REVITALIZING BROWNFIELD PROPERTIES:
A Viable Investment for the Private Developer

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REVITALIZING BROWNFIELD PROPERTIES:
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THIS UNDERGRADUATE STUDENT THESIS IS SUBMITTED TO FULFILL THE REQUIREMENTS OF PLAN 406 AS PART OF THE REQUIREMENTS FOR THE BACHELORS OF URBAN PLANNING AND DEVELOPMENT AT BALL STATE UNIVERSITY

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CHAPTER ONE: THESIS PROCESS

INTRODUCTION TO THE PROJECT...

PROBLEM STATEMENT...

PROJECT OBJECTIVES...

HYPOTHESIS...
"It is estimated that between 80 and 90 percent of the hazardous waste produced each year is disposed of illegally or improperly" (Smith, 1995). Due to the large amount of toxic waste that goes undetected, the United States Government attempts to regulate waste producers, usually industries, very closely to prevent contamination in the future. In order to clean up existing properties with contamination, the government has created regulations which make anyone associated with a contaminated site liable for its restoration.

These laws have effectively dissuaded developers from investing in potentially contaminated sites. The term “brownfield” refers to a vacant or abandoned property with perceived environmental contamination. Currently, anyone who builds on a brownfield may later be responsible for the full cost of environmental cleanup if contamination is discovered. This government regulation actually discourages brownfield redevelopment and thereby encourages sprawl development as a simpler, cheaper alternative.

Development trends may actually shift if property owners could be convinced to try one of the three main governmental approaches that are designed to be cost comparative with developing in a greenfield. The three main approaches are designating development zones, site specific approaches, and voluntary action in a cooperative way. The Enterprise Zone Concept, the Brownfields Initiative, and the Voluntary Remediation Program present good examples of each of the three approaches. Each has large scale recognition in both state and federal arenas. Any of the three approaches to brownfield redevelopment could financially assist the private developer with the environmental liabilities involved with brownfield redevelopment. This thesis will define each government program and include a brief history and application of its use for the private developer, it will compare the cost incentives to the private developer created by each using four development scenarios, and it will suggest improvements to each program in order to be more financially attractive to private developers.
SECTION TWO:  PROBLEM STATEMENT

Due to government regulation in the post-war era, new development tends to locate outside of city limits. Often there are available sites of adequate size and location within the municipal boundaries. However, many of these vacant or abandoned sites have perceived environmental contamination. Investors are hesitant when dealing with these "brownfield" properties due to the Joint and Several Liability Doctrine of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This states that anyone associated with the property could later be responsible for the full cost of any contamination that is discovered.

Current development trends in the United States are based on the perception that environmental costs are too great for private developers to invest in brownfield properties. The singular uncertainty in the final costs of a redevelopment project has dissuaded developers from considering brownfield properties as a viable alternative.

Development trends may actually shift if property owners could be convinced to try one of the three main governmental approaches that are designed to be cost comparative with developing in a greenfield. The three main approaches are designating development zones, site specific approaches, and voluntary action in a cooperative way. The Enterprise Zone Concept, the Brownfields Initiative, and the Voluntary Remediation Program present good examples of each of the three approaches. Each has large scale recognition in both state and federal arenas.

The first approach, represented by the Enterprise Zone Concept, has actually been in place since the late 1970s. It designates a target area for redevelopment, usually in the inner urban area. Within the area, governmental regulations are lessened to allow market forces to foster redevelopment. Tax credits also assist the private developer. Although the Enterprise Zone Concept does not specifically mention environmental contamination, it is a viable approach for brownfield restoration (Green, 1991).

The second approach is site specific. The Brownfields Initiative is the federal government's site specific program. It was created as a response to the disincentives involved in CERCLA. The program is more site specific than the enterprise zone concept
with four overlapping categories. The first provides money for grants and pilot projects. Next, the initiative defines liabilities and cleanup issues. The third category contains the establishment of partnerships and outreach among various federal, state, and local agencies. Finally, the brownfields initiative fosters local job training and development programs (McCafferty, 1996).

The third approach is represented by the Voluntary Remediation Program. It is a site specific program that has voluntary action in a cooperative way. Provisions for agreements between the government and private owners are established. This approach has been adopted by several states to allow an agency to enter into an agreement with a site owner, operator, or purchaser for the cleanup of contaminated waste at one particular site. As implied by the name of the program, the agreements are completely voluntary in nature and can be terminated at any time. However, it is in the best interest of both the state and the private citizen to work together. The end result is a check on urban sprawl and a marketable property for the owner. In addition, the state will issue the owner a “Covenant Not to Sue.” This releases the participants from all liabilities specified in the contract (IDEM, 1996).

Any of the three programs could financially assist the private developer from the environmental liabilities involved with brownfield redevelopment. No cost analysis has been published which compares the Enterprise Zone Concept, the Brownfields Initiative, the Voluntary Remediation Program, and the costs associated with building in a greenfield from the private developer’s perspective. This thesis will define each of the three government programs, giving a brief history and application of its use for the private developer, it will compare the cost incentives to the private developer created by each using four development scenarios, and it will suggest improvements to each program in order to be more financially attractive to private developers.

[See Flowchart on Page 5 for the Investigation of Each Brownfield Redevelopment Approach]
Format for the Investigation of Each Brownfield Redevelopment Approach

Review Programs

- Published Texts
- Journals and Magazines
- Online Resources
- Informal Interviews

Compare Development Estimates

- Professional Appraisers
- Public Records
- Phone Interviews

Present Findings

- Brownfield Site with Demolition
- Brownfield Site with Rehabilitation
- Brownfield Site with Vacant Land
- Greenfield Site
SECTION THREE: PROJECT OBJECTIVES

In order to narrow the scope of this thesis, a number of specific objectives were devised. The objectives attempt to conform to the issues raised in the PROBLEM STATEMENT. The following list presents the material in a clear and manageable manner and will form the basis for the thesis study.

- To summarize the history and use of the Enterprise Zone Concept in the United States as an example of a designated area approach to brownfield redevelopment from a private developer’s perspective;

- To present the development of a recent site-specific program known as the Brownfields Initiative and its potential use by private developers to lessen the risks involved with brownfield redevelopment;

- To summarize the applications and controversies associated with cooperative action between government, lending institutions, and private developers using the Voluntary Remediation Program, specifically its application in Indiana;

- To compare the costs and benefits involved with using free market forces, the Enterprise Zone Concept, the Brownfields Initiative, and the Voluntary Remediation Program in redeveloping brownfield properties from a private developer’s perspective using four development options; and

- To suggest improvements and future applications of the Enterprise Zone Concept, the Brownfields Initiative, and the Voluntary Remediation Program as they relate to private restoration of brownfield sites.
SECTION FOUR: HYPOTHESIS

Brownfield redevelopment can be cost effective when private investors use existing governmental programs. The Enterprise Zone Concept and the Voluntary Remediation Program are two successful programs which are commonly overlooked by private developers due to the perception that environmental contamination is not cost effective. The recently created Brownfields Initiative can also lower development costs to levels which are comparable to building in a greenfield. The above hypotheses can be restated as the following statements:

Hypothesis Statements

- *Brownfield redevelopment is cost effective when private investors use existing governmental programs*

- *The Enterprise Zone Concept is a cost effective policy tool to remedy environmental contamination*

- *The Brownfields Initiative is a new program that subsidizes initial environmental cleanup costs*

- *The Voluntary Remediation Program lowers development costs to levels which are comparable to building in a greenfield*
CHAPTER TWO: REVIEW OF EXISTING PROGRAMS

INTRODUCTION TO THE BROWNFIELD DILEMMA...

REVIEW METHODOLOGY...

THE DESIGNATED AREA APPROACH...

THE SITE SPECIFIC APPROACH...

THE COOPERATIVE APPROACH...
SECTION ONE:  INTRODUCTION TO THE BROWNFIELD DILEMMA

Since World War II, new commercial construction has more often been located in suburban areas rather than on potentially contaminated properties. The EPA believes brownfields are a viable alternative to building in existing agricultural fields. However, owners are not willing to follow the advice of the EPA when the agency may later sue them for failing to fully clean a development site. In order to curb fears, incentives have been created focusing on information and money.

Laws Preventing Contamination

In 1976, Congress passed the Resource Conservation and Recovery Act (RCRA). This law regulated existing dump sites very closely. It included provisions to encourage less disposal and more recycling. It also monitored substances during transportation, provided money for research and development or new disposal techniques, and set limits for waste production with penalties for states and companies that did not comply. The act was very slow in implementation, however, and provided for a loophole. Producers of solid waste at less than one metric ton per month were exempt from the restrictions. Many corporations took advantage of this loophole and divided production among many smaller facilities (Vig, 1997).

The Hazardous Solid Waste Amendments (HSWA) of 1984, expanded upon RCRA and its provisions. HSWA was passed while Ronald Reagan was president, eight years after the initial legislation. The act placed regulations on burning hazardous waste, created additional powers for citizen suits against non-compliance companies, put restrictions on the exportation of hazardous material, and set limits for groundwater injection. Most importantly, it addressed the small producer loophole by decreasing the level of contamination that was allowed. Unfortunately, thousands of industrial properties had already been contaminated prior to 1984 (Vig, 1997).

Several of the contaminated properties posing problems in the 1980s were abandoned sites from the post-war era. When government regulations of the late 1940s made site modification too expensive, many property owners moved to new locations in
the suburbs. Due to bad disposal techniques, environmental problems from these sites began to surface during the 1980s. Unfortunately, RCRA and HSWA only had provisions for preventing problems from occurring in the future. Neither law addressed the restoration of existing sites which were already contaminated.

Period of Environmental Neglect

Discovery of Love Canal, New York

Industrial War Production

Suburban Expansion

\[ \begin{array}{ccc}
1943 & 1945 & 1960s \\
\end{array} \]

Government Involvement in Restoration

Environmental problems from poor regulation during the war coupled with changing technologies have discouraged developers from investing in new projects on former industrial properties. The discovery of a toxic dump in Love Canal, New York, persuaded congressmen to pass the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 1980. CERCLA gives the Environmental Protection Agency (EPA) the authority to identify and clean up hazardous waste sites,
also known as superfund sites. In addition, the EPA has the authority to sue those responsible for the waste. According to the law, "those liable for cleanup include waste generators, waste handlers, waste site owners, or any middle person who arranged for disposal of the hazardous waste at the site" (Smith, 1995).

Under provisions in CERCLA, Congress established a fund to finance the cleanup and restoration of contaminated areas. Administered by the EPA, CERCLA allowed for the cleanup of a site using superfund money. A small portion of this money came from the national budget. The majority of the money came from law suits. The EPA was allowed to sue responsible parties for waste production. The proceeds from these law suits are then used to finance all work done at the location. CERCLA established a National Priority List (NPL) of abandoned sites that were deemed to be primary areas of concern. This list began with 418 locations which more than tripled in the decade that followed (Smith, 1995).

Environmental Liabilities

The most controversial provision of CERCLA has been the Joint and Several Liability Doctrine. This states that even if an organization only contributed one percent of the waste at a given location, the organization could be liable for up to one hundred percent of the total cost of cleanup. According to Zachary Smith at Northern Arizona University, "The cost of cleaning up an average superfund site in the early 1990s was $30 million." In addition, anyone associated with the financing or production at a site may also be fined. Due to the incredible liability costs, CERCLA has effectively dissuaded the redevelopment and voluntary restoration of contaminated properties. An unfortunate repercussion was that developers began to avoid areas of abandoned or vacant properties due to potential contaminates.

In September of 1994, the EPA created a new pilot program in an attempt to encourage developers to reinvest in vacant or abandoned industrial properties. The focus was on brownfield properties or sites which have potential environmental contamination. Most brownfields are located in industrial, urban areas. They may be abandoned gas stations, vacant warehouses, or former manufacturing facilities. The important
distinction is that superfund sites are those which have proven environmental contamination and are listed on the NPL. Brownfield sites are not listed on the NPL.

The term “brownfield” refers to all abandoned or vacant properties containing perceived environmental contamination not yet investigated by the EPA. Under CERCLA, anyone investing in these properties, even if they are not on the NPL, may later be responsible for the total cost of contamination cleanup if environmental problems are discovered. Restoration costs can vary from a few thousand to millions of dollars, since many companies did not keep accurate records of their pollution levels during the 1940s.

“A web of federal and state law and regulation has driven development away from such properties -- especially onetime industrial sites located in or near impoverished inner-city neighborhoods -- and toward suburban and rural greenfields” (Silber, 1996). These strict liability penalties have delayed the cleanup and testing of brownfield properties allowing the development of pristine fields and forests as an alternative. For industrial developments whose market area may be regional, the location of a particular facility is not important. A structure could be on a brownfield property or in a greenfield and make little difference to the owners. Since greenfields carry less of a liability burden, many developers are turning away from redevelopment options.

Companies which own brownfields have had little or no incentive to restore their properties instead of being silent and waiting. As time progresses, new technologies will allow less expensive cleanup techniques. If an owner simply waits until government administrators force restoration, the costs will most likely be lower. In addition, developers were financially scared away from investing in possibly contaminated properties, creating a low demand for restored properties.

*Encouraging Action at Brownfield Locations*

In the Superfund Amendment and Reauthorization Act (SARA) of 1986, Congress attempted to create more incentives for voluntary action at contaminated sites. The law defined what was meant by *clean* in order to set levels for site restoration projects. In addition, SARA sets procedures for out-of-court settlements, encourages
public participation, and creates provisions for “de minimis” settlements. De minimis agreements are between the EPA and guilty parties willing to work with the government from the beginning. They are usually smaller companies not wanting to be held liable for the entire site cleanup costs.

The United States Environmental Protection Agency Region 5, which covers the industrial Midwest, believes that, “Government’s role should be to enable, not impede, environmental and economic well-being: in short, to promote sustainable development” (EPA, 1996). CERCLA and SARA were meant to help facilitate the testing and cleaning of known environmentally contaminated properties. The two laws did not foresee the disincentives created toward developing potentially contaminated sites or brownfields.

The EPA defines a brownfield as a property which has perceived costs that outweigh the perceived benefits. When owners can test and clean their sites for less money than the property can be sold, the action becomes economically attractive. However, when the costs for testing and cleaning are greater than the worth of the property, it is not very economical to the owner. In these cases, the sites become simply vacated or abandoned. According to the EPA, environmental audits can range from $1,000 to $10,000 and detailed testing can easily approach $100,000. These are only the fees associated with testing brownfield properties. Actual cleanup can vary from $100,000 to multiple millions (EPA, 1996).

Government Incentives

Pressured by national development companies, President Clinton has attempted to expand the 1986 Emergency Planning and Community Right-to-Know Act. This piece of legislation requires the release of information to the public by local companies. All industries must publish yearly reports of toxic chemicals used and discharged at their locations. This attempts to remove some of the uncertainty with environmental problems at a site.

Recently, the EPA added 286 new chemicals to the list of substances that are subject to pollution report requirements. This has been challenged in the courts by the Chemical Manufactures Association which supports the privacy rights of businesses.
However, this will help future developers identify sites which may be economically feasible to redevelop. Developers will have more confidence to invest in brownfield properties if the past owners completed toxic chemical reports (Kriz, 1996).

For current brownfield properties where toxic chemicals reports were not completed, developers are hesitant about investing. In order to encourage brownfield remediation, the Environmental Protection Agency (EPA), federal legislatures, state agencies, and even the President have each designed different approaches to offer financial incentives to private developers.

The three main approaches are designating development zones in vacant and abandoned areas, focusing efforts on a specific site, and providing benefits which will encourage voluntary action in a cooperative way. The Enterprise Zone Concept, the Brownfields Initiative, and the Voluntary Remediation Program present good examples of each of the three approaches have widespread support and application. Each also has a unique set of supporters, history of design, and approach to participation. In the following summaries, the Enterprise Zone concept, the Brownfields Initiative, and the Voluntary Remediation Program will each be examined as case examples of their respective approaches to brownfield redevelopment.
SECTION TWO: REVIEW METHODOLOGY

A combination of a content analysis and a series of informal interviews were used to complete the review of literature for each approach to brownfield redevelopment. A review of a few key sources was done for the following sections; THE DESIGNATED AREA APPROACH, THE SITE SPECIFIC APPROACH, and THE COOPERATIVE APPROACH. This was supplemented with material from current planning literature and online information. In addition, conversations with professionals from government agencies and college professors added to the available information for this research.

The literature review for THE DESIGNATED AREA APPROACH focuses around the writings of Roy Green’s Enterprise Zones and published articles by Stuart Butler at the Heritage Foundation in Washington DC. Information from two Urban Enterprise Association coordinators in Indiana also contributed. Questions were asked regarding the history of the Urban Enterprise Zone (UEZ) and its political problems. In addition, the conversation speculated (1) Why the federal government has failed to implement a UEZ program of its own, (2) How the financial assistance is administered, and (3) What impacts state administered UEZ programs had on brownfield redevelopment from the private developer’s perspective.

For THE SITE SPECIFIC APPROACH, a literature review of existing laws governing environmental contamination was completed. This was done with government publications and the use of such books as Smith’s The Environmental Policy Paradox and Vig & Kraft’s Environmental Policy in the 1990s. In addition, proposed bills from the 103rd and 104th Congresses were examined using commentary from law journals. Many of these publications were found online over the world wide web. Clarification of the Environmental Protection Agency’s position on many issues was done through informal discussions which occurred using the Internet. The focus of this section was to answer the question, What site specific programs are available to private developers to lesson the risks involved with brownfield redevelopment?

THE COOPERATIVE APPROACH was completed by reviewing current literature, touring contaminated sites in Indiana, and talking with representatives from the Indiana
Department of Environmental Management (IDEM). Published material from IDEM was reviewed in conjunction with recent writings on state voluntary cleanup programs. Personal interview questions focused on program benefits and future plans. Site visits included a tour of the Occidental Chemical Company property near Louisville, a one day trip to Princeton, IN, and frequent drives through Muncie. This information summarizes the applications and controversies associated with cooperative action between government and private developers using the Voluntary Remediation Program, specifically its application in Indiana.

Articles and online announcements provided the greatest source of information for the private involvement section. Current magazines and journals such as Urban Land, ENR, and Planning provided information on privately implemented programs for redevelopment. In addition, online advertisements and postings provided up-to-date materials. One useful resource was the Bank of America Brownfields Working Group. This information presents resources for private developers available by national lending institutions.
SECTION THREE: THE DESIGNATED AREA APPROACH

The designated area approach was an economical incentive for redevelopment even before brownfields were defined by name. In 1979, the federal government debated implementing a designated area program which would help make industrial redevelopment more cost effective for private developers. At that time in history, government solutions to urban blight usually involved spending money to correct a situation. Congressman Jack Kemp (R-NY), with the support of the Heritage Foundation in Washington DC, advocated a concept borrowed from Great Britain. Sir Geoffrey Howe's "Enterprise Zone" proposal was to eliminate restrictive government regulations altogether and establish a designated area with no taxes. Usually in the inner city, this zone would operate outside of government regulations. Private enterprise would be enticed to operate where government control had failed (Green, 1991).

The Federal Enterprise Zone Concept

The Enterprise Zone Concept works toward four basic goals. First, it involves business development in areas of abandonment. Coupled with that, it strives for job creation. Thirdly, it involves housing and community development in poorer areas. Finally, it is community-based in its development (Green, 1985).

All four components of the enterprise zone concept work toward revitalizing brownfield areas and preventing urban sprawl. Although the actual program does not specifically mention or identify brownfield properties, the guidelines on zone creation make potentially contaminated areas a prime target for designation. The program would identify areas for developers to consider rather than just one property for developers to consider. This federal program could have been instrumental in encouraging environmental cleanup without being too site specific. Unfortunately, no Republican President in the 1980s designed a successful zone proposal.

In 1996, Jack Kemp was the Vice-Presidential candidate for the Republican Party. However, he and Bob Dole were defeated by the more environmentally conscious Democratic Party. Unfortunately, the Clinton Administration’s package has been
disappointing, according to Stuart Butler at the Heritage Foundation. "The Clinton program is actually worse than nothing, because state officials will be induced to adopt the Administration's misguided view of economic development as the price for questionable benefits" (1995). The federal proposal for a national Enterprise Zone Program has less benefits and more regulations than any of the state programs. The program attempts to standardize all zones across the country.

In 1992, Senator Joseph Lieberman (D-CT) was the leading proponent of enterprise zone legislation. On May 11, 1993, he expressed his disappointment with the Clinton plan on the Senate floor. His attacks were aimed at three main issues. First, the White House still viewed the program as experimental although 36 states have successful programs of their own. Second, the zones would be managed from Washington, DC rather than regional, state, or local offices. Finally, the plan's labor incentives would only be useful to large corporations and not smaller community businesses (Green, 1993).

History of the Concept

The original legislation, back in the early 1980s, was sponsored by Congressmen Jack Kemp (R-NY) and Robert Garcia (D-NY). With this unusual combination, the effort soon received bipartisan support. The main concern of early advocates was the cooperation needed with state governments. This was necessary for two reasons. First, only a shared reduction in taxation could produce the rapid capital needed for the program. Secondly, since the program was experimental in nature, different approaches would be needed to fit different locations. State governments would be the force needed to provide the local expertise. Unfortunately, Congress never approved a formal policy in the 1980s even after receiving state help (Green, 1991).

According to Enid Beaumont, the primary roadblock for federal legislation involved the role of the federal government. The government could act as a "facilitator" or an "inhibitor." The first involves providing program assistance. The second takes a more direct and influential role. Congress could become a hands-off partner or a supervisory entity. Legislation in the 1980s took the inhibitor approach and ultimately was defeated. Seeing the results of CERCLA, congressmen would not vote for restrictive
legislation. Too much cooperation was needed between the three levels of government (federal, state, and local) for Congress to take the inhibitor approach (1991).

**State Enterprise Zone Laws**

Assuming that federal legislation was forthcoming, Florida, Louisiana, Connecticut, Missouri, Pennsylvania, and Rhode Island passed enterprise zone laws of their own. They believed that support from the national government would parallel their efforts. Unfortunately, no support legislation was ever passed. As a result, other states, mostly in the Midwest, passed enterprise zone laws of their own because they felt the program was a worthwhile effort to redevelop vacant and abandoned industrial areas. Most of these later state programs are more actively involved in site restoration today [See Figure on Page 20 for States with Enterprise Zone Programs] (Green, 1997).

One of the top three most activist states, according to Michael Brintnall and Roy Green, is Indiana. Indiana has a high degree of state management as well as a high level of private involvement. The purpose of the enterprise zone program in Indiana is to stimulate local community and business redevelopment in areas of high abandonment. Eighteen zones, no larger than three square miles each, have been created throughout the entire state. A high percentage of this land is considered to be environmentally contaminated (Brintnall et al, 1991).

According to a study by Roy Green, Indiana leads neighboring Illinois, Kentucky, and Ohio in the mean number of new firms investing in each enterprise zone, usually on brownfield properties, per year. The Indiana enterprise zone has several tax and non-tax incentives to promote investment in designated areas. The tax incentives include an inventory credit for capital owned by each business, gross income tax exemption for a specified number of years, and an employment expense credit for employing zone residents. The inventory tax credit offers a credit worth up to 100 percent off the inventory tax for businesses within a zone. The gross income tax incentive offers exemptions for earnings within the zone. Finally, the employment expense credit gives owners a credit for hiring zone residents.
Tax credits must be spent in one of two ways within Indiana. They can be invested back into the company or donated to enterprise zone programs. Enterprise boards may require a donation for programs as long as it does not exceed 24 percent of the business’ tax savings. In addition to tax savings, many of the zone businesses qualify for state site specific brownfield programs. In Indiana, that includes the Voluntary Cleanup Program administered by the Indiana Department of Environmental Management (IDEM).

**Summary**

The Enterprise Zone Concept does not provide direct support to private investors interested in building on brownfield sites. Instead, it was designed to provide less government control on operating within a designated area. The result is that brownfield developers operating within a zone will have lower operational costs but the same initial expenses. This is only economically attractive when the developer is also the future business operator.

**Map of States With Enterprise Zone Programs in 1991**
SECTION FOUR: THE SITE SPECIFIC APPROACH

Due to a lack of enterprise zone legislation, the National Environmental Justice Advisory Council (NEJAC) has urged the EPA to take a more active role in encouraging urban redevelopment on their own. Together, the NEJAC and the EPA have establish the Brownfields Economic Redevelopment Initiative. The program is more site specific than the enterprise zone concept with four overlapping categories. The first provides money for grants and pilot projects. Next, the initiative defines liabilities and cleanup issues, similar to SARA. The third category contains the establishment of partnerships and outreach among various federal, state, and local agencies. Finally, the brownfields initiative fosters local job training and development programs (McCafferty, 1996).

Pilot Program

The first program created under the initiative was the Brownfields Assessment Demonstration Pilots Program. It addresses three of the four main categories identified by the brownfield initiative. It provides $200,000 over a two year period for project testing and evaluation. In addition, the grant stipulates that funds must be used to help bring together federal, state, and local agencies as well as lenders, investors, developers and community groups. This program also provides job training in order to encourage companies to relocate to the site once it has been cleaned of all waste contaminants. The EPA only gives special considerations to sites within Empowerment Zones, Enterprise Communities, and cities with less than 100,000 people (EPA, 1996)

Additional resources for expanding the program do not seem to be forthcoming. Federal lawmakers have indicated their willingness to support tax incentives for brownfield properties but not to allocate funds for any effort. Elected in 1994, the 104th Congress contained a Republican majority. As a whole, the Republican party tends to be more pro-business and the Democratic party tends to be more pro-environment. President William Clinton is, however, Democrat. Unfortunately, over the past two years, the environment was not a driving issue on the agenda of many congressmen or the President. The Clinton Administration did not even introduce its plan for brownfield site
specific tax incentives until early 1996 before the presidential election (Bartsch et al., 1996).

Two Proposals in 1996

In January, the U.S. Conference of Mayors pushed for legislation and the establishment of a site specific tax credit program. The conference produced a set of recommendations which were revealed to Treasury Secretary Robert Rubin. In a similar effort, House Ways and Means Committee member William J. Coyne (D-PA), introduced H.R. 2846 - Brownfields Redevelopment Act of 1996. The bill “offers a 50 percent credit to offset costs of carrying out site cleanup according to a remediation plan approved by the EPA or a designated state agency” (Bartsch et al, 1996). Qualifying sites must meet four criteria. They must have had no productive use over the past year, be unlikely candidates for redevelopment without tax credits, have a strong tax generating potential, and possess the possibility of a quick cleanup. In addition, the credits are only available to owners having no association with the contamination (Campbell, 1996).

According to Susan Millington Campbell, a partner and co-chair of the environmental group at Hughes Hubbard & Reed LLP, the President’s proposal in March provides benefits not currently available under existing tax law. Clinton’s tax incentive was introduced as S. 1911 by Senators Carol Moseley-Braun (D-IL), James Jeffords (R-VT), and Alfonse D’Amato (R-NY). In addition, it was introduced as H.R. 3747 by Representative Charles Rangel (D-NY) (Campbell, 1996). Its purpose was to, “encourage economic development through the creation of additional empowerment zones and enterprise communities and to encourage the cleanup of contaminated brownfield sites” (Bartsch et al, 1996).

Clinton’s program is more restrictive than Representative Coyne’s. S. 1911 and H.R. 3747 provides a budget of two billion dollars for incentives over seven years. However, the bills limit available test sites to existing properties listed in the Brownfields Assessment Demonstration Pilots Program, census tracts with a poverty rate of 20 percent or more, or census tracts zoned 75 percent industrial or commercial that adjoin qualifying poverty areas. None of these areas are directly eligible for tax incentives unless they
become part of one of the twenty new empowerment zones or eighty new enterprise
community designations.

A critical distinction between Representative Coyne’s proposal and the program
backed by the President involves eligibility. H.R. 2846 allows tax incentives for anyone
willing to invest in brownfield property. The investor would be able to deduct all money
spent on environmental cleanup rather than capitalize the expenditures which increases
the value of the property. A deduction actually decreases the amount of taxes paid for
that year. A capitalization increases that property value to reflect the investments made
that year. H.R. 2846 would designate all expenditures as restoring the value of the
property and not adding to the value of the property (Campbell, 1996).

Summary

Under the Brownfields Initiative, only the Brownfields Assessment
Demonstration Pilots Program has been successfully implemented. This program
provides money for testing and contamination cleanup. Once the site has been cleaned,
the program has provisions for job training to attract a business. This is different from
the enterprise zone approach which only has tax incentives. Many lawmakers on Capital
Hill believe that the Brownfields Initiative should only provide tax incentives. Proposed
bills from 1996 would provide tax relief by deducting expenditures as opposed to
capitalizing them. The Brownfields Initiative provides funds for initial investment but
does little for the operational expenses of a business over time.
Since most states have limited resources with which to combat environmental problems on a site specific basis, the Voluntary Remediation Program (VRP) is the best avenue for brownfield restoration. In this approach, the amount of cleanup necessary is based upon the potential use of the site. The appropriate state agency will usually enter into an agreement with an owner of a potentially contaminated site. Since the program is voluntary, no increased liabilities will result if the participant decides to end the agreement. Negotiations are usually made based upon the future use of the property. These negotiations will determine what standards the cleanup must meet.

**Benefits of VRP's**

As of March 1996, 23 states had a Voluntary Remediation Program (VRP) in place [See Figure on Page 27 for States with Voluntary Remediation Programs]. Some common benefits exist in most state programs. First, investigation and remediation is usually less expensive due, in part, to loans or grants that are available from the individual state and the ability to avoid costly, litigious, mandatory cleanup orders. Contaminant cleanup levels are usually reduced to levels based upon the future use of the site. In this approach higher standards are set for a brownfield site which will be used for condos than a site which will be used for a light industrial operation. If a park or residential area is foreseen, tougher standards will be set. However, lesser standards of contamination cleanup are required to reuse brownfields for industry (Nye, 1996).

These decreased standards are supported by many lending institutions. Several national banks are establishing pools of money specifically for brownfield restoration. "The Bank of America and others are interested in making credit available to new site owners. Lawyers, casualty insurers, environmental consultants and marketing firms are offering 'one-stop' shopping for the amalgam of services needed to revive and market brownfield properties" (Pierce, 1996). Together, several facets of the private industry are working together with state VRP's to make redeveloping brownfield properties easier.
Superfund sites only account for about 1,400 sites in the United States. The Bank of America, however, suggests that brownfields may total 450,000 sites. As the number of redevelopment sites available rises, a greater portion of the development loans made in the future will be focused toward this type of investment. However, the high costs of remediation price brownfields out of the market. States with VRP’s lessen the costs to allow lending institutions more security while investing in brownfields.

*The Use of VRP’s in Indiana*

The Indiana Department of Environmental Management (IDEM) is one such state agency which has a VRP. IDEM, created by an executive order April 1, 1986, has been instrumental in hazardous waste cleanup. In 1987, legislatures created the State Cleanup Program which authorized IDEM to focus attention on any property presenting a public health or safety hazard to the surrounding community. “The most successful of these state cleanups has been in Princeton, where IDEM removed more than one million gallons of oil from an abandoned refinery and secured the property against vagrants, vandals and looters” (IDEM, 1996).

Indiana was one of the first states to address the liability issues surrounding purchasing and developing brownfield property. Established in 1993, the Indiana Voluntary Remediation Program has provisions for agreements between IDEM and interested parties, usually brownfield owners. The state agency is allowed to enter into agreements with site owners, operators, or purchasers for the cleanup of contaminated waste. As implied by the name of the program, the agreements are completely voluntary in nature and can be terminated at any time. However, it is in the best interest of both the state and the private citizen to work together. The end result is a check on urban sprawl and a marketable property for the owner. In addition, the state will issue the owner a “Covenant Not to Sue.” This releases the participants from all liabilities specified in the contract.

Over seventy sites are actively being cleaned up through the VRP in Indiana. The first site to go through Indiana’s VRP is located in southern Indiana across from Louisville, Kentucky (which has no state VRP program). The Occidental Chemical
Company owned a 25 acre site once used to manufacture detergent additives for Proctor & Gamble and later Colgate. The site contained phosphates and arsenic sludge. In 1994, the VRP program was established and Occidental Chemical Company approached IDEM to work together on a restoration and development agreement.

Today, the former brownfield site is home to a number of successful businesses. These include a Budget Car & Truck Sales, a Steak ‘n Shake, a Logan’s Road House, a Home Depot, a Don Pablos, and a H.H.Gregg. In this location, the state was successful in preventing urban sprawl by using a brownfield site. The City of Louisville was interested in building a new bridge over the Ohio River. Costs would be equally shared by both states involved. The new bridge would allow a considerable amount of new retail construction on the Kentucky side of the bridge. However, with the success of the Occidental Chemical Company rehabilitation, the State of Indiana has halted plans to help support the addition of a new bridge. The new retail on the former brownfield is at the base of an existing bridge in Clarksville. Indiana would rather see improvements to the existing bridge. These improvements would benefit the new businesses on the first site to go through Indiana’s VRP. Before the VRP program, Indiana would have been willing to let the new bridge be constructed rather than let visitors see the vacant industrial properties.

Summary

Although the VRP was successful for Occidental Chemical Company, many other owners of brownfield sites are skeptical about the contract. Even though the State of Indiana issues a “Covenant Not to Sue”, the EPA may still keep participants liable. Last March, the EPA gave verbal confirmation that it will honor all covenants issued by IDEM. Unfortunately, no signed documents have yet been released by the federal agency in Washington, DC that release site owners from all liabilities. This program is currently instrumental in brownfield restoration since it requires very little money on the government’s part and is supported by national lending institutions. The program decreases initial cleanup expenses, however, it does not address operational costs.
Map of States with Voluntary Remediation Programs in 1996

Source: Julia Nye 1996
CHAPTER THREE: FINDINGS ON COST EFFECTIVENESS

INTRODUCTION TO DEVELOPMENT COSTS...

COMPARISON METHODOLOGY...

COST COMPARISON: ENTERPRISE ZONE CONCEPT...

COST COMPARISON: BROWNFIELDS INITIATIVE...

COST COMPARISON: VOLUNTARY REMEDIATION PROGRAM...
SECTION ONE: INTRODUCTION TO DEVELOPMENT COSTS

Many different development costs are considered when choosing a site in which to locate. Property acquisition, construction costs, and utility installation are among the most expensive. When weighing development options, the most important variable, according to Ed McConnell at ADM Commercial Properties in Muncie, is location. Some business need visibility and access, while others desire amenities.

Most brownfield sites can offer access to people and services. The quality of location is questionable, however, due to the close approximation to other such underutilized properties. Many sites available for brownfield redevelopment are more suited for business and industrial operations than for residential or recreational uses. Their main competitor becomes land outside of city limits and not directly on an arterial but within easy access. The latest estimates, provided by ADM Commercial Properties, The Property House at Better Homes and Gardens, and AACA Certified Appraisers in the spring of 1997, indicate that properties cost $25,000 to $30,000 per acre.

Brownfield sites often have negligible acquisition costs. They have been acquired by banks and municipalities due to foreclosure or abandonment. The current owner is usually willing to donate the property to an investor in order to limit the liability costs. This makes Brownfield properties very competitive in price with industrially zoned properties outside of the urban core.

Unfortunately, Brownfield sites incur environmental costs associated with testing and contamination. These costs are negligible with rural development sites. The Environmental Protection Agency (EPA) estimates testing to cost around $10,000 and contamination cleanup to range into the millions. Mike Womack at Lee & Ryan quotes testing as ranging between $1,000 and $1,500 for records review and $2,000 to $3,000 for lab sampling. This cost does vary due to project size. He estimates corrective action to cost as low as $5,000 to as high as $100,000 for most sites in Muncie, Indiana.

Brownfield sites can also have existing structures on the property. These do not increase the costs of testing except in terms of time involved in the investigation. If the environmental lab charges by the hour, a building can easily add an extra $1,000 due to
the increased time involved in collecting samples. The developer must determine the potential for reusing the structure. Commonly, the building is destroyed at an average cost of $15 per square foot according to Art Haney at Petro Environmental. This involves the washing of metal for recycling and the preparing of unusable components, such as fiberglass, for sanitary landfill disposal. To rehabilitate a building, construction companies will charge between $50 and $80 per square foot. These figures are variable due to the amount of retrofitted that must take place.

Constructing a new building can often cost less than rehabilitating an existing site. RS Means *Square Foot Costs 1997* estimates new industrial construction to be $54.75 to $79.95 per square foot. This is a good approximate range according to ADM Commercial Properties. However, a new building also requires the paving of a parking lot. RS Means contends that a parking space costs about $435 to pave. Mel Swift at A-1 Paving Company estimates the price to be about $3.00 per square foot. The costs of rehabilitating an existing structure are very competitive.

What usually makes brownfield properties cost competitive with other development sites are utility installations. Many brownfields are along existing utility lines. This would save the developer the costs of a septic field, water service, and fire precautions. Dick Crabtree Construction estimates an industrial septic system costs about $25,000, but requires five acres according to most zoning ordinances. It costs about $500 to lay ten feet of piping for water lines. In addition, fire hydrants and associated piping costs about $3,500 a unit according to RS Means. Brownfield sites would save an investor money.

In order to compare these variable costs, a case example was derived involving four development scenarios. Each scenario involves a different set of development costs and provides a greater understanding of the private investor's choices. In the next section, the four scenarios will be explained and compared without involving any governmental programs for brownfield redevelopment. Then each of the three programs previously explored will be outlined to show their impact on the development costs for each of the three options. Finally, a comparison of the three programs will be based upon the findings.
In order to compare the various approaches to redevelopment, a common framework was created to incorporate as many developmental and operational costs as possible. A one-story factory facility was chosen as a feasible reuse for a brownfield property as well as a facility that could be constructed outside of the municipal boundaries. Since this type of building has a rather large market area, its exact location within a city is not as important as with other facilities such as a grocery store. However, it must be noted that brownfield sites usually have more people living within the same radial distance as rural sites. This gives them greater marketability for reaching clients.

The Facility and Development Options

It is assumed that a client wants a 30,000 square-foot, single story facility. This was the average size building of this type constructed in 1996 (Page, 1997). The building would most likely be twenty feet tall with concrete block construction and limited architectural characteristics. It must not have environmental contamination in the soil or water. It must, however, have septic service, water service, and fire precautions. In addition, a parking lot must be on site with provisions to accommodate 100 automobiles.
The developer wants to have a marketable facility at a competitive price for the client. Four options are available to the developer. The first is to acquire an existing brownfield property and demolish the existing building. Then a new facility can be erected. The second option is to reuse the existing building after rehabilitating it. A third option is to specifically seek out a brownfield site with no buildings on site. In the final option, the developer may purchase a new development site.

The following four scenarios each represent one of the options available to the developer. Each presents the development cost estimates with each option. The four scenarios are all compared, with the sources of each estimate, on the chart on Page 36.
**SCENARIO ONE: BROWNFIELD WITH DEMOLITION**

The first option available to a developer is to use a brownfield site where an existing building would have to be removed. This accounts for the majority of all brownfield sites (Blonz et al, 1996). The developer would first want to establish the ownership of the particular property. It may be controlled by the local municipality, a lending institution, or private ownership. Most governmental agencies would be willing to “donate” the property to a developer who wishes to use the property. A lending institution would likewise want to limit their liability and may offer the site at a very small sum or at no cost at all. A private owner may want money out of his/her investment, but at a reasonable marketable price (if not, the developer should consider a different site).

Environmental costs would be of considerable interest to the private developer. Testing will be involved and cost a few thousand dollars. In addition, cleanup and remove may soar into the multiple millions. These fees are the most variable and may actually spell the difference in determining whether this investment is cost effective.

This development option would involve demolishing and removing the existing structure. In addition, the developer will have to construct a new building at the location. It is assumed that a new parking lot would also have to be paved due to the site lying vacant for an unspecified amount of time and due to the heavy construction traffic.

Where the developer saves by using this development option is in the costs of utilities. The new building could easily tie into municipal septic and water systems at a very minor cost. A drainage system would have to be installed in conjunction with a new parking lot. There is also the potential to reuse old storage tanks and save even more.

**DEVELOPMENT ESTIMATE: $2.8 MILLION**

[See Chart on Page 36 for a Complete Cost Breakdown]
**Scenario Two: Brownfield with Rehabilitation**

The second option available to a developer is to use a brownfield site where an existing building would be rehabilitated. This development scenario is similar to option one. The developer would still want to establish the ownership of the particular property, but with different motives. Most governmental agencies would be willing to give the property to a developer who wishes to reuse the property and existing structure. A lending institution would likewise want to limit its liability and may offer the site at a very small sum or at no cost at all if the renovations were made by a loan through that institution. A private owner may want money, either up front or through an extended lease program. If neither of these scenarios exist, the developer should look for another available property.

Environmental costs would be one of the highest expenses to the private developer. Testing will be involved and cost a few thousand dollars. However, cleanup and removal may be in the multiple millions but may cost less than building demolition due to the renovation of the structure. This would involve less waste that must be properly disposed of before new construction. These fees are the most variable in the entire option to the developer.

The actual building renovation is the largest single cost. It accounts for over 90 percent of the entire costs unless environmental contamination is sizable. Where the developer saves by using this development option is in the costs of utilities. The building already has municipal septic and water systems. A drainage system would have to be installed in conjunction with a new parking lot. It is assumed that the old parking lot has deteriorated due to the use of heavy trucks during rehabilitation. However, these fees are all minor in comparison to the actual building renovation.

**Development Estimate: $2.5 Million**

[See Chart on Page 36 for a Complete Cost Breakdown]
SCENARIO THREE: BROWNFIELD WITH VACANT LAND

The third option available to a developer is to use a brownfield site where the land is vacant. This development scenario has more development costs, however, the total amount of expenses are smaller. The developer would still want to establish the ownership of the particular property, but with different motives. Some governmental agencies would be willing to give the property to a developer who wishes to build on the property right away. They may, however, hold on to the land if a bigger scheme has been planned. A lending institution would want to limit its liability and may offer the site at a very small sum or at no cost at all if the construction is funded by a loan through that institution. A private owner may want money for the land. The developers can examine their options and shop for a good property cost.

Environmental costs would be one of the highest expenses to the private developer. Testing will be involved and may cost several thousand dollars. However, cleanup and removal may soar into the multiple millions. These costs would be less for the options with building demolition and rehabilitation. These fees are the most variable in the entire option to the developer.

The actual building construction is the largest single cost. This expense would actually be less than the cost for rehabilitating an existing structure; however, other costs are incurred as a result. A parking lot would have to be paved. A drainage system would also be built in conjunction with the parking lot.

The developer saved on the utilities in the first two options. In this development option, the utilities add several thousand dollars. The building would need to connect to the municipal septic system. The building would also need to be connected to the municipal water system. Lastly, a fire safety system consisting of seven fire hydrants would be needed around the perimeter of the structure.

DEVELOPMENT ESTIMATE: $2.2 MILLION

[See Chart on Page 36 for a Complete Cost Breakdown]
**Scenario Four: Development in a Greenfield**

The last option available to a developer, and the option most widely used, is to build in an open field outside of the municipal boundaries. This development scenario has more costs at lesser expenses. The developer would now incur a large property acquisition cost. Prices of land may vary depending on the location. If it is at an intersection, the costs are considerably more. It is recommended that the developer seek out a site that has only a limited amount of location benefits to passing vehicles since it would cost less and the client probably does not need a highly visible sight, although one would be nice. Environmental costs for this option would be almost negligible. The land would be free of prior development. Simple testing should be done but is seldom required by law.

The actual building construction is of greatest concern to the developer. This expense would actually be less than the cost for rehabilitating an existing structure, however. Other costs are incurred as a result. A parking lot would have to be paved. A drainage system would also be needed, and it could be built in conjunction with the parking lot.

The utilities were a very small expense in the first three development options. In this development option, the utilities add considerably to the total cost. The developer would need to construct a septic field for the building. This expense is not very high, but does require at least five acres of land. The building would also need to be connected to the municipal water system since it is more efficient than building a well large enough. This would involve laying about a half a mile of piping. Lastly, a fire safety system consisting of seven fire hydrants would be needed around the perimeter of the structure. These would be connected to the municipal water system and would use the same water mains.

**Development Estimate:** $2.1 Million

[See Chart on Page 36 for a Complete Cost Breakdown]
### Private Development Options

<table>
<thead>
<tr>
<th>Property</th>
<th>1 for Data</th>
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<tbody>
<tr>
<td>Acquisition Costs</td>
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<tr>
<td>Environmental Issues</td>
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<td>Contamination Testing</td>
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<td>Existing Facilities</td>
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<td>Building Demolition</td>
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<tr>
<td>Building Rehabilitation</td>
<td>section, IDEM</td>
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<td>Construction</td>
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<td>Building Costs</td>
<td>A Certified Appraisers</td>
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<td>Parking Lot Costs</td>
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<td>Septic System Install</td>
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<tr>
<td>Septic Hook-up</td>
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<tr>
<td>Construct Drainage System</td>
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<td>Install Water Service</td>
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<tr>
<td>Water Hook-up</td>
<td></td>
</tr>
<tr>
<td>Install Fire Hydrants</td>
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</tr>
</tbody>
</table>

**Total Development Costs**

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*highly variable figure

Compiled By: Mathew Fortunak
SECTION THREE: COST COMPARISON: ENTERPRISE ZONE CONCEPT

The Enterprise Zone Concept is a designated area approach where a specified area is delineated to encourage development. In order for a private developer to take advantage of the benefits, the site must be within the predetermined development zone. Cities with Enterprise Zones usually attempt to incorporate as many brownfield properties as possible. Therefore, the first three development options have a high likelihood of being within an Urban Enterprise Zone and taking advantage of the benefits associated with that distinction.

Indiana ranks among the top three most activist states with Enterprise Zones in the United States (Brinnell et al, 1991). The Indiana Enterprise Zone Concept offers three main incentives to locating within their boundaries. The first is an inventory tax for stock on location. The second is a gross income tax incentive offering tax breaks for earnings within the zone. The third incentive is an employment expense credit given to owners for employing zone residents.

Eighteen cities within the state take advantage of the Enterprise Zone Program. Two of these cities are South Bend in the north and Muncie in the central part of the state. Neither city offers extra incentives for locating specifically on brownfield sites. These two cities are former manufacturing communities that have a growing service industry. According to Carla Spradlin at the South Bend Community and Economic Development Department, vacant buildings are a major liability for the city. Perceived environmental problems, visual eyesores, and mischievous behavior are all problems associated with these potential brownfield locations.

Unfortunately, from a developer's perspective, the Enterprise Zone Program offers few to no incentives for locating on a brownfield property. The tax incentives decrease the operating costs on the location. However, most developers already have a client. They are not as concerned with the operation of the facility as long as they are paid development fees. Ed McConnell at ADM Commercial Properties contends that if a client is more successful, the developer will be able to get more business. Therefore,
being within an Enterprise Zone can be considered a marketing tool, but will not directly decrease development costs.

In the development options outlined in the previous section, the costs will not change. The first three options all involve locating on a brownfield site. If the site is within a city with an Enterprise Zone, the developer may be able to secure a client more easily. However, the developer’s costs will not decrease. In the fourth option, the developer has chosen a site outside of municipal boundaries. It would be unheard of to find a site of this description within an Indiana Urban Enterprise Zone.

[See Chart on Page 39 for a Complete Cost Breakdown of the Indiana Urban Enterprise Program]
Private Development Costs Using the Designated Area Approach (Enterprise Zone)

<table>
<thead>
<tr>
<th></th>
<th>Scenario One Brownfield with Demolition</th>
<th>Scenario Two Brownfield with Rehabilitation</th>
<th>Scenario Three Brownfield with Vacant Land</th>
<th>Scenario Four Development in a Greenfield</th>
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<td>$2,141,700</td>
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Compiled By: Matthew Fortunak
The Brownfields Initiative is a site-specific approach to redevelopment. This program specifically targets brownfield properties. It offers operational incentives as well as monetary incentives. In order for developers to take advantage of the benefits, they must work with federal, state, and local agencies as well as community groups at a site identified by the program coordinators. This means that the developer must reveal the environmental test findings to the government authorities. In addition, a few community meetings are expected in order to inform residents of the developer’s intentions for the property after remediation.

The first benefit of the program is employee training. Local government agencies will offer free job training workshops. Free materials are also available for distribution from the national government. The idea is to make the site more marketable and help attract investors and an end user of the site. If a developer already has future client, this benefit is just an added nicety.

The program’s monetary incentives come in the form of a grant. The developer will receive $200,000 over two years. This money can be applied toward environmental testing and cleanup. If the costs of cleanup do not total $200,000, the excess funds are redistributed to other sites. Unfortunately, not enough money is available to offer grants to every developer who wishes to partake in this program.

Since the Brownfields Initiative is a very recent program, funding has been difficult. Congress and the President have debated among themselves on the best method to administer the grants. The most recent proposal by Congressman William Coyne (D-PA) would offer an additional 50 percent tax credit for all money spent on cleanup. The President’s plan would only offer the monetary incentives and encourage the nomination of sites within Enterprise Zones. Another distinction is that Coyne’s plan would allow grants to developers having no association with the contamination. These differences have slowed any passage of brownfield legislation on a national level.

In the four development options, the three brownfield sites would become considerably more cost effective through the Brownfields Initiative. Unfortunately
developers would only be able to take advantage of this program if their site had been
nominated by the EPA. In all three options with brownfield sites, the environmental
costs would first decrease by $200,000, then the remaining costs would be halved if
Congressman Coyne's plan was signed into law. Additional benefits include job training
that would be an added bonus for the future owner. Finally, since most sites identified by
the Brownfield Initiative are within enterprise Zones, all the operational incentives would
be available during the lifetime of the operation.

[See Chart on Page 42 for a Complete Cost Breakdown of the Proposed Brownfields Initiative]
## Private Development Costs Using the Site Specific Approach (Brownfields Initiative)

<table>
<thead>
<tr>
<th></th>
<th>Scenario One Brownfield with Demolition</th>
<th>Scenario Two Brownfield with Rehabilitation</th>
<th>Scenario Three Brownfield with Vacant Land</th>
<th>Scenario Four Development in a Greenfield</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Property</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acquisition Costs</strong></td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$125,000</td>
</tr>
<tr>
<td><strong>Environmental Issues</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contamination Testing</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Environmental Cleanup *</td>
<td>$150,000</td>
<td>$150,000</td>
<td>$75,000</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Existing Facilities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building Demolition</td>
<td>$450,000</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Building Rehabilitation</td>
<td>$0</td>
<td>$1,950,000</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Construction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building Costs</td>
<td>$1,771,500</td>
<td>$1,771,500</td>
<td>$1,771,500</td>
<td>$1,771,500</td>
</tr>
<tr>
<td>Parking Lot Costs</td>
<td>$43,500</td>
<td>$43,500</td>
<td>$43,500</td>
<td>$43,500</td>
</tr>
<tr>
<td><strong>Utilities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Septic System Installation</td>
<td>$100</td>
<td></td>
<td>$100</td>
<td>$100</td>
</tr>
<tr>
<td>Septic Hook-up</td>
<td>$7,000</td>
<td>$7,000</td>
<td>$7,000</td>
<td>$7,000</td>
</tr>
<tr>
<td>Construct Drainage System</td>
<td></td>
<td></td>
<td></td>
<td>$132,000</td>
</tr>
<tr>
<td>Install Water Service</td>
<td></td>
<td></td>
<td>$100</td>
<td>$100</td>
</tr>
<tr>
<td>Water Hook-up</td>
<td>$100</td>
<td></td>
<td>$24,500</td>
<td>$24,500</td>
</tr>
<tr>
<td>Install Fire Hydrants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Development Costs</td>
<td>$2,422,200</td>
<td>$2,150,500</td>
<td>$1,921,700</td>
<td>$2,141,700</td>
</tr>
</tbody>
</table>

Compiled By: Matthew Fortunak
The Voluntary Remediation Program takes a cooperative approach to development. The developer must approach the appropriate state agency in order to take part in the program. Currently, 23 states, including Indiana, have Voluntary Remediation Programs. This approach offers flexibility when choosing a site. The developer does not have to build in a specific area or at a specific location. Any brownfield site is acceptable.

Development costs are lowered due to small grants or loans that are available by the individual state and the level of contamination that is agreed upon. Each state offers different benefits to the developer. In Indiana, grants are usually available through the Indiana Department of Environmental Management (IDEM) for site testing. In addition, IDEM will lower the cleanup standards based upon the future use of the site. With a 30,000 square foot industrial facility, standards are lower than if the developer was wishing to construct residential units.

The Voluntary Remediation Program offers all developers the opportunity to benefit from a brownfield program. In this approach, no one is turned away. However, as more developers take advantage of this program, less money will be available for testing grants. The level of contamination is still the main draw for anyone wishing to participate in this program.

Several thousand dollars can be saved in the development options outlined earlier. For the first three options, a brownfield site was chosen. The cooperative approach may eliminate the testing fees. In addition, it can reduce the contamination cleanup to nothing. This approach, however, is very variable. For some sites, contamination levels may be at a point where no reduction in standards is made. This approach has the potential to save the developer the most and offer the most flexibility.

[See Chart on Page 44 for a Complete Cost Breakdown of the Indiana Voluntary Remediation Program]
### Private Development Costs Using the Cooperative Approach (Voluntary Remediation Program)

<table>
<thead>
<tr>
<th></th>
<th>Scenario One Brownfield with Demolition</th>
<th>Scenario Two Brownfield with Rehabilitation</th>
<th>Scenario Three Brownfield with Vacant Land</th>
<th>Scenario Four Development in a Greenfield</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Property</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Acquisition Costs</em></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>125,000</td>
</tr>
<tr>
<td><strong>Environmental Issues</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Contamination Testing</em></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><em>Environmental Cleanup</em></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Existing Facilities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Building Demolition</em></td>
<td>450,000</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><em>Building Rehabilitation</em></td>
<td>0</td>
<td>1,950,000</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Construction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Building Costs</em></td>
<td>1,771,500</td>
<td>1,771,500</td>
<td>1,771,500</td>
<td>1,771,500</td>
</tr>
<tr>
<td><em>Parking Lot Costs</em></td>
<td>43,500</td>
<td>43,500</td>
<td>43,500</td>
<td>43,500</td>
</tr>
<tr>
<td><strong>Utilities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Septic System Installation</em></td>
<td></td>
<td></td>
<td></td>
<td>38,000</td>
</tr>
<tr>
<td><em>Septic Hook-up</em></td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><em>Construct Drainage System</em></td>
<td>7,000</td>
<td>7,000</td>
<td>7,000</td>
<td>7,000</td>
</tr>
<tr>
<td><em>Install Water Service</em></td>
<td></td>
<td></td>
<td></td>
<td>132,000</td>
</tr>
<tr>
<td><em>Water Hook-up</em></td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><em>Install Fire Hydrants</em></td>
<td></td>
<td></td>
<td></td>
<td>24,500</td>
</tr>
<tr>
<td><strong>Total Development Costs</strong></td>
<td>2,272,200</td>
<td>2,000,500</td>
<td>1,846,700</td>
<td>2,141,700</td>
</tr>
</tbody>
</table>

*Compiled By: Matthew Fortunak*
CHAPTER FOUR:  THESIS CONCLUSION

CONCLUSIONS...
RECOMMENDATIONS...
FINAL THOUGHTS...
SECTION ONE: CONCLUSIONS

Due to government regulation in the post-war era, development tends to locate outside of city limits. There are often available sites of adequate size and location within the municipal boundaries, however, many of these vacant or abandoned sites have perceived environmental contamination. Investors are hesitant when dealing with these “brownfield properties” due to the Joint and Several Liability Doctrine of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This states that anyone associated with the property could later be responsible for the full cost of any contamination that is discovered. Although lot prices and taxes are more expensive for properties in the urban core, the uncertainty of the environmental costs is the greatest deterrent for developers.

Current development trends in the United States are based on the perception that environmental costs are too great for private developers to invest in brownfield properties. The uncertainty of the final costs for such a redevelopment project have dissuaded developers from considering brownfield properties as a viable alternative. Development trends may actually shift if property owners tried one of the three main governmental approaches that are designed to be cost comparative with developing in a greenfield. The three main approaches are designating development zones, site specific approaches, and voluntary action in a cooperative way. The Enterprise Zone Concept, the Brownfields Initiative, and the Voluntary Remediation Program each represent one of the three approaches. All three have wide spread use in both state and federal arenas.

Each of these government approaches addresses different aspects of the many development costs. Property acquisition, construction costs, and utility installation are among the most expensive development costs. However, when weighing development options, location is the most important. Some businesses need visibility and access, while others desire amenities. Brownfield sites often offer easy access to a wide variety of municipal amenities.

In order to compare the various approaches to redevelopment, a framework was created that incorporates as many developmental and operational costs as possible. A
one-story factory facility was chosen as a feasible reuse for a brownfield property as well as a building that could be constructed outside of the municipal boundaries. Since this type of building has a market area that extends beyond the city boundaries, its exact location within the city is not as important as a service orientated company. However, brownfield sites usually have more people living within the same radial distance as rural sites. This gives opportunity for reaching clients and employee housing options. It could also be considered an unwanted landuse, however, so could the brownfield property.

The developer wants to construct a marketable facility at a competitive price for the client, therefore, four primary options are available to the developer. The first is to acquire a brownfield property and demolish the existing building, then a new facility can be erected. The second option is to reuse the existing building after rehabilitating it. A third option involves specifically seeking out a brownfield site that has no buildings on the land. The final option is for the developer to purchase a new development site on agricultural land.

As the cost comparison in Chapter Three: Findings on Cost Effectiveness outlines, developers consider many different costs when choosing a site to build upon. Greenfield sites involve high utility costs. Brownfield properties have lower utility costs, but they have environmental contamination and cleanup costs. The three government programs can, however, lower the costs associated with building on brownfield properties. Each provides benefits that reduce the environmental costs and liabilities or as stated in the hypothesis section from Chapter One: Thesis Process:

- **Brownfield Redevelopment is cost effective when private investors use existing government programs**
A Framework for Private Development Costs Associated With Each Option

<table>
<thead>
<tr>
<th></th>
<th>Option One</th>
<th>Option Two</th>
<th>Option Three</th>
<th>Option Four</th>
<th>Operational Incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Brownfield with Demolition</td>
<td>Brownfield with Rehabilitation</td>
<td>Brownfield with Vacant Land</td>
<td>Development in a Greenfield</td>
<td></td>
</tr>
<tr>
<td>No Government Programs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Designated Area Approach</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Site Specific Approach</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Cooperative Approach</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No</td>
</tr>
</tbody>
</table>

Legend of Costs — □ High □ Middle-High □ Middle-Low □ Low

Each program offers different benefits to the private developer. The Enterprise Zone Concept is a designated area approach that offers a decrease in the operating costs of the new facility. It is currently administered on a state level and allows companies tax breaks for building within a specified area. It also encourages employing local residents through additional tax credits. It does not cost the government money outright, rather it reduces the tax base. Therefore, the program is cost effective to both the participants and the government agency. This concept addresses the second hypothesis from Chapter One: Thesis Process:

- The Enterprise Zone Concept is a cost effective policy tool to remedy environmental contamination
The Brownfields Initiative is a new federal program which offers grants and operational incentives to owners of specific sites to encourage redevelopment. The sites are specifically targeted as key areas for redevelopment. Since the sites play a critical role in a large development framework, the government is willing to offset the private investor’s costs. They have established a fund of grant money to be dispersed. The grant money can be applied to any environmental costs that arise. This program lowers the initial costs to the developers. This concept addresses another hypothesis from Chapter One: Thesis Process:

- *The Brownfields Initiative is a new program that subsidizes initial environmental cleanup costs*

The last program is cooperative in design. The Voluntary Remediation Program does not place restrictions on location and can save the developer the most in terms of environmental costs. This is accomplished by lowering the liability standards. If the end use is similar to the original use, cleanup levels are lowered. Anyone owning a brownfield property may participate in this program. Since the environmental costs are reduced and utility costs are already low due to location, this program can save the developer the most in terms of development fees. The following statement reiterates another hypothesis from the first chapter:

- *The Voluntary Remediation Program lowers development costs to levels which are comparable to building in a greenfield*
Each program addresses redevelopment costs in a different way. However, all three prove that brownfield redevelopment can be cost effective when private investors use existing government programs. It is in the best financial interests of the private developer to investigate brownfield redevelopment before building in a greenfield.
A developer should consider brownfield locations when making a cost comparison of potential sites on which to build. By using one of the three main governmental approaches to redevelopment, development and operational costs can be significantly lowered. This allows brownfield sites to become cost advantageous over greenfield locations outside of municipal boundaries. However, each program does allow room for future improvement.

Designated Area Approach

The most visible example of a designated area approach is the Enterprise Zone Concept. This program lessens government restrictions within a designated area. The result is that brownfield developers within a zone will have lower operational costs but the same initial expenses. Brownfield sites must be within the predetermined zone to be considered for this program. Administered on a state level, Indiana has eighteen such zones. The remaining areas of the state are not eligible for the benefits of being within an Enterprise Zone.

In the four development scenarios outlined earlier, the development costs remain the same with the designated area approach. Since only operational costs are addressed, in the form of tax credits, the development costs are not lowered. This program has goals that encourage brownfield redevelopment through operational expenses, but it does not contain provisions for lowering development costs from the private developer’s perspective.

In the future, the federal government should create a national enterprise zone program with provisions for environmental restoration. This would encourage private developers to use the Enterprise Zone Concept more often for brownfield restoration. The program would have to address the liabilities issue, which creates the biggest development cost hurdle. A variation of this idea has already been considered by President Clinton (See the Brownfields Initiative Section). In this proposal, he recommends giving priority to sites located within existing designated areas.
**Site Specific Approach**

Recently created, the Brownfields Initiative is the best example of a site specific approach to brownfield redevelopment. This program provides a grant to the private developer which can be used toward environmental costs on specific properties. The money can be spent on environmental testing and contamination cleanup. This program can lower the private developer's costs by as much as $200,000 (the maximum grant amount). The future of the program, however, is uncertain. Congressman Coyne (D-PA) wants to increase the grant number to one-half of the environmental costs. The President's plan would provide tax credits and give priority to areas located within Enterprise Communities and Empowerment Zones. The 104th Congress was unable to reach a compromise and decide on the best alternative to pursue.

When applied to the four development options outlined earlier, the Brownfields Initiative significantly lowers the environmental costs in the first three options. In each case, $500,000 was used as an approximate cost for redevelopment. This number is highly variable, however. If the costs are less than $200,000, they are completely covered by the current federal site specific program. If Congressman Coyne's plan is passed, half of the environmental costs will be covered. Such costs could be anywhere from $10,000 to $10,000,000.

Although the Brownfields Initiative still creates an era of uncertainty in the development costs, it provides monetary assistance to private developers who are redeveloping potentially contaminated sites. This reduces the gamble that redevelopment can create. Presently, this program seems to be working very effectively, however, developers may become uneasy without strong support by all branches of the federal government.

**Cooperative Approach**

The Indiana Voluntary Remediation Program is an example of the cooperative approach to redevelopment. Similar programs have been administered by twenty-three states to encourage voluntary redevelopment of brownfield properties. In this approach,
the private individuals work with government officials to address the environmental costs involved at their specific site. In this program, standards for cleanup are reduced to levels that reflect the end use of the property. Anyone who wishes to build on a brownfield can utilize this program.

In the four development options outlined in Chapter Three: Findings on Cost Effectiveness, the first three could possibly eliminate environmental costs completely. Grants are available to address site testing. If the end use of a site is industry, costs will be reduced significantly if not altogether. Indiana’s Voluntary Remediation Program is helpful since it can also be used in conjunction with other programs such as the Enterprise Zone Program and the Brownfields Initiative.

This program has been very effective in cleaning sites in Indiana and other progressive states. The federal government should consider creating a national program of similar caliber. The only foreseen problems would be creating standards uniform to the entire country. It is therefore recommended that a national program be implemented by each region of the Environmental Protection Agency. Indiana would be in Region 4 and have similar standards to other Midwestern states.
SECTION THREE: Final Thoughts

In the past hundred years, the world has seen more drastic changes than in any prior century. Perhaps the most notable change has been in the design of the urban form. Over the past century, American urban areas have grown exponentially. The first major push outward along the commuter rail was followed by the flight to the suburbs. As the development sprawls outward, some look backward. According to an Urban Land survey, the average citizen wants the conveniences offered by the large urban area without the headaches of traffic congestion, crime, and blight (Warrick et al, 1997). The farther away from the central core, the less convenient these services become.

Brownfield redevelopment is the answer. As this thesis shows, brownfield redevelopment can be cost effective when the private investor uses existing government programs. These sites offer the advantage of location within the urban core. Services are readily accessible without destroying precious farmland. In the future, these sites will be the key to urban survival. Developers need to think twice and reuse vacant and abandoned properties before permanently altering the natural environment.
REFERENCES


http://teclink.net/mbj/mbj020596/jim.html


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