily highlights how the areas surrounding a redevelopment site are influenced in relation to the rest of a city or metropolitan area. Further use of the location quotient could help to compare many other factors useful in determining the success of a brownfield redevelopment project. For example, did employment rates in the neighborhood change in comparison to the rest of the city? Or, was there a change in homeownership rates in the neighborhood that outpaced citywide ownership rates?

In addition to calculating location quotients for more factors, further research should analyze more years. Unfortunately, building permit data for the years prior to 2004 is not available on-line from Baltimore's Housing Department, and obtaining data from 1995 and 2001 was complex and time consuming. However, despite the challenges with obtaining massive datasets from city offices, charting annual changes at the neighborhood level would alleviate outliers of "boom" or "bust" time periods within the city's various neighborhoods. It might also be helpful to separate the quantitative

analysis by property type. For example, the residential data could be separated from commercial data to help determine if more business-related versus home-buying activity was taking place in a given area. In short, while this thesis begins to shed light on the positive impacts of brownfields redevelopment, analysis of more datasets could further explain if reuse programs are truly revitalizing America's older industrial cities.

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