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ABSTRACT

INCENTIVE FACTORS THAT AFFECT THE REDEVELOPMENT OF BROWNFIELD SITES IN NEW JERSEY

**by
Edison L. Hammond**

This thesis sought to address three main questions:

- Are brownfields a significant problem in New Jersey and its municipalities?
- What factors have contributed to brownfields' continued existence?
- What factors are most important for correcting brownfields in the state?

The study involved surveying Federal and state agencies, Non-Governmental Organizations (NGOs) and municipalities that work with brownfields. It involved a survey questionnaire, followed by a detailed telephone interview to determine municipalities' satisfaction with actions and policies taken by state agencies on brownfield redevelopment.

Eight Federal and state agencies and NGOs participated, along with ten municipalities from around the state. The major findings were: brownfields are a significant problem at all levels; urban blight and liability provisions have contributed to the continued existence of brownfields; and liability relief and additional funding are the most needed incentives for correcting brownfields.

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REDEVELOPMENT OF
BROWNFIELD SITES IN NEW JERSEY**

by
Edison L. Hammond

**A Thesis
Submitted to the Faculty of
New Jersey Institute of Technology
in Partial Fulfillment of the Requirements for the Degree of
Master of Science in Environmental Policy Studies**

Department of Humanities and Social Sciences

May 1998

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APPROVAL PAGE

**INCENTIVE FACTORS THAT AFFECT THE
REDEVELOPMENT OF
BROWNFIELD SITES IN NEW JERSEY**

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This thesis is dedicated to the memory of my father,
and to my mother, who gave me inspiration in many ways.

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LIST OF ACRONYMS

CDBG	Community Development Block Grant
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act (Superfund Act)
DER	Declaration of Environmental Restriction
EC	Enterprise Community
ECRA	Environmental Cleanup Response Act
EOZ	Environmental Opportunity Zone
EZ	Empowerment Zone
HUD	United States Department of Housing and Urban Development
ISRA	Industrial Site Reuse Act
KCS List	Known Contaminated Sites List
NEMW	Northeast-Midwest Institute
NFA	No Further Action
NGO	Non-Governmental Organization
NJEDA	New Jersey Economic Development Agency
NJSA	New Jersey Statutes Annotated
PCB	Polychlorinated Biphenyl
PRP	Potentially Responsible Party
RBCA	Risk-Based Cleanup Action
UEZ	Urban Enterprise Zone
USEDA	United States Economic Development Agency
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank

CHAPTER 1

INTRODUCTION

1.1 Purpose

1.1.1 Research Goal

The aim of this thesis is to determine what role incentives play in brownfield redevelopment in New Jersey.

1.1.2 Discussion and Definition of Brownfields

“Brownfields” sites are generally defined as “abandoned, idled or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination” (USEPA, 1997a). This is contrasted with “greenfield” sites, which are pristine, uncontaminated areas (Murphy, 1995). There is no definitive number of brownfields; however, estimates run into the hundreds of thousands. Some are single-contaminant sites where cleanup should be relatively easy. Numerous substances have contaminated other sites over many years. Are brownfields a significant problem in New Jersey and its municipalities? What factors have contributed to the continued existence of brownfields? What incentives need to be offered to correct the brownfield situation in New Jersey?

This study sought answers to these questions from Federal and state agencies and municipalities. Specifically, the study explored how important incentive factors are to brownfield redevelopment.

1.1.3 Background on Brownfields

Estimates of the number of “brownfield” sites nationwide range from approximately 130,000 (Maldonado, 1996) to 500,000 (Bartsch and Collaton, 1994). According to one source, New Jersey has approximately 7,000 (Begley, 1996). Another study (Cohen, et al., 1994) has stated that New Jersey has as many as 17,000 brownfield sites. This study respectfully disputes that number, as the author’s research has shown a “ballpark” figure of 7,000 to 10,000 known contaminated sites, not all of which would be brownfields. In any event, the state has a substantial number of brownfields, and determining how to promote the redevelopment of these sites is the central issue. Many of these sites are located in urban areas, where they were initially used as industrial sites. However, many sites are also located in suburban and rural areas.

As industries and the economy changed over the past half-century, companies moved, closed facilities, or went out of business. Often, they would abandon these sites, leaving behind the specter of possible or actual pollution (Bartsch and Collaton, 1994).

Now, these sites can now only be used after some degree of assessment, characterization and possible cleanup. Because of liability

concerns, which are discussed later, potential developers may be unwilling to assume cleanup expenses and the risks associated with a brownfield site, so the sites often remain unused and continue to deteriorate. However, the picture is not entirely bleak. A number of sites have been redeveloped, and are now in productive use. These are sites that have been redeveloped regardless of any environmental problems or other factors that may have been present. Examples of redeveloped brownfield sites in New Jersey include:

- The former Roebling Cable Works in Trenton, which was redeveloped into a retail and office complex (NJDEP, 1996).
- The Mercer Multi-use Sports Facility in Trenton, which was transformed from a former steel plant into a minor league baseball stadium (NJDEP, 1996).
- The Newport Development in Jersey City, which was converted from a railroad yard into a combination residential, office, retail and marina complex (NJDEP, 1996).

In addition to the sites discussed above, which are all located in New Jersey, states other than New Jersey have had substantial success in redeveloping brownfields. California has remediated more than 1300 acres, and Massachusetts has done over 3200 redevelopment actions in three years (Dinsmore, 1996).

This study examined the incentives that played a role in the redevelopment process, attempted to determine the role those incentives played, and sought to extract lessons that can be applied to any governmental entity that has a brownfield problem.

1.1.4 Why Should New Jersey Policymakers be Concerned About Brownfields?

Brownfields pose an economic and political as well as environmental challenge for policymakers and for the public at large. Their continued existence leads to:

- Abandoned property, which undermines the local tax base (Bartsch and Collaton, 1994).
- Continued deterioration of vacant properties—vandalism, illegal dumping, and other criminal activity. Concerns about these factors may make a brownfield site less attractive to developers or business interests than one where this type of activity does not occur (Bartsch and Collaton, 1994).
- Migration of contamination through groundwater or other methods, causing reductions in neighboring property values (Bartsch and Collaton, 1994).

Clearly, a municipality has reasons to want to encourage the redevelopment of these properties. If a redevelopment action can be completed, the municipality stands to gain in areas such as job creation, increased tax collection, and reduced welfare and unemployment payments.

Mayor J. Christian Bollwage of Elizabeth, New Jersey, appeared before the US Senate Environment and Public Works Committee on March 4, 1997. In his statement to the committee, Mayor Bollwage pointed out that the brownfields problem was caused by the unintended consequences of Federal Superfund legislation, but that local communities are affected by these unintended consequences. He noted that, in a 1996 survey, the US Conference of Mayors found that brownfield sites cost more than \$121 million, and that the cost may have been as high as \$386 million. In Elizabeth, Mayor Bollwage's city, there were 56 brownfield sites identified (as of the date of his appearance). These sites cost his city the opportunity for job creation, new housing and potential growth in other areas. However, as he pointed out, there have been examples of redevelopment in Elizabeth. He specifically pointed to the IKEA and Toys R Us stores built in the city, noting that these have provided hundreds of jobs, over \$1 million in tax revenues and more than \$2 million in Urban Enterprise Zone revenues (US Senate Environment and Public Works Committee, March 4, 1997).

There are numerous reasons for a municipality to want to redevelop its brownfields, as is evident in Mayor Bollwage's statement. Jobs, taxes and new businesses are among the most important issues to a municipal

government. However, there are certain impediments to brownfield redevelopment in existing environmental laws. These impediments are provisions that were originally intended to make polluters pay for the cleanup of contaminated sites. These provisions actually have caused lenders, developers and other interested parties not to conduct cleanup and redevelopment. These unintended consequences occur at both the Federal and state levels.

The primary Federal law affecting the brownfield arena is the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), passed in 1980 to address a serious environmental problem: who is responsible for cleaning up abandoned hazardous waste sites. A significant part of the act was the establishment of a \$1.6 billion “Superfund,” intended to pay for cleanups. This was originally funded through a series of taxes and assessments, and was to be replenished by the fines and other monies collected from polluters. Partly to finance this fund, a liability scheme was imposed that would allow for the imposition of liability on any Potentially Responsible Party (PRP) (Hird, 1994). A PRP could be the current owner of a property, or any party that had ever owned or participated in management of a site. According to Creenan and Lewis (1996), liability was imposed if the plaintiff, normally the Government, could meet some basic tests:

- The defendant must be a PRP;
- The site of the cleanup must qualify as a “facility” under CERCLA;
- There must have been a release of a hazardous substance, or a release must be threatened at the site;

- The plaintiff's remedial actions conform to the National Contingency Plan (Creenan and Lewis, 1996).

There are several types of liability under CERCLA:

Strict liability is the application of liability based on ownership of a property, not necessarily culpability. Strict liability was not included in the original law; it has been constructed by several court decisions as applicable in assessing liability (Michel, 1995).

Joint and several liability is a provision under which in which any owners or anyone who has ever participated in management—past or present—are considered equally liable. Under this provision, the plaintiff sues the current owner; the current owner is free to secure whatever compensation he can from past owners. However, the current owner is still the “first line of defense.” Joint and several apportionment gives the government the ability to go after a “deep pocketed” party, resulting in a greater likelihood of cost recovery (Michel, 1995; also, Hird, 1994).

Retroactive liability is a provision under which a PRP is liable for all previous contamination on a property, whether he caused it or not. This has been compared to ex post facto law, but the courts have upheld its legality as long as Congress does not act arbitrarily or irrationally (*US v. Monsanto*) (Michel, 1995).

A major New Jersey law that has affected the development of industrial properties is the Industrial Site Recovery Act (ISRA). This law requires notice prior to any transfer of property. The law also requires the development of detailed cleanup plans, or a determination of no contamination (NJSA 13:K-9, pp. 20–21). If a party does not comply with

these provisions, or submits a false determination, the New Jersey Department of Environmental Protection (DEP) can impose a fine of \$25,000 per incident (each day counts as a separate incident). Additionally, the law gives DEP the authority to invalidate any sale of industrial property if the previous owner does not submit a cleanup plan, or fails to comply with an approved cleanup plan (NJSA 13:1 K-12, p. 30).

As Page and Rabinowitz (1994) note, these laws have slowed redevelopment of contaminated sites in two ways: first, by imposing the specter of liability on any potential purchaser, and second, by the threat of delays and the resultant higher costs that result from perceived environmental uncertainties (Page and Rabinowitz, 1994).

1.2 What Elements Make Up the Brownfield “Equation”?

During the course of research for this thesis, it became apparent that there are generally three components to the brownfield “equation”—environmental, economic, and socio-political. A brief description of each of these is found below, along with a discussion of how they are important in the brownfield redevelopment issue.

1.2.1 How Environmental Factors Affect Brownfield Redevelopment

Environmental factors make up a significant portion of the brownfield issue, as mentioned earlier. Brownfield sites may range from small, single-contaminant sites to large industrial plants such as former steel mills or abandoned military installations. Determining the extent and type

of environmental problems, if any, that are present on a site may be an expensive and time-consuming process.

There are a number of areas that must be considered in a brownfield remediation or redevelopment action. A partial listing of these areas would include soil contamination. A developer would need to know what potential contaminants are in the ground and what technological solutions are available to deal with them (determination of the “best” solution may vary from one case to another, and from one developer to another). Another area is groundwater. A remediator would need to know how far below the surface the water table lies, and whether any contaminants have gotten into the water table. It is also important to know if any contamination has migrated from the site. A third area of environmental interest is the presence of underground storage tanks. If a site has ever been used as a transportation facility, factory, or served a similar function, it may have underground storage tanks. These must be checked for leaks, they may have to be removed (depending on their size), and any leakage must be cleaned up. An additional issue for consideration is Risk-Based Corrective Actions (RBCA). A remediator or planner must know what the proposed end use is for a site, and whether there are different cleanup standards that may be applied based on that use. It is probably more expensive to clean a site to residential standards than to industrial standards. The decision to clean to residential standards may not make sense if a site is to be used as an industrial plant in the future.

The environmental portion of the equation is not an easy one to deal with, and doing so requires a sound knowledge of the science and principles involved.

1.2.2 How Economic Factors Affect Brownfield Redevelopment

The economic viability of a brownfield site constitutes another significant part of the picture. There are many sites that have already been redeveloped, and there are other sites that could be redeveloped with the application of the proper incentives. There are also sites that are not likely ever to be redeveloped regardless of any other factor. Although this may seem obvious, a point worth stating is that not all brownfield sites will ever be viable for redevelopment from a purely economic standpoint.

Sites in the first two categories are generally economically viable, or have the potential for economic viability after cleanup. This includes sites that have already been redeveloped and sites that could be viable with the addition of incentives. That is, the cost of cleaning up the site must not be excessive when compared to the expected profit for the site's developer after redevelopment. An example of a site that could be economically viable with the proper incentives is the former Magic Marker site in Trenton, New Jersey. This site once housed a lead-acid battery manufacturing plant. It now lies vacant, but initial site characterization work has been undertaken. The site is heavily contaminated with lead and PCB's (lead contamination exists up to 49,000 parts per million; the current commercial use standard, by way of illustration, is 600 parts per million). Until buildings on the site

are torn down, the full extent of the contamination will not be known. The City of Trenton hopes to tear down the building in the next two to three years, and is pursuing the responsible party. The responsible party has been identified, and the issue of liability is currently in litigation. A final resolution to these issues is still some time away, but a likely use for this site is a mixed commercial facility (Lord, 1998).

Sites in the third category (those unlikely to be redeveloped) are generally small, scattered lots for which the economic viability would be considered poor. For example, Jersey City, New Jersey has approximately 750 40' by 80' lots that are undeveloped and currently unused (Kearns, 1998). Because of the limited potential use of these sites, along with the expense of site investigations and any necessary cleanup activity, sites in this category are probably unlikely to ever be redeveloped.

Many sites in this third category do not appear to meet the strict definition of brownfields, but it will be argued later that the definition of brownfields should be expanded to include abandoned or under-utilized residential as well as industrial properties.

1.2.3 Why Socio-political Factors Are the Key to Brownfield Redevelopment

The socio-political area of brownfield redevelopment is perhaps the most difficult part of the equation. Factors in this area will come into play when a community is organized around a common goal—the redevelopment of its neighborhoods. This can involve many groups such as community

organizations, local mayors and municipal council members and others. Often, these groups will have different agendas from one another; this can slow or stop a redevelopment action.

The list of stakeholders in this area is large, as is illustrated by Figure 1 below. A lack of cohesion among these stakeholders can slow or stop redevelopment. The figure represents a general idea of how the various players coordinate and direct policy matters. (This illustration is not all-inclusive. For reasons of space and clarity, the Executive Branch and the Legislative Branch at the Federal and state levels have not been included. These entities are represented by the Federal and state agencies that are depicted. Additionally, the developer is not shown here. Although developers are the ultimate users of these sites, their role in redevelopment lies outside the scope of this thesis.)

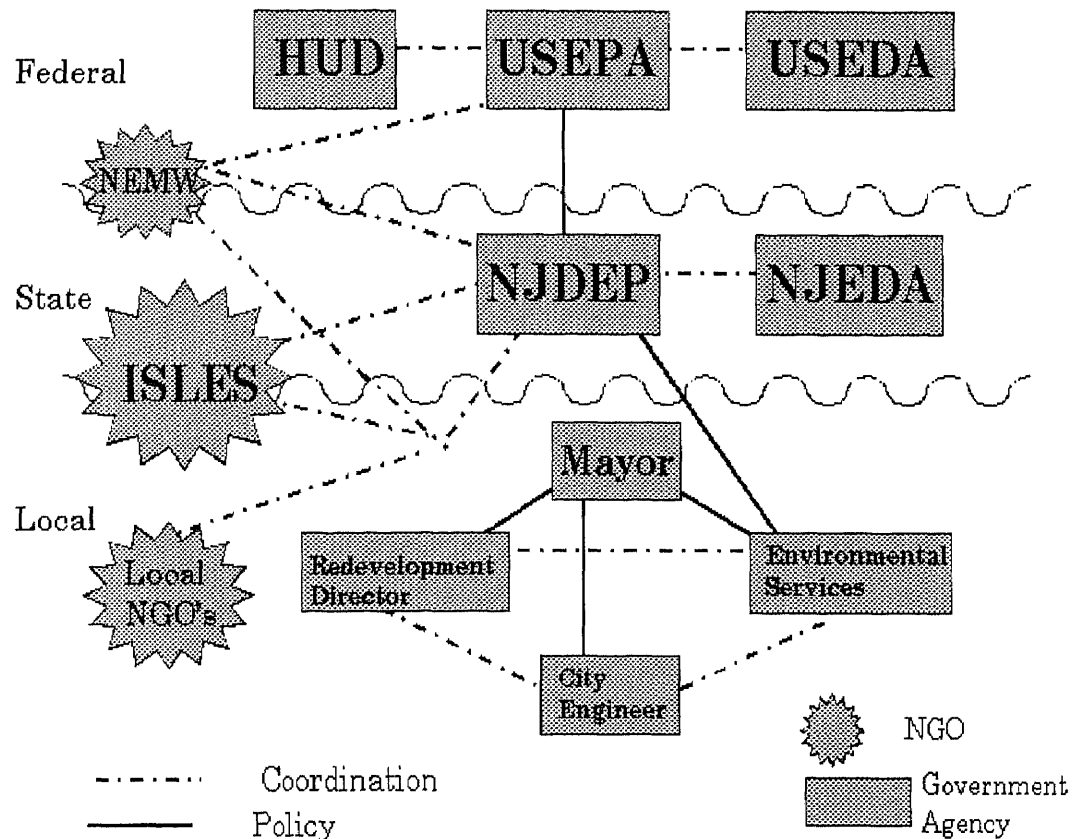


Figure 1. A Notional Representation of the Relationships Between Entities Involved in Brownfield Redevelopment

1.2.3.1 Non-Governmental Organizations (NGOs): NGOs play an important role. NGOs such as ISLES, Inc., an NGO in Trenton, have facilitated successful redevelopment actions in their communities. The outreach activities they conduct are educating residents about how to get governmental agencies involved on their behalf. In addition to the Magic Marker site discussed earlier, some projects ISLES, Inc. has worked on include:

The Crane site, which is currently being redeveloped, has a proposed 100% commercial end-use. One new building already exists on this site, and houses a candle-making facility (Lord, 1998).

Another (unnamed) manufacturing site is planned for conversion to open space. There is uncertainty as to what was manufactured here, and there has been spill-over from a nearby scrap recycling facility. (The recycling facility owner has agreed to share the cost of cleanup.) It appears that this is a promising site for conversion to parkland or other open space in a neighborhood that is predominantly industrial (Lord, 1998).

1.2.3.2 Federal Agencies: The United States Environmental Protection Agency (EPA) has a major role in the brownfield process. EPA directs brownfield pilot projects around the country, and provides grants to help communities conduct redevelopment. In New Jersey, the current pilot sites include Newark, Perth Amboy, Elizabeth, Camden, Jersey City and Trenton (USEPA, 1998).

The United States Economic Development Administration (EDA) provides funds to support the redevelopment of infrastructure and business incubator services to states, local governments, public or private non-profit agencies, and others. Projects receive priority consideration if they establish or expand commercial or industrial facilities, create new private sector jobs, fulfill a pressing need of the local community, or meet certain other criteria (US Department of Commerce, 1998).

The United States Department of Housing and Urban Development (HUD) administers several financing programs that affect brownfield redevelopment. Among these is the Community Development Block Grant (CDBG) Program, which provides funds to cities and state governments to facilitate the redevelopment of privately owned buildings and sites. Another is the Section 108 Loan Guarantee Program, which allows local governments to finance projects that are too large for CDBG financing. (Bartsch and Collaton, 1994)

Also available are the Enterprise Community and Empowerment Zone (EC/EZ) programs, which target designated areas in a community for special Federal funding and other incentives to stimulate private sector economic activity. (Bartsch and Collaton, 1994)

1.2.3.3 State Programs: State government has an important role to play as well. Significant actions at the state level in New Jersey include the Bagger Law, which allows a ten year, phased-in property tax abatement on contaminated properties which are remediated. New Jersey also has a law releasing municipal governments from liability when they take ownership of a property under tax seizure. Some of these laws are discussed in more detail in the next chapter.

Major Players at the State Level: The New Jersey Department of Environmental Protection (DEP) plays an important role in the brownfield redevelopment process as a primary executor of the Federal and state laws which deal with this area. DEP has available tools such as the Voluntary

Cleanup Plan, under which responsible parties enter into agreements to conduct remediation on a site. Once remediation is complete, DEP will issue a No Further Action Letter. This generally frees the party from further action for past contamination. It is important to note that there are some significant exceptions to the No Further Action Letters, such as a change in remediation standards. However, it provides a qualified level of finality (NJDEP, 1996).

The New Jersey Economic Development Authority administers the Hazardous Discharge Site Remediation Fund, which makes loans and grants available for the conduct of site investigation and remediation (NJDEP, 1996).

1.2.3.4 Local Government: Local government plays perhaps the most important role in redeveloping its brownfields. It is the local community that suffers the greatest impact from brownfields, and therefore, local government which has the most to gain from remediation and redevelopment. If a local government is well organized and cohesive, it will have a good chance of bringing in the necessary elements to conduct redevelopment. Among the actions local governments can take are the establishment of a redevelopment authority; the channeling of tax breaks on individual properties, and the approval of zoning variances when a redevelopment action would appear to be in the community's best interest.

1.3 Concluding Comments

While there appears to be some degree of overlap among the various areas of importance to brownfield redevelopment, most of the incentives appear to fall within the socio-political realm. Therefore, most of the discussion in the next sections will deal with that area. This is not intended to slight the importance of the environmental problems that brownfields cause to the local community and its residents; nor is there an intent to downplay the importance of economics to the brownfield equation. However, most of the incentives for brownfield redevelopment are the result of political actions (the passage of laws, the workings of state and local governments, etc.) or the result of social actions (the development of a neighborhood development group which lobbies the municipal government). While all parts of the equation are important, and all sectors have roles to fulfill, the socio-political sector constitutes the key, without which the other elements would not be able to conduct site remediation and redevelopment as efficiently as they do under the current system.

CHAPTER 2

LITERATURE SURVEY

2.1 Introduction

Most of the incentives currently available for brownfield redevelopment are in the socio-political arena, as was discussed in the previous chapter. A survey of the literature on brownfields bears out this conclusion, as outlined in this chapter. The interrelationships of the three components that were discussed in the previous chapter are discussed here (environmental, economic, and socio-political).

The results of the literature survey are presented in three parts—environmental, economic, and socio-political. The environmental area includes discussions of some types of issues that are important to identify in a project. These issues can present challenges that, if not dealt with properly, can cause a project to fail. The economic area includes discussions about the potential costs and benefits associated with brownfield redevelopment. There is also the identification of a potential threshold for redevelopment projects. The socio-political area includes discussion of two state laws that affect the brownfields redevelopment process. Laws may not normally be included in a literature survey, but these are of such importance to the process in New Jersey that a short discussion of them is appropriate.

2.2 What the Environmental Literature Says

The environmental literature has tended to focus on methods and problems related to site remediation or cleanup. This is a critical step in brownfield redevelopment, and there must be either set standards or a generally accepted understanding of “how clean is clean” before a cleanup action can be successfully completed. However, in many cases cleanup is tied to redevelopment. As Scovazzo and Strubble (1990) point out, remediation actions on a Superfund site may continue for years. When dealing with brownfields and developers, cleanups need to be done economically and thoroughly to remove contamination, and to be defensible in court if challenged. Cleanups also need to be done in a timely manner to speed the redevelopment action. This places constraints on environmental consultants, engineers, scientists and others involved during the investigation, cleanup and re-use phases. Scovazzo and Strubble list the following as critical to brownfield environmental assessments:

- Demonstrating that the property is environmentally acceptable for the planned use.
- Resolving any environmental problems in the time allotted.
- Controlling costs and schedules for site investigations and remediation actions so that the transaction is still profitable.

(Scovazzo and Strubble, 1990)

An example of interest is a former rail and port facility located in Baltimore, Maryland. This site needed extensive remediation before it could be converted into a mixed commercial and retail center. The effort involved characterization of the areas most likely to have been contaminated by past

use; the examination of structures and other facilities on the site; sampling at various points to determine the extent, nature and potential pathways for the spread of any contaminants; and the determination of appropriate methods for conducting the cleanup (Scovazzo and Strubble, 1990). In addition to the environmental considerations, this case is important from an economic context because of the continuing need to control costs and schedules so that a property transaction can proceed without incurring excessive costs or delays. Delays in either cost or schedule can potentially cause a project to fail, and may drive the developer to seek a greenfield solution.

A second example of note in the environmental literature is found in Woburn, Massachusetts. This site has been extensively studied, and two books have been written about the case history, in addition to the journal article cited here. One book dealt with the legal cases of families who had suffered diseases as a result of environmental poisoning (Harr, 1990); the subject of the second was the role of community action groups in dealing with the toxic waste issues (Brown and Mikkelsen, 1997).

Numerous former industrial sites (tanneries, glue factories, chemical plants and other industries) had left the Industri-plex site contaminated with chromium, arsenic, lead and other substances which needed to be dealt with before the site's conversion to a regional transportation center (Salvesen, 1993). Remediation and redevelopment on this site was estimated at \$50 million. However, in this instance, contamination will not be removed; rather, it will be contained in place through the application of artificial barriers (capping) (Salvesen, 1993).

These cases both demonstrate that, while environmental processes such as site investigation and cleanup are necessary for a successful redevelopment project, they must be managed so as not to cost too much or take too long. If either of these occur, environmental considerations can scuttle a project and cause developers to look elsewhere. Then, it becomes likely that a greenfield site which has no environmental history will be selected for development.

2.3 What the Economic Literature Says

Much of the literature in the economic portion is found in journal articles, and has dealt with the cost–benefit ratio involved in brownfield redevelopment. The primary economic issue is whether the potential costs associated with redevelopment outweigh the potential benefits that will accrue to the site after redevelopment (specifically, will the developer make enough of a profit on the project to make the project worthwhile?).

Potential costs include the unknown or uncertain qualities associated with a site. Examples include the severity and type of contamination; the willingness or unwillingness of the lending community to assume risks; and the projected (potential) value of a given site after successful remediation and redevelopment. These types of considerations tend to make it difficult for a potential developer to quantify costs (and therefore profit margins), and may lead to some of the following:

- Reduced value of collateral. If a property that is to be used for collateral has not been properly characterized and assessed

beforehand, a lending institution may find that its value is less than was previously expected.

- Inability of borrowers to repay loans if they must also pay cleanup costs.
- Potential for a lender to become liable for the costs of cleanup in the event of foreclosure.
- The possibility that a borrower would not maintain the facility in an environmentally appropriate manner (future liability) (Bartsch and Collaton, 1994).

Potential benefits include:

- The ability of a successful redevelopment project to influence other sites in the immediate area.
- The potential for increased property value on a redeveloped site (which will probably lead to increased property tax collection on the site).
- The increased capacity for job creation (which will probably lead to increased income tax revenues on the personal income that jobs generate).
- The overall intangible quality of life in a community.

There may also be benefits to the community in the form of improved human health conditions. The removal of contaminants may have an impact on residents living near a brownfield site, and could also cause property values to rise after redevelopment (Bartsch and Collaton, 1994).

One example is found in an article by K. Connolly and D. Daddario. Titled "How to Find the Green in Your City's Brownfields," this article

discusses several communities and how they dealt with brownfield problems. One such community is Vernon, California. This town, located near Hollywood, has converted a closed steel mill into an industrial center housing more than 60 firms, and employing more than 1,500 people.

As Connolly and Daddario point out, there was a need to find the money to pay for the environmental cleanup while keeping the total cost (including the sunk costs for site cleanup) competitive for sale. This was done, in part, by selling scrap steel from the mill facility to raise money. Also, the site was used to film action sequences for a movie. The movie's producers paid to demolish buildings and clear away debris. Approaches like this one may not work in all communities, this case shows some of the creativity that communities have employed to get their brownfields cleaned up in an economical manner.

In another case, Page and Rabinowitz posited that a threshold exists for development interests in a property (whether public, private or mixed). (Page and Rabinowitz, 1994) If a property falls below this threshold, it is less likely to be redeveloped; if a property lies above the threshold, its redevelopment becomes more likely. This threshold says that the likelihood of redevelopment decreases as the risk of contamination increases. Page and Rabinowitz define the risk of contamination as the costs of environmental cleanup plus the risks of environmental liability and potential delay. The threshold spans the continuum from risk-averse developers, who are likely to select sites where the risk of contamination is near zero, to risk-tolerant developers who can absorb risks. They also note that "some sites below the threshold would not provide enough incentive for

redevelopment even with little contamination present because of poor market and/or economic returns” (Page and Rabinowitz, 1994). In other words, the threshold is a guideline, not an absolute indicator of a site’s redevelopment potential.

Page and Rabinowitz cite four cases in which redevelopment decisions were made. Variables in these cases included the site’s location; type and amount of contamination; the estimated cost of cleanup; the expected value of the site after cleanup and redevelopment; willingness to assume risks; and the ability to secure financing for remediation. In each case, the buyer, seller, financier or oversight agency applied creative solutions to address the problems found at each site. This resulted in returning unproductive property to productive use in each case; however, the redevelopment actions were not always conducted in a traditional cost–benefit scenario. In the first instance, the initial site cleanup plan called for the removal of 250,000 cubic yards of soil. An alternative was selected which allowed the soil to be treated on site and used as fill for the project. The use of innovative technology (on–site bioremediation) kept the overall cost within limits that were acceptable to the eventual purchaser. Because this technology was applied, the purchaser got a clean parcel of land for \$2 million less than the original asking price (Page and Rabinowitz, 1994).

In the second case, an 80–acre site housed a former tannery, and had been unused for decades. The seller wanted a purchaser to take the property sight unseen, and wanted indemnification for past liability as a condition of the sale. In exchange, the seller was willing to accept a very low price for

the property. The predominant contamination, as was revealed during an inspection after the sale, is asbestos. The prospective purchaser accepted liability for any environmental problems in exchange for the low selling price. A purchaser was eventually found who accepted the terms; this purchaser now “owns” the liability for the site, but has a site that meets his specific needs. It is located near the purchaser’s largest customer, and is located on Lake Michigan, which the new owner thinks will be an additional advantage. The new owner has dealt with risky properties in the past, and believes that this property will be a long-term asset in spite of its current risks (Page and Rabinowitz, 1994).

In the third case, redevelopment would have been cost-prohibitive without a large infusion of Federal funds. The site had been a manufacturing facility for automobile switches and controls from 1919 to 1980, and was heavily contaminated with the metals that are associated with this type of manufacturing. Asbestos was also present in the building’s insulation. The early estimates for site cleanup and redevelopment were in the range of \$75,000 to \$100,000. This was beyond the acceptable range to private developers or the city. However, the final total cost was much higher. As a result of escalating costs for site cleanup and structural renovation, the project was in danger of failing. The state’s Congressional delegation got a special grant of \$3.5 million, and the site cleanup and redevelopment could proceed. The final cleanup costs were three times what was originally estimated, mainly because of the added costs of dealing with the removal of chromium (Page and Rabinowitz, 1994)

Redevelopment of the fourth site, according to the authors, could probably not have taken place under today's stricter environmental standards. This is a 42-acre island located in the Allegheny River near downtown Pittsburgh. Initial redevelopment of the site was proposed in 1981, with proposed end use as a mixed project with offices, light industrial facilities, recreational facilities including tennis courts and a park, and housing. Cleanup costs escalated in the late 1980's when a small but serious pool of PCB's was found. This caused serious delays while a solution was found, and caused much uncertainty about what the solution would be. Initially, it was believed that the PCB's would have to be shipped to a toxic waste facility several hundred miles away. The state's Department of Environmental Protection was persuaded, however, to allow the disposal of this contaminated soil on site under strict conditions. This required the construction of a secure landfill, as well as the redesign of significant portions of the use plan. Total cleanup costs here were estimated at \$25 million, half of which came from state funds, thus showing the state's commitment to redeveloping this site (Page and Rabinowitz, 1994).

These cases show the impact that economics can have on a project. Even when redevelopment appears to be a straightforward process, plans can be delayed, changed or even halted because of economic concerns. There are actions that can help to offset these economic concerns. Specifically, release from liability would remove much uncertainty. Also, the purchase of environmental insurance could remove an area of concern for potential developers.

2.4 What the Socio-political Literature Says

The socio-political literature includes laws that are expected to encourage brownfield redevelopment. Two of the most important laws, in addition to those discussed in the previous chapter, are New Jersey's "Environmental Opportunity Zone Act", also known as the Bagger Law, and the recently signed Senate Bill S-39, also known as the "The Brownfield and Contaminated Site Remediation Act."

The Bagger Law allows for a phased tax exemption for the remediation of contaminated properties, as long as the money that would be due for property tax is used for site remediation. This law also provides for a series of funds to both property owners and municipalities to assist in remediation and in dealing with discharges of hazardous materials (New Jersey Public Law 1631, January 10, 1996).

The Brownfield and Contaminated Site Remediation Act provides a number of incentives for brownfield remediation. These include:

- Innocent Purchaser Protection, which provides a liability exemption from the Spill Compensation and Control Act for purchasers who complete remediation of a property.
- Development of Presumptive Remedies. This is a change under which the DEP will develop "protective redevelopment remedies" that may be implemented without DEP approval. This will help to expedite redevelopment.
- Tax incentives will provide reimbursement for up to 75% of the cost of remediation of a contaminated property.

- Additionally, under an Environmental Opportunity Zone (EOZ) Amendment, the number of Enterprise Zone neighborhoods increased from 20 to 27, and it is now permitted to undertake residential construction in an EOZ. (Previously, only industrial or commercial development was allowed in an EOZ.) (New Jersey Public Law 1997, January 6, 1998).

Other entries in the socio-political literature have demonstrated that states have assumed a significant role in resolving brownfield problems in their jurisdictions.

For example, Sweeney discusses the role of state governments in establishing Voluntary Cleanup Programs. He points out that, as of mid 1995, 20 states had adopted some form of Voluntary Cleanup Program. (Sweeney, 1995). (This number has increased since then, because New Jersey has added a Voluntary Cleanup Plan. Other states may have added Voluntary Cleanup Programs as well.)

There have also been articles in the literature which cover state programs aimed at limiting lender liability, or at speeding the land recycling process.

Michel, for instance, provides an overview of Ohio's answer to its brownfield problem, Ohio Senate Bill 221. In this legislation, the Ohio legislature places limits on liability, and provides standards to determine "how clean is clean." The Ohio program allows for a great deal of flexibility by the remediating party, and with the potential issuance of a no further action letter, provides a degree of finality in the process. (Michel, 1995)

Pennsylvania took a similar approach, according to Creenan and Lewis. Under the Pennsylvania Land Recycling Program, a series of standards were established, depending on the proposed end use of a site. The Pennsylvania program also provides for releases from liability for certain parties (mainly innocent purchasers and volunteer remediators), and provides state funding to assist with remediation activities (Creenan and Lewis, 1996).

As the reader has seen, there is an interrelationship between each of the areas discussed — the environmental, the economic and the socio-political. None of these areas could effectively spur brownfield redevelopment alone, and it is where the three areas come together that redevelopment is most likely to succeed. Although site cleanup and redevelopment may occur within any of these areas, or with a combination of any two, it is more likely that redevelopment will succeed where all three areas come together.

2.5 Expected Contribution

2.5.1 Gap in the Existing Literature

Previous studies and articles have dealt with specific brownfields issues such as lender liability (Murphy, (1995), state programs that address legal issues (Berger, et al., 1995), and economic aspects associated with brownfield redevelopment. (Connolly and Daddario, 1995). Other studies have analyzed broader issues of redevelopment, such as the role crime and safety plays in a site redevelopment decision, and the profit motive for developers (Bartsch and Collaton, 1994; Cohen, et al. 1994). However, none

has looked at the incentives for brownfield redevelopment as applied to a state. Most have focused their examinations on states and their land recycling (primarily liability relief) programs, as with Creenan and Lewis or Michel. Some studies have focused on metropolitan regions. An example of this is a study by Cohen, et al., which provided case studies on several communities in EPA Region II (New Jersey and New York). This study differs from previous works by being more quantitative than previous works. It also differs in its approach — focusing on the incentives available within a single state — not just on the legal programs available for land recycling.

2.5.2 Potential for Brownfields Policy Development

This study will contribute to the literature base by conducting an examination of incentive factors in New Jersey, limited to those incentives that cities, States and the Federal government can offer to make redevelopment attractive. Because the brownfield “system” is constantly changing, the study will not attempt to evaluate the effectiveness of new incentives that may be introduced during the course of the study. It will, however, gather information from working level professionals about the incentives they believe would most help their communities in the redevelopment process. This study will offer recommendations to expand the brownfield program, to develop standards that ensure finality after a cleanup action, and to conduct further study on a larger scale — and will fill a gap in the existing literature by doing so.

CHAPTER 3

METHODOLOGY

3.1 Introduction

The overall study objectives, assumptions, hypotheses and study variables will be discussed here so that the reader may fully understand the scope of the project.

The overall objective of the project was to examine the incentives for brownfield redevelopment to see if the state and its municipalities have all the tools needed to facilitate brownfield redevelopment. If not, the study would determine what was needed, and provide this information to Federal and state policymakers. This was accomplished by:

- Gathering information from Federal and state agencies and NGOs to determine their perspectives on brownfields issues.
- Gathering information from municipalities to determine their perspectives on brownfields issues.
- Further exploring of selected issues of special significance.

One issue of special significance is the role of state agencies that deal with brownfields (specifically, the New Jersey Department of Environmental Protection and the New Jersey Economic Development Authority) and the level of satisfaction with these agencies' brownfields policies. Policy tools that are needed for the redevelopment of brownfields that are not currently available are identified.

3.2 Limiting Factors

This study was bounded by the following assumptions.

- All cities, townships and boroughs in New Jersey have brownfields.
- Infrastructure issues (the adequacy of roads, utilities and similar factors) are a basic part of the brownfield decision process.

The New Jersey DEP maintains a list of Known Contaminated Sites (the KCS list) that have been reported to it. Normally, municipalities report this data to the DEP, although it can come from other sources. The listing is comprehensive; the July 1997 edition listed over 7,000 sites located throughout the state (NJDEP, 1997). Not all of these sites are brownfields; some are residential properties, and some are governed by other programs, but it seems likely that many of these sites could be considered as brownfields. Because of the geographic dispersion of the sites on the DEP's KCS list, it seems highly likely that brownfield sites are prevalent in all communities.

If a site lacks adequate infrastructure, it will not be considered for redevelopment regardless of its other attributes (physical location, lack of contamination, etc.). Although infrastructure is an important consideration for potential developers, its absence may not stop development in all cases.

This study was limited to New Jersey because of the state's high density of brownfield sites — in excess of 7,000 according to one author (Begley, 1996).

3.3 Study Population

The study population consisted of the following groups:

- State and Federal agencies that deal with brownfield policy issues.
- Non–Governmental Organizations (NGOs) that work on brownfield issues at the local, state or regional levels.
- Municipalities from around New Jersey. The municipalities were selected to provide a mix of small towns and large cities.

Among the state and Federal agencies that are involved with brownfields policy issues is the United States Environmental Protection Agency. This is the primary Federal agency involved in brownfields policy issues. Also in this group are the New Jersey Department of Environmental Protection and the New Jersey Economic Development Authority. The US Department of Housing and Urban Development and the US Economic Development Agency were not surveyed because they do not appear to have a direct role in making brownfield policy; rather their role appears to providing funding only. Similarly, the New Jersey Department of Commerce was initially included, but was later dropped because of its limited role in brownfield policy issues. The New Jersey Economic Development Authority was included as a more policy–oriented agency.

NGOs that work with brownfields issues are:

- New Communities, which develops low–income housing in the City of Newark.
- The Ironbound Community Development Corporation, which works in one area of Newark to empower the residents of the Ironbound neighborhood.

- ISLES, Inc., which has facilitated redevelopment actions on several brownfield sites in conjunction with the City of Trenton and various neighborhood groups.
- The Northeast–Midwest Institute (NEMW). NEMW is a non–partisan policy organization that works with members of Congress from Northeastern and Midwestern States. The organization provides policy development and support, as well as community education activities.

Ten municipalities from around the state participated in the study, broken out as follows:

- Six cities with populations over 75,000. The cities included were Camden, Elizabeth, Jersey City, Newark, Paterson and Trenton.
- Four municipalities with populations under 50,000. The municipalities included were Atlantic City, New Brunswick, Newton and Phillipsburg.

The cities and municipalities selected were drawn from areas throughout New Jersey. They were not randomly selected, but most have a significant number of sites on the KCS list (generally more than 60 for the large cities, and generally more than 25 for smaller municipalities.) Exceptions were made on a case–by–case basis, to incorporate other municipalities that could provide unique insights to the study. The methodology outlined in the section above was conducted with officials in the selected municipalities, as well as with officials from the Federal and state agencies and the NGOs.

3.4 Methodology

The methodology involved a number of steps. These were:

- Establish hypotheses to be tested
- Identify potential participants
- Identify study variables
- Develop questions and survey instruments
- Contact specific participants
- Collect data
- Conduct data analysis

Establishment of the hypotheses took place after a review of the literature on brownfields. The literature review led to the overall questions that are the subject of the study — what has caused brownfields, and what is needed to remedy them. The hypotheses are targeted at specific elements within those questions, and will be presented later.

Identification of the study variables also took place after the literature review. This process involved examining cases in the literature to see what factors had been noted as significant in other cases and determining whether or not they might apply to New Jersey.

Identification of the potential study participants required analysis of the roles Federal and state agencies played in making brownfield policy, and determining which NGOs could provide useful information from a policy perspective. This step also required determining which municipalities might provide good study subjects. This was accomplished by reviewing the KCS list to determine which municipalities had the greatest number of sites on the list. Further analysis was conducted to

determine the estimated population of each municipality to determine if it was a large city or a smaller municipality. The population cutoff for large cities and smaller municipalities was arbitrarily established at 75,000. This allowed identification of all of the largest cities in New Jersey, and a selection of smaller municipalities drawn from around the state.

The development of questions and survey instruments was a crucial step in conducting the study. After the hypotheses and variables had been identified, it was necessary to look at questions from a policy perspective. In other words, it was necessary to develop the questions from a practical standpoint that a policymaker would understand. This was accomplished by testing several versions with people who were familiar with the issues, and incorporating their comments. This resulted in a relatively short, easily understood questionnaire.

The next critical milestone involved contacting the potential participants. This step required being able to explain the project succinctly, and it required a measure of perseverance to contact everyone whose municipality or organization was on the list. If an agency contact or a municipal representative agreed to take part in the study, their name was added to the list to receive a survey. All who were contacted initially agreed to participate; however, there were two municipalities that did not respond to repeated requests for information. There was also one anonymous response from a municipality.

The data collection for this study was done in two basic parts: administration of the survey instruments discussed above; and development, administration and analysis of a follow-up telephone interview.

In the first step, surveys were sent to the officials whose agencies or municipalities agreed to participate in the study. A list of the survey participants can be found in Appendix G. Twenty surveys were sent out to the study participants. Eighteen surveys were returned, for a total response rate of 90%. The overall quality of data received varied, with most returned surveys containing excellent data. However, not all respondents answered all questions. Non-responses to questions, in a study population as small as this one, could have significantly skewed the results. Accordingly, the data need to be viewed with caution.

The study used two survey instruments. These were nearly identical in form, but differed in focus. One was sent to Federal, state and NGO respondents, who are identified in the study population below. This survey asked questions at the larger level, focusing on brownfield issues in the state as a whole. The other was sent to municipal officials, and focused on brownfield issues in their communities. The municipalities are identified in the study population below. The survey instruments are shown at Appendix A (Federal/State/NGO Survey) and Appendix B (Municipal Survey). After the initial surveys were completed and returned, the results were analyzed to determine how significant respondents thought brownfields were, negative impacts of brownfields, what they believed caused brownfields, positive effects if brownfields were redeveloped, and

what they believed were the most likely solutions were for brownfields. The results of the survey are discussed in detail in the next chapter.

The second step was the development of a follow-up interview, which was administered only to municipal respondents who had completed the earlier survey. The interview is at Appendix E. This was intended to give the respondents an opportunity to comment on brownfield policy instruments that are currently available as well as to identify those things they thought were needed for brownfield redevelopment. Respondents also had an opportunity to provide opinions and insights about the effectiveness of state agencies they deal with on brownfield issues.

After all the interviews were completed, the results were analyzed to determine the overall perceptions of effectiveness and municipal satisfaction with the state agencies and their policies, and the overall satisfaction with brownfield policy tools that currently exist in New Jersey. Interview participants were also given the opportunity to identify policies or tools they believed would be most helpful to them in doing their community brownfields work. Results of these interviews are discussed in the next chapter, and may be found at Appendix F.

3.5 Hypotheses

- State and Federal agencies and NGOs will view brownfields as a significant problem in New Jersey. Based on the sheer number of known contaminated sites throughout New Jersey and their dispersion around the state, most state agencies and NGOs that deal with brownfields will view them as a significant problem. The

Federal and state agencies and NGOs may also view brownfields as a significant problem because of the perception of New Jersey as a less than desirable place to do business. This perception could be seen as leading businesses to relocate to other States, or to leave New Jersey for more positively viewed locations.

- Municipal officials will view brownfields as a significant problem in their communities. Municipalities bear the greatest burden of abandoned or underutilized property. Municipalities lose tax revenue on the property. They lose the opportunity to have jobs created on the sites. The image of affected communities is impacted so that they do not seem to be a good place to live or work. Therefore, it is likely that municipal officials will view brownfields as a significant problem.
- The most likely factor which has contributed to the existence of brownfields throughout the state will be liability provisions in environmental laws. While environmental laws have not directly caused the occurrence of brownfields, the conditions that have arisen out of the laws (specifically in the liability provisions) will probably be seen as a major factor behind the conditions that have led to brownfields.
- Federal and state agencies and NGOs will view relief from liability under current environmental laws as the most important incentive factor for brownfield redevelopment. There will likely be a difference in the Federal/State/NGO and municipal perspectives as to the importance of various incentives leading to the redevelopment of brownfields. It is likely that, from a Federal, state and NGO

perspective, liability relief will be seen as more important than any other potential remedy. This is because this type of incentive could potentially be offered to communities throughout the state, and would conceivably not cost the state treasury a significant amount of revenue to implement.

Liability is also a likely concern for developers throughout the state. Although that group is not included in this study, others have noted it as a concern. A thesis is currently being done to analyze the role of liability to developers.

- The most important incentive for municipalities will be additional funding from any source. While the Federal/State/NGO group will probably view liability relief as the most important corrective action, municipalities will probably see additional funding as the most important incentive for brownfield redevelopment. It is likely that municipalities will want additional funding to provide for site assessment, for remediation, or to compensate for lost tax revenues. This could come from Federal or state sources, or from any combination of public-private financing vehicles.

3.6 List of Variables

Three basic variables are likely to impact on brownfield redevelopment as outlined in this study. These are:

- Tax incentives. This includes adjustments to the tax rates on property being redeveloped, or local adjustments to property, or designation of a community as an Enterprise Community,

Empowerment Zone, or some other specific incentive. It also includes the complete exemption of specific property from any tax. Tax incentives may enhance development of brownfield sites by lowering the capital costs required to do business in an area.

- Liability relief. This includes any Federal or state program that provides or could provide relief from liability under current environmental laws. Relief of this type may enhance brownfield redevelopment by encouraging development companies and lending institutions to take action on properties without the fear of high cleanup costs. Liability relief would also provide a degree of certainty to the development process, in that a current property owner would not be liable for contamination caused by a former owner.
- “Other” programs. This includes any program that eases the redevelopment of property. This could include such things as zoning variances, which could make cleanup standards easier to attain. Another example is the availability of funds from any source. These funds do not need to be targeted specifically toward brownfields for consideration here, as in the case of the Community Development Block Grant discussed in Chapter 1.

Table 1: Variable Identification

Variable	Measurement(s)
Tax incentives	Scaled for importance
State Tax Rate	Rank ordered from 1-7
Local Tax Rate	Rank ordered from 1-7
Presence of Targeted Tax Breaks	Rank ordered from 1-7 from any source (Designation as Empowerment Zone, Enterprise Community, or similar programs)
Exempt Property	Rank ordered from 1-7
Liability relief	Scaled for importance
Federal or State Liability Relief Program(s)	Rank ordered from 1-7
Other programs	Scaled for importance
Funding availability	Rank ordered from 1-7 (Public and Private Sources) (Loan Guarantee programs, Block Grants, or similar programs)
Zoning Variances	Rank ordered from 1-7

3.6.1 Method of Measurement

The study used measures as described below.

The structured questionnaire, which was administered to all participants, asked for responses to the following questions:

- Scaling for the importance of brownfields, either in New Jersey or in the local community. This used a Likert scale, with 1 being low value (Not at all Significant), and 5 being high value (Very Significant).

- Negative effects of brownfields, either in New Jersey or in the local community. This used a Likert scale, with 1 being low value (Not at all Likely to Impact) and 5 being high value (Very Likely to Impact). The factors that were included are:
 - Lower property values.
 - Lowered property tax revenues.
 - Job losses to other states or other communities.
 - Urban blight.
 - More crime/a less safe environment.

- Likely contributing factors for the continued existence of brownfields (ranked from 1–5, with 1 being most important and 5 being least important).

Factors to be ranked included:

 - Liability provisions in environmental laws.
 - Tax policies that deter redevelopment of brownfields.
 - Lack of available funding for the purchase and remediation of brownfields.
 - Existing blight in urban areas.
 - Crime and public safety issues.

- Factors that could be useful in speeding the brownfield redevelopment process. Factors were ranked from 1–7, with 1 being most important and 7 being least important. Factors to be ranked included:
 - State adjustments to tax rates.
 - Local adjustments to tax rates.
 - Targeted tax breaks from any level of government.

- Programs that provide liability relief under environmental laws.
 - Availability of additional funding from any source.
 - Zoning variances.
- Positive effects on the state or on the local community if all brownfields were returned to productive use. Factors were scaled using a Likert scale, with 1 being low value (Not at all Likely to Occur) and 5 being high value (Very Likely to Occur). The factors in this section were:
- Higher property values.
 - Enhanced property tax revenues.
 - Job creation.
 - Improving blighted areas.
 - Reduced crime and improvements to the safety environment.
- The perceived effectiveness of policies that could assist in brownfield redevelopment. These factors were rated using a Likert scale, with 1 having low value (Not at all Effective for Brownfield Redevelopment) and 5 having high value (Very Effective for Brownfield Redevelopment). The factors were:
- Tax relief from the state or Federal government.
 - Liability relief from the state or Federal government.
 - Availability of funding (loan guarantees, grants, etc.)

The structured interview, which was conducted after the completion of the questionnaire, was only administered to those municipal officials who had responded to the earlier survey. The interview asked for responses to the following:

- Rating the effectiveness of agencies for assisting communities in brownfield redevelopment. Respondents were asked to rate the agencies using a Likert scale with 1 having low value (Not at all Effective) and 5 having high value (Very Effective). The agencies were the New Jersey Department of Environmental Protection and New Jersey Economic Development Authority.
- Rating the satisfaction with actions taken by the agencies in brownfield redevelopment. Respondents were asked to rate the agencies using a Likert scale with 1 having low value (Not at all Satisfied) and 5 having high value (Very Satisfied). Again, the agencies were the New Jersey Department of Environmental Protection and New Jersey Economic Development Authority.
- Rating the effectiveness of policy tools currently available in New Jersey. Respondents were asked to rate the policy tools using a Likert scale with 1 having low value (Not at all Effective) and 5 having high value (Very Effective). The policies are listed below:
 - Ten-Year Tax Abatement to Offset Remediation Costs on Properties Being Remediated.
 - The Industrial Site Recovery Act.
 - The Spill Act Fund.
 - The Voluntary Cleanup Plan.
 - Funding to Assist Property Owners in Conducting Remediation.
 - Funding to Assist Municipalities in Dealing with Discharges of Hazardous Materials.

- Open-ended questions to obtain the municipalities' insights on what tools they think are needed but not currently available for brownfield redevelopment.

3.6.2 Mode of Observation

This study required detailed telephone and personal coordination with local and state government officials and NGO staff in order to effectively communicate milestones and desired goals. A study of this kind could not be unobtrusive, but this one was conducted so as to be as non-intrusive as possible. It was possible, through effective coordination, to reduce the disruption to respondents to a minimum while gathering the necessary information to complete the project.

3.6.3 Concluding Comments

Detailed discussion and analysis of the results takes place in the next chapter. This chapter served to give the reader a better understanding of how those results were obtained, and what was the overall scope of the study.

CHAPTER 4

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter provides an analysis and discussion of data collected in support of the objectives outlined earlier. The data are presented in two parts. The first part contains the results of the initial survey mailed to respondents during late 1997 and early 1998. The second part contains the results of telephonic follow-up interviews conducted with municipal respondents during early 1998.

The study population was divided into two groups, as was discussed earlier. The first group, called the “Federal/State/NGO Group”, was comprised of the Federal and state agencies that deal with brownfields, and of the NGOs that work on brownfield issues. The NGOs were all placed into this group because it is likely that they will approach brownfield issues differently than would municipal officials. Although these NGOs will probably have different approaches, client populations and focus from one another, they should be similar enough to allow for inclusion as one part of this group. Their approaches to brownfields issues also are likely to be different enough from municipal respondents so that the NGOs could not be placed in that group. It is also possible, however, that the NGOs will have different perspectives from the other members of this group. Discrepancies in the data will be explained where possible.

The principal Federal agency involved in brownfield policy, the US Environmental Protection Agency (USEPA), is deeply involved in brownfield issues at the national and regional levels. USEPA has sponsored numerous workshops and other community outreach activities to educate and inform community leaders about brownfield issues. As part of its outreach activities, the agency also has recently published two documents that provide information to municipal stakeholders. The first, “Road Map to Understanding Innovative Technology Options for Brownfields Investigation and Cleanup,” provides information about the numerous technological options that are available for brownfield redevelopment, and provides a “road map” of the steps that are generally needed for redevelopment (USEPA, 1997a). The second, “Tool Kit of Information Resources for Brownfields Investigation and Cleanup,” provides detailed information about the different types of technologies that are available for brownfield cleanup (USEPA, 1997b). These are presented as examples of the resources available from USEPA.

Although other Federal agencies such as the Department of Housing and Urban Development and the Economic Development Agency provide funding that states and municipal governments can use for brownfield redevelopment, they have not been included here because they do not appear to have a direct role in making policy for brownfield redevelopment.

The state agencies are the New Jersey Department of Environmental Protection (NJDEP) and the New Jersey Economic Development Authority (NJEDA). These agencies are involved in brownfields issues to varying degrees. NJDEP is the central agency involved in brownfield issues

throughout the state. NJDEP works with communities, conducting outreach and education programs to educate stakeholders about brownfield issues. It compiles and updates the list of Known Contaminated Sites (also known as the KCS list), and assists remediators in complying with the provisions of the state's Voluntary Cleanup Plan. NJDEP also enforces Federal and state environmental laws.

NJEDA also is fairly heavily involved in brownfield issues in the state. NJEDA administers loan and grant programs that assist individuals and municipalities in conducting remediation and redevelopment activities. The agency works with NJDEP to assist companies in dealing with site investigation and cleanup. It makes loans to companies of up to \$1 million, and loans and grants to municipalities of up to \$2 million. The funds are available to businesses that cannot obtain funding on their own, and to municipalities and individuals undertaking a voluntary cleanup of a site (NJEDA, 1998).

Municipal officials who participated in the study formed the "Municipal Group". These respondents came from various city agencies. Some were from the City Engineer's Offices; others were from Urban Enterprise Zone (UEZ) administrator's offices, while some represented the Economic Development or Redevelopment offices. All municipalities in the initial survey group ultimately participated in the study, with the exceptions of Hoboken, Edison and Camden. However, one of these three municipalities responded anonymously. All had been given numerous opportunities to participate. It is regrettable that they did not want to make their positions known to policymaking officials.

4.2 Survey Results

4.2.1 General Discussion

The results presented here are shown in two categories: the Federal/State/NGO Group is shown first, and the Municipal Group is shown second. Detailed analysis of the results is discussed later; the most important findings are shown now, so that the reader may better understand and follow the analysis.

From the Federal/State/NGO perspective, the most likely factors contributing to the continued existence of brownfields in New Jersey were:

- Existing blight in urban areas.
- Liability provisions contained in the Comprehensive Environmental Response, Compensation and Liability Act (Superfund Act), or in other environmental laws.
- Lack of available funding for the purchase and remediation of brownfields.

The most important factors for correcting brownfields were:

- Programs that provide relief from liability under environmental laws (CERCLA, ISRA, etc.)
- Availability of additional funding from any source (Loan guarantees, grants, public-private consortiums, etc.)
- Targeted tax breaks from any level of government (e.g., designation of a community as an Empowerment Zone or Enterprise Community).

The most likely positive effects of brownfield redevelopment were:

- Improving blighted areas. All respondents felt that this would happen with brownfield redevelopment.

- Job Creation. Again, all respondents felt that this would happen with brownfield redevelopment.
- Higher property values. Again, all respondents felt that this would happen with brownfield redevelopment.

From the municipal perspective, the most likely factors contributing to the continued existence of brownfields in the local community were:

- Liability provisions contained in the Comprehensive Environmental Response, Compensation and Liability Act (Superfund Act), or in other environmental laws.
- Lack of available funding for the purchase and remediation of brownfields.
- Tax policies that deter redevelopment of brownfields.

The most important factors for correcting brownfields were:

- Availability of additional funding from any source (Loan guarantees, grants, public-private consortiums, etc.)
- Programs that provide relief from liability under environmental laws (CERCLA, ISRA, etc.)
- Targeted tax breaks from any level of government (e.g., designation of a community as an Empowerment Zone or Enterprise Community).

The most likely positive effects of brownfield redevelopment were:

- Improving blighted areas. Eighty percent of respondents felt that this would happen with brownfield redevelopment.
- Enhanced property tax revenues. A majority of respondents said this factor would happen with brownfield redevelopment.

- Job creation. Again, a majority of the respondents said this would happen with brownfield redevelopment.

Federal, State and NGO Participation: Using the methodology described in the previous chapter, surveys were sent to eight Federal and state government agencies and NGOs. These were USEPA, the Northeast–Midwest Institute, New Jersey Department of Environmental Protection, New Jersey Economic Development Authority, ISLES, Inc., New Communities, and the Ironbound Community Development Corporation. Responses were received from all eight, for an overall response rate of 100%.

Municipal Participation: Surveys were sent to twelve municipalities. These were Atlantic City, Camden, Edison, Elizabeth, Hoboken, Jersey City, Newark, New Brunswick, Newton, Paterson, Phillipsburg and Trenton. Responses were received from ten municipalities, for an overall response rate of 83.3%. One response was submitted anonymously. The response rate includes the anonymous submission.

The total response rate (Federal/State/NGO and Municipal) was 90%. Eighteen of twenty surveys sent out were eventually completed and returned.

4.2.2 Hypothesis One

state and Federal agencies and NGOs will view brownfields as a significant problem in New Jersey.

Test Question, Response and Discussion

Test Question: Study participants were asked the following: “How significant a problem are brownfields in New Jersey?”

Respondents were asked to rate how significant a problem they viewed New Jersey's brownfields to be. Possible ratings were from 1 (Not at all Significant) to 5 (Very Significant). This question was addressed to Federal, state and NGO respondents only.

Response: One hundred percent of respondents said they believe that brownfields are a significant problem in New Jersey. The responses received to this item are scored below. Distribution of the responses is found in Table 2 at the end of this chapter.

Mode: 5

Median: 4.5

Average: 4.5

Discussion: All eight participants answered this question. All rated brownfields as a "Significant" or "Very Significant" problem for New Jersey.

4.2.3 Hypothesis Two

Municipal officials will view brownfields as a significant problem in their communities.

Test Question, Response and Discussion

Test Question: Study participants were asked the following: "How significant a problem are brownfields in your community?"

Respondents were asked to rate how significant a problem they viewed their community's brownfields to be. Possible ratings were from 1 (Not at all Significant) to 5 (Very Significant). This question was addressed to municipal respondents only.

Responses: Sixty percent of respondents said they believe that brownfields are a significant problem in their communities. Twenty percent of respondents said they believe brownfields are neither significant nor insignificant within their communities. Ten percent of respondents said that brownfields were an insignificant problem in their communities, and ten percent did not provide a response to this item. The responses received to this item are shown below. Distribution of the responses is found in Table 3 at the end of this chapter.

Mode: 5

Median: 4

Average: 3.89

Discussion: The data show that most respondents believe brownfields are a significant problem in their communities. Sixty percent of those surveyed felt that brownfields were either significant or very significant in their communities. Twenty percent responded that brownfields were neither significant nor insignificant in their communities, and ten percent responded that brownfields were an insignificant problem. Although the overall response to this question was that brownfields are a significant problem to the local community, it was expected that municipal respondents would generally give brownfields more significance than they did.

4.2.4 Hypothesis Three

The most likely factor contributing to the continued existence of brownfields in of brownfields throughout the state, from both the Federal/State/NGO perspective and the municipal perspective, will be liability provisions in environmental laws.

4.2.4.1 Test Question from the Federal, State and NGO Perspective:

Study participants were asked to respond to the following question by ranking the factors listed. Rankings were from 1 (Most important) to 5 (Least important).

“Many factors have been thought of as causes for brownfields.

Below are a list of factors that are commonly thought as causes of brownfields. Please rank them in terms of how responsible you think they are in terms of causing New Jersey’s

brownfields. Assign only one number per statement.”

Discussion: Somewhat surprisingly, the most important factor contributing to the continued existence of brownfields in the Federal/State/NGO group was existing blight in urban areas. This was followed by lack of available funding for the purchase and remediation of brownfields. Liability provisions in existing environmental laws ranked third, followed by crime and public safety issues. The least likely factor was tax policies that deter redevelopment of brownfield sites.

- Existing blight in urban areas was rated the most important factor for the continued existence of brownfields. It was ranked first by 25% of the respondents, second by 12.5%, third by 25%, and fourth by 25%. No response was received from 12.5% of the participants.
- Lack of funding for the purchase and remediation of brownfields was rated second in importance. It was ranked first by 25% of respondents, second by 37.5% of respondents, third by 0%, fourth by 12.5% and fifth by 12.5%. No response to this item was received from 12.5% of the participants.
- The third most important factor contributing to the continued existence of brownfields was liability provisions in existing environmental laws. This was ranked first by 37.5% of respondents, second by 25%, third by 0%, fourth by 12.5% and fifth by 12.5%. No response to this item was received from 12.5% of the participants.
- The fourth most likely factor contributing to the continued existence of brownfields was crime and safety issues. This was not ranked first or second by any respondents. It was ranked third by 37.5% of respondents, fourth by 12.5%, and fifth by 37.5% of respondents. No response to this item was received from 12.5% of the participants.
- The least likely factor that has contributed to the continued existence of brownfields is tax policies that deter redevelopment of brownfields. This was not ranked first by any respondents. It was ranked second by 12.5% of respondents, third by 25%, fourth by 25% and fifth by 25%

of respondents. No response to this item was received from 12.5% of the participants. Distribution of the responses to this item is found in Table 4 at the end of this chapter.

4.2.4.2 Test Question from the Municipal Perspective: Respondents were asked to respond to the following question by ranking the factors listed. Possible rankings were from 1 (Most important) to 5 (Least important).

“Many factors have been thought of as causes for brownfields. Below are a list of factors that are commonly thought responsible for brownfields. Please rank them in terms of how responsible you think they are in terms of your community’s brownfields. Assign only one number per statement.”

Discussion: The most likely factor for the continued existence of brownfields at the municipal level was liability provisions in environmental laws. This was ranked as the number one factor by 50%, as the number two factor by 20% and as the number three factor by 10% of respondents. No respondents rated this item fourth or fifth, and no response to this item was received from 20% of the participants.

- The second most likely causative factor was lack of available funding from any source. This was ranked as the number one factor by 40%, and the number two factor by 40% of respondents. No respondent ranked this item third, fourth or fifth in importance. Twenty percent of the returned questionnaires did not contain a response to this item

- The third most likely factor was tax policies that deter the redevelopment of brownfields. This factor was not ranked as the most important factor by any respondents. It was ranked second by 10% of respondents, third by 40% of respondents, fourth by 10% of respondents and fifth by 20% of respondents. Twenty percent of the returned questionnaires did not contain a response to this item.
- The fourth most likely factor was existing blight in urban areas. This factor was not ranked first or second by any respondents. It was ranked third in importance by 30%, fourth by 30% and fifth by 10% of respondents. Thirty percent of the returned questionnaires did not contain a response to this item.
- The least likely factor was issues relating to crime and public safety. This factor was not ranked first, second or third by any respondents. It was ranked fourth by 30% and fifth by 40% of respondents. Thirty percent of the returned questionnaires did not contain a response to this item. Distribution of the responses is found in Table 5 at the end of this chapter.

4.2.5 Hypothesis Four

The most important incentive for state and Federal agencies and NGOs will be liability relief.

Test Question, Responses and Discussion

Federal/State/NGO Perspective: Respondents were asked to respond to the following question. They were asked to rank the items from 1 (Most important) to 7 (Least important).

“Many factors have been thought of as potential remedies (corrective actions) for brownfields. Below are a list of remedies that may or may not help to solve New Jersey’s brownfields problems. Please rank them in terms of how important you think they are in terms of correcting New Jersey’s brownfields. Assign only one number per statement.”

Discussion: Here, as expected, liability relief is seen as the most important potential remedy for brownfields. This factor was ranked first by 37.5%, second by 25%, third by 12.5%, and seventh by 12.5% of participants. No response was received from 12.5% of respondents. It is interesting to remember that existing blight in urban areas was seen as the most likely causative factor for brownfields. It appears that there may be a disconnect between perceived cause and remedy.

- The second most important remedial factor is additional funding. This was ranked first by 25%, second by 25%, and fourth by 50% of participants. All participants responded to this item.
- The third most important potential remedy is targeted tax breaks. This factor was ranked first by 25%, second by 37.5%, fourth by 12.5% of respondents, and fifth by 12.5% of participants. It was not ranked third, sixth or seventh by any respondents. No response was received from 12.5% of respondents.
- Fourth most important is adjustments to local property tax rates. This was ranked first by 12.5%, third by 25%, fifth by 12.5%, and sixth by 12.5%

- of participants. This item was not ranked second, fourth or seventh by any participants. No response to this item was received from 37.5% of respondents.
- Fifth in importance was tax exemptions on specific properties. This factor was ranked second by 12.5%, third by 37.5%, fifth by 12.5%, and seventh by 12.5% of participants. No respondents ranked this item first, fourth or sixth in importance. No response to this item was received from 25% of respondents.
 - Sixth in importance was adjustments to state tax rates. This factor was ranked fourth by 12.5%, fifth by 25%, and sixth by 37.5% of participants. This item was not ranked first, second, third or seventh by any participants. No response to this item was received from 25% of respondents.
 - Least important was zoning variances. This factor was ranked fifth by 12.5%, sixth by 12.5%, and seventh by 37.5% of participants. This item was not ranked first, second, third or fourth by any participants. No response to this item was received from 37.5% of respondents.
- Distribution of the responses is found in Table 6 at the end of this chapter.

4.2.6 Hypothesis Five

The most important incentive factor for municipalities in redeveloping brownfields will be additional funding from any source.

Test Question, Responses and Discussion

Municipal Perspective: Respondents were asked to respond to the following question. They were asked to rank the items from 1 (Most important) to 7 (Least important).

“Many factors have been thought of as potential remedies (corrective actions) for brownfields. Below are a list of remedies that may or may not help to solve brownfields problems. Please rank them in terms of how important you think they are in terms of correcting your community’s brownfields. Assign only one number per statement.”

Discussion: As expected, the most likely remedial factor for brownfields at the municipal level was additional funding. All respondents ranked this first or second in priority.

- The second most likely remedial factor was liability relief. This was ranked first by 20% of respondents, second by 30% of respondents, fourth by 10% of respondents, fifth by 10% of respondents, and sixth by 10% of respondents.
- The third most likely remedial factor was targeted tax breaks from any level of government (designation as an Empowerment Zone or Enterprise Community). This was ranked second by 30% of respondents, third by 20% of respondents, fourth by 10% of respondents and seventh by 10% of respondents.

- The fourth most likely remedial factor was tax exemptions on specific properties. This factor was ranked second by 10%, third by 30%, fourth by 10%, sixth by 10%, and seventh by 10% of participants. No participants ranked this factor first or fifth. No response to this item was received from 30% of respondents.
- The fifth most likely remedial factor was state programs to adjust tax rates. This was ranked third by 10%, fourth by 20%, and fifth by 10% of participants. No participants ranked this factor first, second, sixth or seventh. No response to this item was received from 60% of respondents.
- The sixth most likely remedial factor was adjustments to local property taxes. This was ranked third by 10%, fourth by 20%, fifth by 20%, and seventh by 10% of participants. This factor had been expected to rank higher than it did; its actual position was a surprise. No participants ranked this item first, second or sixth. No response to this item was received from 40% of respondents.
- The seventh and final remedial factor was zoning variances. This factor was ranked fifth by 10% of respondents, sixth by 30% of respondents, and seventh by 10% of respondents. No respondent ranked this item higher than fifth in importance. No response was received for this item from 50% of respondents. Distribution of the responses is found in Table 7 at the end of this chapter.

4.2.7 Other Factors

Other items were discussed on the survey as well. Both groups were asked to rate the likelihood of effects they believed would occur if all brownfields in New Jersey, or in their communities were returned to productive use. The factors considered are shown below. All participants were asked to rate these factors on a scale of 1 (Not at all Likely) to 5 (Very Likely). The rating for each factor was based on how likely each respondent believed the factor was to occur in New Jersey or in each community.

4.2.7.1 Federal/State/NGO Perspective:

- Improving blighted areas. This factor was rated either Very Likely or Likely by 100% of respondents. It was rated Very Likely by 62.5% of respondents, while 37.5% rated it Likely. This was ranked first of five factors. Distribution of the responses is found in Table 8 at the end of this chapter.

The statistical scores associated with this factor are as follows:

Mode: 5

Median: 5

Average: 4.67

- Job creation. This factor was rated Very Likely or Likely to happen by 100% of the respondents. This factor was rated Very Likely 50% by of respondents; the remaining 50% rated it Likely. It was ranked second of five factors. Distribution of the responses is found in Table 9 at the end of this chapter.

The statistical scores associated with this factor are as follows:

Mode: 5

Median: 4.5

Average: 4.5

- Higher property values. All respondents (100%) rated this factor as Very Likely or Likely to happen if all brownfields in New Jersey were redeveloped. Fifty percent of participants rated this factor Very Likely, and the remaining 50% rated is as Likely. It was ranked third of five factors. Distribution of the responses is found in Table 10 at the end of this chapter.

The statistical scores associated with this factor are as follows:

Mode: 4

Median: 4

Average: 4.33

- Enhanced property tax revenues. This factor was rated Very Likely or Likely by 87.5% of respondents. It was rated Neither Likely nor Unlikely to happen by 12.5% of respondents. It was ranked fourth of five factors. Distribution of the responses is found in Table 11 at the end of this chapter.

The statistical scores associated with this factor are as follows:

Mode: 4

Median: 4

Average: 4.17

- Improved crime and safety issues. This factor was rated Very Likely or Likely by 87.5% of respondents. It was rated as Neither Likely nor

Unlikely by 12.5% of respondents. This factor achieved a statistical tie with enhanced property tax revenues, as shown above. Distribution of the responses is found in Table 12 at the end of this chapter.

The statistical scores associated with this factor are as follows:

Mode: 4

Median: 4

Average: 4.17

Most respondents viewed all of these factors very positively, as the analysis above shows. There was a very small quantitative difference between the most likely and the least likely positive factors.

4.2.7.2 Municipal Perspective:

- Improving blighted areas. Most respondents (80%) rated this as very likely to happen in their communities if all brownfields were redeveloped. This factor was ranked Very Likely by 60% of respondents, Likely by 20% of respondents, and Neither Likely nor Unlikely by 10% of respondents. No response to this item was received from 10% of those surveyed. This factor was ranked first of five in importance. Distribution of the responses is found in Table 13 at the end of this chapter.
- Enhanced property tax revenues. Most respondents (80%) rated this as very likely to happen in their communities if all brownfields were redeveloped. This factor was ranked Very Likely by 50% of respondents, Likely by 30% of respondents, and Neither Likely nor Unlikely by 10% of respondents. No response to this item was received from 10% of those

surveyed. This factor ranked second of five in importance. Distribution of the responses is found in Table 14 at the end of this chapter.

- Job creation. Most respondents (80%) rated this as very likely to happen in their communities if all brownfields were redeveloped. This factor was ranked Very Likely by 40% of respondents, Likely by 40% of respondents, and Neither Likely nor Unlikely by 10% of respondents. No response to this item was received from 10% of those surveyed. This factor ranked third of five in importance. Distribution of the responses is found in Table 15 at the end of this chapter.
- Higher property values. Most respondents (80%) rated this as likely to happen in their communities if all brownfields were redeveloped. This factor was ranked Very Likely by 30% of respondents, Likely by 50% of respondents, and Neither Likely nor Unlikely by 10% of respondents. No response to this item was received from 10% of those surveyed. This factor ranked fourth of five in importance. Distribution of the responses is found in Table 16 at the end of this chapter.
- Improved crime and safety issues. Most respondents (60%) rated this as likely to happen in their communities if all brownfields were redeveloped. This factor was rated Very Likely by 30% of respondents, Likely by 30% of respondents, and Neither Likely nor Unlikely by 30% respondents. No response to this item was received from 10% of those surveyed. This factor was ranked fifth of five in importance. Distribution of the responses is found in Table 17 at the end of this chapter.

4.2.8 Effectiveness of Incentives

Both groups were also asked to state how effective they thought certain types of incentives would be in the brownfield redevelopment process. The factors considered are shown below. All participants were asked to rate these factors on a scale of 1 (Not at all Effective) to 5 (Very Effective) based on how effective they perceived each item to be in terms of helping to speed brownfield redevelopment in New Jersey or in each community.

4.2.8.1 Federal/State/NGO Perspective:

- Availability of funding (loan guarantees, grants, public–private agreements, etc.). All respondents rated this factor as effective in redeveloping New Jersey’s brownfields. More than one third (37.5%) of respondents rated this factor as Very Effective, and an additional 37.5% rated it as Effective. No response to this item was received from 25% of those surveyed. This factor had an average score of 4.5 out of a possible 5, and was ranked first of three in importance. Distribution of the responses is found in Table 18 at the end of this chapter.
- Liability relief from the State or Federal government. Most respondents (75%) rated this factor as effective in redeveloping New Jersey’s brownfields. This factor was rated Very Effective by 50% of respondents; 25% of respondents rated it Effective, and 12.5% of respondents rated it as Ineffective. No response to this item was received from 12.5% of those surveyed. This factor had an average score of 4.17 out of a possible 5, and was ranked second of three in importance. Distribution of the responses is found in Table 19 at the end of this chapter.

- Tax relief from the state or Federal government. Most respondents (75%) rated this factor as effective in redeveloping New Jersey's brownfields. This factor was rated Very Effective by 25% of respondents; 50% of respondents rated it as Effective, and 12.5% of respondents rated it as Neither Effective nor Ineffective. No response to this item was received by 12.5% of those surveyed. This factor had an average score of 4.17 out of a possible 5, and was ranked third of three in importance. Distribution of the responses is found in Table 20 at the end of this chapter.

4.2.8.2 Municipal Perspective:

- Availability of funding (loan guarantees, grants, public-private agreements, etc.). All respondents who provided a response to this factor rated it as an effective tool in redeveloping their community's brownfields. This factor was ranked Very Effective by 90% of respondents. No response to this item was received from 10% of those surveyed. This factor had an average score of 5 out of a possible 5, and was ranked first in importance. Distribution of the responses is found in Table 21 at the end of this chapter.
- Liability relief from the state or Federal government. Most respondents (70%) rated this factor as an effective tool in redeveloping their community's brownfields. This factor was ranked Very Effective by 40% of respondents, Effective by 30% of respondents, and Neither Effective nor Ineffective by 20% of respondents. No response to this item was received from 10% of those surveyed. This factor had an average score of 4.22 out

of a possible 5, and was ranked second of three in importance.

Distribution of the responses is found in Table 22 at the end of this chapter.

- Tax relief from the state or Federal government. Most respondents (60%) rated this factor as effective in redeveloping their community's brownfields. This factor was ranked Very Effective by 10% of respondents, Effective by 50% of respondents, and Neither Effective nor Ineffective by 30% of respondents. No response to this item was received from 10% of those surveyed. This factor had an average score of 3.77 out of a possible 5, and was ranked third of three in importance. Distribution of the responses is found in Table 23 at the end of this chapter.

4.2.9 Respondent Comments

All respondents were given the opportunity to provide other comments on areas that may not have been included in the survey. Some respondents were critical of state agencies and the help they provided to individual communities. Other respondents said that what they needed was additional funding to accelerate their redevelopment efforts. Although respondents were asked at several points to rate or rank the importance of additional funding, several respondents took the opportunity to emphasize the need for additional funding in their communities. Comments have been edited for clarity, but not for content. Samples of comments included the following:

NJDEP has been and continues to be the greatest hindrance to redevelopment. Under ECRA (the Environmental Compensation and Recovery Act), there was little to no communication with the community.

DER's (Declarations of Environmental Restriction) are put in place then properties abandoned, when alternate technologies could have been used to make the land available for resale. (Municipal respondent #1)

Brownfields are caused by sites becoming contaminated and then their cleanup costs being uneconomic to undertake. Deterrents to brownfield reuse include (1.) lack of available subsidy to allow redevelopment of the site at prices which will allow the new use to effectively compete in the marketplace, and (2.) unpaid property taxes on abandoned sites which must be paid. Municipalities cannot give up this revenue, even though taxes may be more than the value of the property. (Municipal respondent #2)

Dozens of sites are listed by NJDEP where the only problem may have been a minor leak from an Underground Storage Tank (UST). DEP's lists make no distinction between a site with minor contamination (or even a site with possible contamination) and a site contaminated nearly enough to be a Superfund site. There are serious flaws in DEP's records, as well as in their communication with local government, the public and developers. It is difficult to obtain accurate information about sites and their status. (Municipal respondent #3)

The KCS (Known Contaminated Sites) list is pretty useless as so many sites are gas stations undergoing tank pulls which may have had some minor contamination or a spill at one time. We're using NJDEP's VCP (Voluntary Cleanup Plan) and we need more funding! (Municipal respondent #4)

In New Jersey the transfer of property is held hostage to environmental laws. This is a poor policy for urban redevelopment. The policy leaves property undeveloped even in the face of rising demand. Moreover, the impact is that cleanup does not occur. (Municipal respondent)

Federal tax relief would be most important for brownfield redevelopment; state tax relief is also very important. Also important is an effective means for community participation in project development. (NGO respondent)

A likely result of returning all brownfields to productive use would be an economic upturn (more jobs, more dollars spent and saved, less welfare, etc. (State agency respondent.)

4.3 Interview Results

4.3.1 Purpose of Interview

The interview was intended to refine information gathered during the survey phase. Specifically, some respondents had concerns and comments about the help their communities were receiving from New Jersey's state agencies in redeveloping brownfields. The telephone interview helped to determine respondents' concerns, and to translate those issues into a form that could be presented to the agencies concerned. It was administered to those municipal participants who had completed the earlier questionnaire.

The interview also asked respondents to rate a series of brownfield redevelopment tools currently available in New Jersey. It also asked respondents to outline what they most need to conduct brownfield redevelopment in their communities.

Interview questions are listed below.

“How effective are New Jersey’s state agencies at assisting your community in redeveloping its brownfields?”

- New Jersey Department of Environmental Protection. Overall, most respondents to this survey felt that DEP was effective in assisting their communities. Most (77.77%) rated the agency either Very Effective or Effective. However, 22.22% of respondents rated the agency Neither Effective nor Ineffective. The agency had an average of 3.89 out of a possible 5. Distribution of the responses is found in Table 24 at the end of this chapter.
- New Jersey Economic Development Authority. Most respondents were generally favorable in their opinions about the EDA. The agency was rated either Very Effective or Effective by 55.55% of respondents, while 22.22% rated it Neither Effective nor Ineffective. EDA had an average score of 4.14 out of a possible 5. The EDA ratings reflect that not all respondents had experience with the agency, and 22.22% of respondents did not provide an opinion about its effectiveness. Distribution of the responses is found in Table 25 at the end of this chapter.

“How satisfied are you with the actions that New Jersey’s state agencies have taken to assist with brownfield redevelopment in your community?”

- New Jersey Department of Environmental Protection. While most (55.55%) of respondents said they were either Very Satisfied or Satisfied with the agency’s actions to assist their communities, the remainder (44.44%) were Neither Satisfied nor Dissatisfied. This could be inferred as almost half believing that the agency makes no difference, either positive or negative, on policy actions. The agency had an average of 3.78 of a possible 5. Distribution of the responses is found in Table 26 at the end of this chapter.
- New Jersey Economic Development Authority. Most respondents (66.67%) said they were either Very Satisfied or Satisfied with EDA’s assistance to their communities. A minority (11.11%) said they were Neither Satisfied nor Dissatisfied with EDA, and 22.22% did not provide an opinion of the agency. EDA had an average of 4 of a possible 5. Distribution of the responses is found in Table 27 at the end of this chapter.

“How effective do you believe the following policy tools to be for brownfield redevelopment in your community?”

- Ten-Year Tax Abatement to Offset Remediation Costs on Properties that are Being Remediated. Most respondents who provided an opinion on this policy tool responded unfavorably. This factor was rated Very Effective by 11.11% and Effective by 11.11%. This factor was rated either Not at all Effective or Not Effective by 33.33% of those surveyed. Almost

half (44.44%) of those surveyed did not provide an opinion on this issue (for lack of experience using this factor). Distribution of the responses is found in Table 28 at the end of this chapter.

- Industrial Site Recovery Act. Most respondents viewed this factor as Effective (55.55%). However, 11.11% rated this as Neither Effective nor Ineffective, and 33.33% rated it as either Not at all Effective or Not Effective. This factor had an average score of 3.11 out of a possible 5. Distribution of the responses is found in Table 29 at the end of this chapter.
- The Spill Act Fund. A small percentage (11.11%) of those surveyed rated this factor as Effective, while 22.22% rated it as Neither Effective nor Ineffective, and 11.11% rated it as Not Effective. Most surveyed (55.55%) did not provide an opinion on this factor (for lack of experience using this factor). This factor had an average of 3 of a possible 5. Distribution of the responses is found in Table 30 at the end of this chapter.
- Voluntary Cleanup Plan. Responses to this factor were evenly divided among positive, neutral and no opinion. One third (33.33%) of those surveyed rated it as either Very Effective or Effective. One third rated it as Neither Effective nor Ineffective. The remaining third (33.33%) did not provide an opinion on this factor (for lack of experience using this factor). Distribution of the responses is found in Table 31 at the end of this chapter.
- Funding to assist property owners in conducting remediation. A minority (22.22%) of those surveyed rated this as either Very Effective or Effective, while an additional 11.11% rated it as Neither Effective nor

Ineffective. An additional 22.22% rated it as Not Effective. Nearly half (44.44%) of those surveyed did not provide an opinion on this item (for lack of experience using this factor). This factor had an average score of 3.2 of a possible 5. Distribution of the responses is found in Table 32 at the end of this chapter.

- Funding to assist municipalities in dealing with discharges of hazardous materials. One third (33.33%) of those surveyed rated this item as either Very Effective or Effective, and 11.11% rated it as Not Effective. However, more than half (55.55%) of those surveyed did not provide an opinion about this item (for lack of experience using this factor). This factor had an average score of 4 of a possible 5. Distribution of the responses is found in Table 33 at the end of this chapter.

“What policies, if any, do you think need to be put into place to better serve your community in the brownfield redevelopment process?” Most respondents said that additional funding was their greatest need. Another respondent said that municipalities need to get better terms from the state on repaying loans. This respondent said that, especially with reference to the Hazardous Discharge Site Remediation Fund, the terms are unfavorable for municipalities, and that a restructuring of the Fund is needed. This respondent also said that if adequate funding exists at the Federal and state levels, this would expedite brownfield redevelopment. Another respondent said that EPA needs to establish finality at the Federal level. When a remediation action is conducted under DEP supervision,

there needs to be a mechanism to ensure that once DEP has approved the remediation, EPA needs to accept that as a final cleanup.

“What single item would most benefit you in redeveloping your community’s brownfields?” One respondent said that a brownfield “czar” who could direct policy in a centralized fashion would be helpful. This respondent said that the current system is bureaucratic, and that different agencies often give conflicting guidance on issues. Another respondent asked for greater flexibility from the regulating agencies in conducting site characterization. Another respondent said that a need exists for exemptions from liability and compliance under ISRA for non-profit developers. Several respondents said that their communities needed more grant money for remediation and characterization. One respondent pointed out that brownfield redevelopment is only the tip of the iceberg in the larger issue of urban redevelopment.

4.4 Conclusions

4.4.1 Discussion

This section recaps the major findings of the study. It will provide the most significant causes of brownfields, the most likely remedies for brownfields, and the most likely positive effects of brownfield redevelopment.

4.4.2 Factors that Have Contributed to the Continued Existence of Brownfields

From the Federal/State/NGO perspective, the most likely factors that have contributed to the continued existence of brownfields in New Jersey were:

- Existing blight in urban areas.
- Liability provisions contained in the Comprehensive Environmental Response, Compensation and Liability Act (Superfund Act), or in other environmental laws.
- Lack of available funding for the purchase and remediation of brownfields.

From the municipal perspective, the most the most likely factors that have contributed to the continued existence of brownfields were:

- Liability provisions contained in the Comprehensive Environmental Response, Compensation and Liability Act (Superfund Act), or in other environmental laws.
- Lack of available funding for the purchase and remediation of brownfields.
- Tax policies that deter redevelopment of brownfields.

4.4.3 Remedies for Brownfields

From the Federal/State/NGO perspective, the most important remedies for brownfields were:

- Programs that provide relief from liability under environmental laws (CERCLA, ISRA, etc.)

- Availability of additional funding from any source (Loan guarantees, grants, public-private consortiums, etc.)
- Targeted tax breaks from any level of government (e.g., designation of a community as an Empowerment Zone or Enterprise Community).

From the municipal perspective, the most important remedies for brownfields were:

- Availability of additional funding from any source (Loan guarantees, grants, public-private consortiums, etc.)
- Programs that provide relief from liability under environmental laws (CERCLA, ISRA, etc.)
- Targeted tax breaks from any level of government (e.g., designation of a community as an Empowerment Zone or Enterprise Community).

4.4.4 Positive Effects

From the Federal/State/NGO perspective, the most likely positive effects of brownfield redevelopment were:

- Improving blighted areas. All respondents felt that this would happen with brownfield redevelopment.
- Job Creation. Again, all respondents felt that this would happen with brownfield redevelopment.
- Higher property values. Again, all respondents felt that this would happen with brownfield redevelopment.

From the municipal perspective, the most likely positive effects of brownfield redevelopment were:

- Improving blighted areas. Eighty percent of respondents felt that this would happen with brownfield redevelopment.
- Enhanced property tax revenues. Eighty percent of respondents said this factor would happen with brownfield redevelopment.
- Job creation. Again, 80% of the respondents said this would happen with brownfield redevelopment.

The next section of this chapter contains the summary tables and distribution tables of the responses to the questions listed above.

4.5 Tables Showing Distribution of Responses

This section contains all the summary tables and the distribution of response tables from the questionnaires and the telephone survey.

Responses

Table 2: Distribution of Responses to Brownfield Significance (Federal/State/NGO Respondents).

Factor	Ranking	Percent of Respondents
Brownfield Significance to New Jersey	Very Significant / Significant	100%
	Neither Significant nor Insignificant	0%
	Insignificant / Very Insignificant	0%
	Don't Know/Other	0%

Table 3: Distribution of Responses to Brownfield Significance (Municipal Respondents).

Factor	Ranking	Percent of Respondents
Brownfield Significance to Local Community	Very Significant / Significant	60%
	Neither Significant nor Insignificant	20%
	Insignificant / Very Insignificant	10%
	Don't Know/Other	10%

Table 4: Federal/State/NGO Responses to Hypothesis Three.

Factor	Rank	Mode	Median	Average
<i>Existing blight in urban areas.</i>	1	1	2	2
<i>Lack of available funding for the purchase and remediation of brownfields.</i>	2	1	2	2.6
<i>Liability provisions contained in the Comprehensive Environmental Response, Compensation and Liability Act (Superfund Act), or in other environmental laws.</i>	3	2	2	2.8
<i>Crime and public safety.</i>	4	3	3	3.6
<i>Tax policies that deter redevelopment of brownfields.</i>	5	5	4	4

Table 5: Municipal Responses to Hypothesis Three.

Factor	Rank	Mode	Median	Average
<i>Liability provisions contained in the Comprehensive Environmental Response, Compensation and Liability Act (Superfund Act), or in other environmental laws.</i>	1	1	1	1.5
<i>Lack of available funding for the purchase and remediation of brownfields.</i>	2	1	1.5	1.5
<i>Tax policies that deter redevelopment of brownfields.</i>	3	3	3	3.5
<i>Existing blight in urban areas.</i>	4	3	4	3.71
<i>Crime and public safety.</i>	5	5	5	4.57

Table 6: Federal/State/NGO Responses to Hypothesis Four.

Factor	Rank	Mode	Median	Average
<i>Programs that provide relief from liability under environmental laws (CERCLA, ISRA, etc.)</i>	1	1	2	2.8
<i>Availability of additional funding from any source (Loan guarantees, grants, public-private consortiums, etc.)</i>	2	4	2	2.33
<i>Targeted tax breaks from any level of government (e.g., designation of a community as an Empowerment Zone or Enterprise Community)</i>	3	2	2	2.8
<i>Adjustments to local property tax rates</i>	4	3	3	3.25
<i>Tax exemptions on specific properties</i>	5	—	4	4.25
<i>Adjustments to state tax rates</i>	6	6	5.5	5.25
<i>Zoning Variances</i>	7	7	6.5	6.25

Table 7: Municipal Responses to Hypothesis Five.

Factor	Rank	Mode	Median	Average
<i>Availability of additional funding from any source (Loan guarantees, grants, public-private consortiums, etc.)</i>	1	1	1	1.25
<i>Programs that provide relief from liability under environmental laws (CERCLA, ISRA, etc.)</i>	2	2	2	2.88
<i>Targeted tax breaks from any level of government (e.g., designation of a community as an Empowerment Zone or Enterprise Community)</i>	3	2	3	3.5
<i>Tax exemptions on specific properties</i>	4	3	3	4
<i>Adjustments to state property tax rates</i>	5	4	4	4
<i>Adjustments to local property tax rates</i>	6	5	4.5	4.67
<i>Zoning Variances</i>	7	6	6	6

Table 8: Distribution of Results for Improving Blighted Areas (Federal/State/NGO Respondents).

Factor	Ranking	Percent of Respondents
Improving Blighted Areas	Very Likely / Likely	100%
	Neither Likely nor Unlikely	0%
	Unlikely / Very Unlikely	0%
	Don't Know/Other	0%

Table 9: Distribution of Responses for Job Creation (Federal/State/NGO Respondents).

Factor	Ranking	Percent of Respondents
Job Creation	Very Likely / Likely	100%
	Neither Likely nor Unlikely	0
	Unlikely / Very Unlikely	0
	Don't Know/Other	0

Table 10: Distribution of Responses for Higher Property Values (Federal/State/NGO Respondents).

Factor	Ranking	Percent of Respondents
Higher Property Values	Very Likely / Likely	100%
	Neither Likely nor Unlikely	0
	Unlikely / Very Unlikely	0
	Don't Know/Other	0

Table 11: Distribution of Responses for Enhanced Property Tax Revenues (Federal/State/NGO Respondents).

Factor	Ranking	Percent of Respondents
Enhanced Property Tax Revenues	Very Likely / Likely	87.5%
	Neither Likely nor Unlikely	12.5%
	Unlikely / Very Unlikely	0
	Don't Know/Other	0

Table 12: Distribution of Results for Improved Crime and Safety Issues (Federal/State/NGO Respondents).

Factor	Ranking	Percent of Respondents
Improved Crime and Safety Issues	Very Likely / Likely	87.5%
	Neither Likely nor Unlikely	12.5%
	Unlikely / Very Unlikely	0
	Don't Know/Other	0

Table 13: Distribution of Responses for Improving Blighted Areas (Municipal Respondents).

Factor	Ranking	Percent of Respondents
Improving Blighted Areas	Very Likely / Likely	80%
	Neither Likely nor Unlikely	10%
	Unlikely / Very Unlikely	0
	Don't Know/Other	10%

Table 14: Distribution of Responses for Enhanced Property Tax Revenues (Municipal Respondents).

Factor	Ranking	Percent of Respondents
Enhanced Property Tax Revenues	Very Likely / Likely	80%
	Neither Likely nor Unlikely	10%
	Unlikely / Very Unlikely	0
	Don't Know/Other	10%

Table 15: Distribution of Responses for Job Creation (Municipal Respondents).

Factor	Ranking	Percent of Respondents
Job Creation	Very Likely / Likely	80%
	Neither Likely nor Unlikely	10%
	Unlikely / Very Unlikely	0
	Don't Know/Other	10%

Table 16: Distribution of Responses for Higher Property Values (Municipal Respondents).

Factor	Ranking	Percent of Respondents
Higher Property Values	Very Likely / Likely	80%
	Neither Likely nor Unlikely	10%
	Unlikely / Very Unlikely	0
	Don't Know/Other	10%

Table 17: Distribution of Responses for Improved Crime and Safety Issues (Municipal Respondents).

Factor	Ranking	Percent of Respondents
Improved Crime and Safety Issues	Very Likely / Likely	60%
	Neither Likely nor Unlikely	30%
	Unlikely / Very Unlikely	0
	Don't Know/Other	10%

Table 18: Distribution of Responses for Availability of Funding (Federal/State/NGO Respondents).

Factor	Ranking	Percent of Respondents
Availability of Funding	Very Effective / Effective	75%
	Neither Effective nor Ineffective	0
	Ineffective / Very Ineffective	0
	Don't Know/Other	25%

Table 19: Distribution of Responses for Liability Relief (Federal/State/NGO Respondents).

Factor	Ranking	Percent of Respondents
Liability relief from State or Federal Government	Very Effective / Effective	75%
	Neither Effective nor Ineffective	0
	Ineffective / Very Ineffective	12.5%
	Don't Know/Other	12.5%

Table 20: Distribution of Responses for Tax Relief (Federal/State/NGO Respondents).

Factor	Ranking	Percent of Respondents
Tax Relief from the State or Federal Government	Very Effective / Effective	75%
	Neither Effective nor Ineffective	12.5%
	Ineffective / Very Ineffective	0
	Don't Know/Other	12.5%

Table 21: Distribution of Responses for Funding Availability (Municipal Respondents).

Factor	Ranking	Percent of Respondents
Availability of Funding	Very Effective / Effective	90%
	Neither Effective nor Ineffective	0
	Ineffective / Very Ineffective	0
	Don't Know/Other	10%

Table 22: Distribution of Responses for Liability Relief (Municipal Respondents).

Factor	Ranking	Percent of Respondents
Liability Relief from the State or Federal Government	Very Effective / Effective	70%
	Neither Effective nor Ineffective	20%
	Ineffective / Very Ineffective	0
	Don't Know/Other	10%

Table 23: Distribution of Responses for Tax Relief (Municipal Respondents).

Factor	Ranking	Percent of Respondents
Tax Relief from the State or Federal Government	Very Effective / Effective	60%
	Neither Effective nor Ineffective	30%
	Ineffective / Very Ineffective	0
	Don't Know/Other	10%

Table 24: Distribution of Responses to DEP Effectiveness.

Factor	Ranking	Percent of Respondents
How Effective is the New Jersey DEP in assisting your community on brownfield issues?	Very Effective / Effective	77.77%
	Neither Effective nor Ineffective	22.22%
	Ineffective / Very Ineffective	0
	Don't Know/Other	0

Table 25: Distribution of Responses to EDA Effectiveness.

Factor	Ranking	Percent of Respondents
How Effective is the New Jersey EDA in assisting your community on brownfield issues?	Very Effective / Effective	55.55%
	Neither Effective nor Ineffective	22.22%
	Ineffective / Very Ineffective	0
	Don't Know/Other	22.22%

Table 26: Distribution of Responses to DEP Satisfaction.

Factor	Ranking	Percent of Respondents
How Satisfied are you with the actions taken by the New Jersey DEP in assisting your community on brownfield issues?	Very Satisfied / Satisfied	55.55%
	Neither Satisfied nor Dissatisfied	44.44%
	Dissatisfied / Very Dissatisfied	0
	Don't Know/Other	10%

Table 27: Distribution of Responses to EDA Satisfaction.

Factor	Ranking	Percent of Respondents
How Satisfied are you with the actions taken by the New Jersey DEP in assisting your community on brownfield issues?	Very Satisfied / Satisfied	66.67%
	Neither Satisfied nor Dissatisfied	11.11%
	Dissatisfied / Very Dissatisfied	0
	Don't Know/Other	22.22%

Table 28: Distribution of Responses to the Effectiveness of Ten-Year Tax Abatement to Offset Remediation Costs.

Factor	Ranking	Percent of Respondents
How Effective is the 10-year tax abatement to offset remediation costs?	Very Effective / Effective	22.22%
	Neither Effective nor Ineffective	0%
	Not Effective / Not at all Effective	33.33%
	Don't Know/Other	44.44%

Table 29: Distribution of Responses to the Effectiveness of the Industrial Site Recovery Act.

Factor	Ranking	Percent of Respondents
How Effective is the Industrial Site Recovery Act for Brownfield redevelopment?	Very Effective / Effective	55.55%
	Neither Effective nor Ineffective	11.11%
	Ineffective / Very Ineffective	33.33%
	Don't Know/Other	0

Table 30: Distribution of Responses to the Effectiveness of the Spill Act Fund.

Factor	Ranking	Percent of Respondents
How Effective is the Spill Act Fund for Brownfield redevelopment?	Very Effective / Effective	11.11%
	Neither Effective nor Ineffective	22.22%
	Ineffective / Very Ineffective	11.11%
	Don't Know/Other	55.55%

Table 31: Distribution of Responses to the Effectiveness of the Voluntary Cleanup Plan.

Factor	Ranking	Percent of Respondents
How Effective is the Voluntary Cleanup Plan for Brownfield redevelopment?	Very Effective / Effective	33.33%
	Neither Effective nor Ineffective	33.33%
	Ineffective / Very Ineffective	0
	Don't Know/Other	33.33%

Table 32: Distribution of Responses to the Effectiveness of Funding to Assist Property Owners in Conducting Remediation.

Factor	Ranking	Percent of Respondents
How Effective is Funding to Assist Property Owners in Conducting Remediation?	Very Effective / Effective	22.22%
	Neither Effective nor Ineffective	11.11%
	Ineffective / Very Ineffective	22.22%
	Don't Know/Other	44.44%

Table 33: Distribution of Responses to the Effectiveness of Funding to Assist Municipalities in Dealing with Discharges of Hazardous Materials.

Factor	Ranking	Percent of Respondents
How Effective is Funding to Assist Municipalities in Dealing with Discharges of Hazardous Materials?	Very Effective / Effective	33.33%
	Neither Effective nor Ineffective	0
	Ineffective / Very Ineffective	11.11%
	Don't Know/Other	55.55%

Caveats to the Reader

It is important for the reader to understand some of the weaknesses inherent in the data presented above. The sample size is small (eight in the Federal/State/NGO group, ten in the municipal group, and nine in the telephone survey). Additionally, these were single-point surveys. If the sample size had been larger, or if there had been more surveys conducted within municipalities, the results might have been different. Additionally, not all respondents answered all questions. This could have skewed the data as well.

In the final chapter, there will be a discussion of policy recommendations to various governmental entities which, if implemented, will help with the redevelopment of brownfields throughout the state, and to some extent, the nation.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

In the previous chapter, the reader saw the specific elements of data analysis. The reader should now have a better understanding about what policies are important for brownfield redevelopment in municipalities. In this chapter, some larger issues will be discussed, and recommendations for policy changes will follow. The chapter will conclude with some recommendations for further study.

5.1 Finality of Remediation Actions

At the Federal level, CERCLA imposes a series of liability provisions, which can be imposed retroactively on any party that has ever participated in the ownership, management or operation of a site. However, the law does not address when a remediation action has been completed. If a remediating party completes a remediation action under EPA supervision, the party is never truly released from liability. If remediation standards change, EPA can direct additional cleanup action on a site. Until this changes, responsible parties will probably be reluctant to assume liability for remediation on a site. Many states (including New Jersey) have programs that establish some form of finality. New Jersey, for instance, will issue a No Further Action Letter to a responsible party at the end of a DEP-approved remediation. This generally frees the responsible party from concern about future action as long as no new contamination occurs.

However, both DEP and EPA could still order that further action be taken at the same site. This leads to confusion as to whose guidance to follow (Federal or State), and slows the pace of remediation.

Recommendations:

In states whose remediation standards are at least equal to Federal requirements, USEPA accept the finality of a state-supervised remediation action.

USEPA establish clear remediation standards that specify “how clean is clean.” Issue these in conjunction with the establishment of finality on liability for past contamination in all Federally supervised remediation actions.

Implementation of these recommendations will require some Congressional action. However, these items are important enough that USEPA should consider them as part of its legislative agenda.

5.2 Recommendations for Future Study

Brownfields pose an ideal area for study in several areas. As was outlined in the Introductory chapter, brownfield issues can be divided into three areas—environmental, economic and socio-political. While many researchers have conducted studies on brownfields, and many people have written articles and papers on the subject, it appears that there would be utility in a study project similar to this one, but at a regional or national level. A doctoral-level dissertation on brownfield incentives in the “Rust Belt” (concentrating on the Northeast and Midwest) could examine issues raised here in much greater depth.

While another student has recently explored the real estate developer's concerns with brownfields, there is also room to study the lending community's response to recent legislative changes. For instance, Governor Whitman signed the "Brownfield and Contaminated Site Remediation act. This new law changes several provisions in the state liability scheme. In 1996, the Congress passed a Federal lender liability law. A study of the lending community could gain their reactions to these laws. Do the new laws ease lenders' concerns about liability? Do they encourage lending on environmentally challenged properties? Do these laws actually do what the legislature intended, or are they "feel good" laws that are not enforceable? These and other questions can only be answered through further study.

Recommendation: The Center for Policy Studies and the Center for Environmental Engineering and Science at NJIT sponsor a Ph.D. student in the Environmental Policy program that has recently been established. This student should conduct research into regional brownfield policy issues (specifically in EPA Regions I and II), and should conduct an in-depth analysis of all areas relating to the problems. The study should include the role of the lending community, as well as following up this work and other work done on the role of the developer. Ideally, this student should be recruited to begin study in the Fall of 1998, and should be under dual supervision of both centers.

5.3 Concluding Comments

While this thesis represents the capstone of the author's academic endeavors thus far, it is hoped that the endeavor has educated the reader about one of the environmental issues that can be solved. It answers the questions the author set out to answer: what are the causes of New Jersey's brownfields, what are the remedies that would most impact on solving the problem, and what policies are needed but not present. Completing this project has been a challenge, but it has been worth the effort. It is hoped the information contained herein will make a difference to those who deal with this problem on a daily basis.

APPENDIX A
QUESTIONNAIRE SENT TO FEDERAL/STATE/NGO STUDY
PARTICIPANTS

New Jersey has, by some estimates, thousands of brownfield sites. This questionnaire is designed to gather information about what could help get brownfields remediated faster. The questions below apply to brownfields throughout the state. Please select the answer that best describes your opinion of the brownfield redevelopment process by circling the appropriate number.

1. How significant a problem are brownfields in New Jersey?

Not at all Significant	Insignificant	Neither Significant nor Insignificant	Significant	Very Significant
1	2	3	4	5

2. Brownfields are thought to have a number of effects. Below are a series of factors that may or may not impact on New Jersey. Please rate the following based on how likely you think they are to impact New Jersey.

	Not at all Likely	Unlikely	Neither Likely nor Unlikely	Likely	Very Likely
<i>Lower property values</i>	1	2	3	4	5
<i>Lowered property tax revenues</i>	1	2	3	4	5
<i>Job loss to other states</i>	1	2	3	4	5
<i>Urban blight</i>	1	2	3	4	5
<i>Increased crime and safety</i>	1	2	3	4	5

a. Please list any other factors you think Brownfields play a part in New Jersey.

b. If you listed more than one factor, please state which is the most important in your opinion.

3. Many factors have been thought of as causes for Brownfields. Below are a list of factors that are commonly thought as causes of Brownfields. Please rank them in terms of how responsible you think they are in terms of causing New Jersey's Brownfields. Assign only one number per statement.

For example, if you believe that Tax Policy is the most important cause of Brownfields, place a "1" in the shaded box next to that item. If you believe that Urban Blight is the second most important cause of brownfields, place a "2" in the shaded box next to that item. Continue until all items have been ranked.

Factor	Rank
<i>Liability provisions contained in the Comprehensive Environmental Response, Compensation and Liability Act (Superfund Act), or in other environmental laws.</i>	
<i>Tax policies that deter redevelopment of brownfields.</i>	
<i>Lack of available funding for the purchase and remediation of brownfields.</i>	
<i>Existing blight in urban areas.</i>	
<i>Crime and public safety.</i>	

a. Please list any other factors you think caused brownfields in New Jersey.

b. If you listed more than one factor, please state which is the most important in your opinion.

4. Many factors have been thought of as potential remedies (corrective actions) for brownfields. Below are a list of remedies that may or may not help to solve New Jersey's brownfields problems. Please rank them in terms of how important you think they are in terms of correcting New Jersey's brownfields. Assign only one number per statement.

For example, if you believe that Tax Policy is the most important remedy of brownfields, place a "1" in the shaded box next to that item. If you believe that Urban Blight is the second most important remedy of brownfields, place a "2" in the shaded box next to that item. Continue until all items have been ranked.

Factor	Rank
<i>Adjustments to state property tax rates</i>	
<i>Adjustments to local property tax rates</i>	
<i>Targeted tax breaks from any level of government (e.g., designation of a community as an Empowerment Zone or Enterprise Community)</i>	
<i>Tax exemptions on specific properties</i>	
<i>Programs that provide relief from liability under environmental laws (CERCLA, ISRA, etc.)</i>	
<i>Availability of additional funding from any source (Loan guarantees, grants, public-private consortiums, etc.)</i>	
<i>Zoning Variances</i>	

a. Please list any other factors you think could remedy brownfields in New Jersey.

b. If you listed more than one factor, please state which is the most important in your opinion.

5. If all brownfields were returned to productive use, many positive effects could be realized. Below are a list of outcomes that might occur in New Jersey if all brownfields were completely redeveloped. Please rate how likely you believe each outcome to be by circling the appropriate number below.

	Not at all Likely	Unlikely	Neither Likely nor Unlikely	Likely	Very Likely
<i>Higher property values</i>	1	2	3	4	5
<i>Enhanced property tax revenues</i>	1	2	3	4	5
<i>Job creation</i>	1	2	3	4	5
<i>Improving blighted areas</i>	1	2	3	4	5
<i>Improved crime and safety issues</i>	1	2	3	4	5

a. Please list any other effects you think would result in New Jersey if all brownfields were returned to productive use immediately.

b. If you listed more than one factor, please state which is the most important in your opinion.

6. Many different approaches have been proposed for redeveloping brownfields. Below is a list of potential actions to assist in redeveloping brownfields. Please rate how effective you believe each of the following is by circling the appropriate number below.

	Not at all Effective	Not Effective	Neither Effective nor Ineffective	Effective	Very Effective
<i>Tax relief from the State or Federal government</i>	1	2	3	4	5
<i>Liability relief from the State or Federal government</i>	1	2	3	4	5
<i>Availability of funding (loan guarantees, grants, public-private agreements, etc.)</i>	1	2	3	4	5

a. Please list any other potential remedies you are aware of for redeveloping brownfields, and explain why you included them.

b. If you listed more than one factor, please state which is the most important in your opinion.

Please use the space below to address any other issues not covered in this questionnaire.

So that I may contact you later, please provide the following.

Department of _____

Prepared by: _____

Phone: _____

THANK YOU FOR YOUR TIME AND COOPERATION IN THIS SURVEY.

APPENDIX B
QUESTIONNAIRE SENT TO MUNICIPAL STUDY PARTICIPANTS

New Jersey has, by some estimates, thousands of brownfield sites. This questionnaire is intended to gather information about what could help get brownfields remediated faster. The questions below apply to brownfields in your community. Please select the answer that best describes your opinion of the brownfield redevelopment process by circling the appropriate number.

1. How significant a problem are brownfields in your community?

Not at all Significant	Insignificant	Neither Significant nor Insignificant	Significant	Very Significant
1	2	3	4	5

2. Brownfields are thought to have a number of effects. Below are a series of factors that may or may not impact on your community. Please rate the following based on how likely you think they are to impact your community.

	Not at all Likely	Unlikely	Neither Likely nor Unlikely	Likely	Very Likely
<i>Lower property values</i>	1	2	3	4	5
<i>Lowered property tax revenues</i>	1	2	3	4	5
<i>Job loss to other communities</i>	1	2	3	4	5
<i>Urban blight</i>	1	2	3	4	5
<i>Increased crime and safety</i>	1	2	3	4	5

a. Please list any other factors you think brownfields play a part in your community.

b. If you listed more than one factor, please state which is the most important in your opinion.

3. Many factors have been thought of as causes for brownfields. Below are a list of factors that are commonly thought responsible for brownfields. Please rank them in terms of how responsible you think they are in terms of your community's brownfields. Assign only one number per statement.

For example, if you believe that Tax Policy is the most important cause of brownfields, place a "1" in the shaded box next to that item. If you believe that Urban Blight is the second most important cause of brownfields, place a "2" in the shaded box next to that item. Continue until all items have been ranked.

Factor	Rank
<i>Liability provisions contained in the Comprehensive Environmental Response, Compensation and Liability Act (Superfund Act), or in other environmental laws.</i>	
<i>Tax policies that deter redevelopment of brownfields.</i>	
<i>Lack of available funding for the purchase and remediation of brownfields.</i>	
<i>Existing blight in urban areas.</i>	
<i>Crime and public safety.</i>	

a. Please list any other factors you think caused brownfields in your community.

b. If you listed more than one factor, please state which is the most important in your opinion.

4. Many factors have been thought of as potential remedies (corrective actions) for brownfields. Below are a list of remedies that may or may not help to solve brownfields problems. Please rank them in terms of how important you think they are in terms of correcting your community's brownfields. Assign only one number per statement.

For example, if you believe that Tax Policy is the most important remedy for brownfields, place a "1" in the shaded box next to that item. If you believe that Urban Blight is the second most important remedy for brownfields, place a "2" in the shaded box next to that item. Continue until all items have been ranked.

Factor	Rank
<i>Adjustments to state property tax rates</i>	
<i>Adjustments to local property tax rates</i>	
<i>Targeted tax breaks from any level of government (e.g., designation of a community as an Empowerment Zone or Enterprise Community)</i>	
<i>Tax exemptions on specific properties</i>	
<i>Programs that provide relief from liability under environmental laws (CERCLA, ISRA, etc.)</i>	
<i>Availability of additional funding from any source (Loan guarantees, grants, public-private consortiums, etc.)</i>	
<i>Zoning Variances</i>	

a. Please list any other factors you think could help to remedy brownfields in your community.

b. If you listed more than one factor, please state which is the most important in your opinion.

5. If all brownfields were returned to productive use, many positive effects could be realized. Below are a list of outcomes that might occur in your community if all brownfields were completely redeveloped. Please rate how likely you believe each outcome to be by circling the appropriate number below.

	Not at all Likely	Unlikely	Neither Likely nor Unlikely	Likely	Very Likely
<i>Higher property values</i>	1	2	3	4	5
<i>Enhanced property tax revenues</i>	1	2	3	4	5
<i>Job creation</i>	1	2	3	4	5
<i>Improving blighted areas</i>	1	2	3	4	5
<i>Improved crime and safety issues</i>	1	2	3	4	5

a. Please list any other effects you think would result in your community if all brownfields were returned to productive use immediately.

b. If you listed more than one factor, please state which is the most important in your opinion.

6. Many different approaches have been proposed for redeveloping brownfields. Below is a list of potential actions or policies to assist in redeveloping brownfields. Please rate how effective you believe each of the following is by circling the appropriate number below.

	Not at all Effective	Not Effective	Neither Effective nor Ineffective	Effective	Very Effective
<i>Tax relief from the State or Federal government</i>	1	2	3	4	5
<i>Liability relief from the State or Federal government</i>	1	2	3	4	5
<i>Availability of funding (loan guarantees, grants, public-private agreements, etc.)</i>	1	2	3	4	5

a. Please list any other potential remedies you are aware of for redeveloping brownfields, and explain why you include them.

b. If you listed more than one factor, please state which is the most important in your opinion.

Please use the space below to address any other issues not covered in this questionnaire.

So that I may contact you later, please provide the following.

City of _____

Prepared by: _____

Phone: _____

THANK YOU FOR YOUR TIME AND COOPERATION IN THIS SURVEY.

APPENDIX C
RESULTS OF THE FEDERAL/STATE/NGO SURVEY

Question	Description	Agency	USEPA	NEMW	NJDEP	NJDOC	NJEDA	ISLES	NCC	Ironbound	Mode	Median	Average
1	Brownfield Significance		4	4	5	5	4	4	4	5	5	4.5	4.5
			4										
2.1	Lower Property Values		4	4	3	5	4	4	4	4	4	4	4
2.2	Lower Property Tax Revenue		4	5	5	5	5	4	4	5	5	5	4.67
2.3	Job Loss		5	3	1	4	5	2	4	5	4	4	3.5
2.4	Urban Blight			5	5	5	5	5	4	5	5	5	4.8
2.5	Crime/Safety			3	4	4	5	5	3	5	5	4.5	4.3
3	Causes of BF												
3.1	Liability		1	1	4	2	1	5	2		2	2	2.8
3.2	Tax policy		3	3	2	5	5	4	4		5	4	4
3.3	Lack of Funding		2	2	5	4	2	1	1		1	2	2.6
3.4	Urban Blight		4	4	1	1	3	2	3		1	2	2
3.5	Crime/Safety			5	3	3	4	3	5		3	3	3.6
4	Remedies for BF												
4.1	State property tax		5	6	6	5		4	6		6	5.5	5.25
4.2	Local property tax			5	1	6		3	3		3	3	3.25
4.3	Targeted tax breaks		1	2	5	2		2	4	1	2	2	2.8
4.4	Specific tax exemptions		3	3	2	3		5	7		#NUM!	4	4.25
4.5	Liability relief		2	1	3	1	1	7	2		1	2	2.8
4.6	Additional Funding		4	4	4	4	2	1	1	2	4	2	2.33
4.7	Zoning			7	7	7		6	5		7	6.5	6.25
5	Positive Effects												

5.1	Higher Property Values			5	5	5	4	4	4	4	5	4	4	4.33
5.2	Greater Property Tax Revenues			5	5	5	4	4	3	4	5	4	4	4.17
5.3	Job Creation			5	4	5	5	4	4	5	4	5	4.5	4.5
5.4	Reduced Blight			5	4	5	5	4	5	5	4	5	5	4.67
5.5	Enhanced Safety			5	3	4	4	4	5	4	4	4	4	4.17
	Potential Actions													
6.1	Tax Relief				4	5	5	4	3	4	4	4	4	4.17
6.2	Liability Relief				5	5	5	5	2	4	4	5	4.5	4.17
6.3	Funding availability					5	5	5	4	4	4	5	4.5	4.5

APPENDIX D
RESULTS OF THE MUNICIPAL SURVEY

		Municipality	Atlantic City	Elizabeth	Jersey City	Newark	New Brunswick	Newton	Paterson	Phillipsburg	Trenton	Anonymous Submission	Mode	Median	Average
Question	Description														
	1 Brownfield Significance		3	5	5	4	2	3	4		5	4	5	4	3.89
	2.1 Lower Property Values		4	4	5	5	3	2	4	4	5		4	4	4
	2.2 Lower Property Tax Revenue		4	4	5	5	3	2	4	5	5		5	4	4.11
	2.3 Job Loss		2	4	4	5	2	2	4	4	4		4	4	3.44
	2.4 Urban Blight		4	4	5	5	2	2	4	4	5		4	4	3.89
	2.5 Crime/Safety		3	4	5	5	2	2	3	2	4		2	3	3.33
	3 Causes of BF														
	3.1 Liability		2	1	1	1		1	3	1	2		1	1	1.50
	3.2 Tax policy		4	3	3	3		3	2	5	5		3	3	3.50
	3.3 Lack of Funding		1	2	1	2		2	1	2	1		1	1.5	1.50
	3.4 Urban Blight		3	4	5			4	4	3	3		3	4	3.71
	3.5 Crime/Safety		5	5	4			5	5	4	4		5	5	4.57
	4 Remedies for BF														
	4.1 State property tax			4				5	3		4		4	4	4
	4.2 Local property tax		3	5		4		4	7		5		5	4.5	4.67
	4.3 Targeted tax breaks		4	2			3	3	2		7		2	3	3.5
	4.4 Specific tax exemptions		2	3		3	4	7	6		3		3	3	4
	4.5 Liability relief		5	6	2	1	2	1	4		2		2	2	2.875
	4.6 Additional Funding		1	1	1	2	1	2	1		1		1	1	1.25
	4.7 Zoning		6	7				6	5		6		6	6	6
	5 Positive Effects														
	5.1 Higher Property Values		4	5	4	5	4	3	4	4	5		4	4	4.22

5.2	Greater Property Tax Revenues			5	5	5	5	4	3	4	5	4		5	5	4.44
5.3	Job Creation			5	5	4	5	4	3	4	5	4		5	4	4.33
5.4	Reduced Blight			5	5	5	5	4	3	4	5	5		5	5	4.56
5.5	Enhanced Safety			3	5	5	5	4	3	4	3	4		3	4	4
6	Potential Actions															
6.1	Tax Relief			4	4	4	3	4	4	3	3	5		4	4	3.78
6.2	Liability Relief			4	3	5	5	4	5	3	4	5		5	4	4.22
6.3	Funding availability			5	5	5	5	5	5	5	5	5		5	5	5

APPENDIX E
FOLLOW-UP TELEPHONE INTERVIEW CONDUCTED WITH
MUNICIPAL OFFICIALS

Contact: _____

Municipality: _____

I recently sent you a set of questions dealing with brownfield redevelopment. I'd now like to take a few minutes to develop some more information, based in large part on the responses I received from you and other respondents.

Part I—State Agencies and Assistance to Communities

1.

How effective are New Jersey's state agencies at assisting your community in redeveloping its brownfields?

New Jersey Department of Environmental Protection:

- Not at all Effective
- Somewhat Ineffective
- Neither Effective nor Ineffective
- Effective
- Very Effective
- Don't Know/Other _____

New Jersey Economic Development Authority

- Not at all Effective
- Somewhat Ineffective
- Neither Effective nor Ineffective
- Effective
- Very Effective
- Don't Know/Other _____

2.

a. How satisfied are you with the actions that New Jersey state agencies have taken to assist with brownfield redevelopment in your community?

New Jersey Department of Environmental Protection:

- Not at all Satisfied**
- Somewhat Dissatisfied**
- Neither Satisfied nor Dissatisfied**
- Satisfied**
- Very Satisfied**
- Don't Know/Other** _____

New Jersey Economic Development Authority:

- Not at all Satisfied**
- Somewhat Dissatisfied**
- Neither Satisfied nor Dissatisfied**
- Satisfied**
- Very Satisfied**
- Don't Know/Other** _____

3. What, in your opinion, could New Jersey state agencies do better (do they do well) in promoting brownfield redevelopment?

Part II—Policy Effectiveness

4. Please rate the following tools on their effectiveness in brownfield redevelopment in your community.

a. Ten-Year Tax Abatement to Offset Remediation Costs on Properties that are Being Remediated

- Not at all Effective
- Not Effective
- Neither Effective nor Ineffective
- Effective
- Very Effective
- Other/Don't Know

b. Industrial Site Recovery Act

- Not at all Effective
- Not Effective
- Neither Effective nor Ineffective
- Effective
- Very Effective
- Other/Don't Know

c. The Spill Act Fund

- Not at all Effective
- Not Effective
- Neither Effective nor Ineffective
- Effective
- Very Effective
- Other/Don't Know

d. Voluntary Cleanup Plan

- Not at all Effective
- Not Effective
- Neither Effective nor Ineffective
- Effective
- Very Effective
- Other/Don't Know

e. Funding to assist property owners in conducting remediation

- Not at all Effective
- Not Effective
- Neither Effective nor Ineffective
- Effective
- Very Effective
- Other/Don't Know

f. Funding to assist municipalities in dealing with discharges of hazardous materials

- Not at all Effective
- Not Effective
- Neither Effective nor Ineffective
- Effective
- Very Effective
- Other/Don't Know

5. What policies, if any, do you think need to be put into place to better serve your community in the brownfield redevelopment process?

6. If you could select a single item that would most benefit you in doing your community's brownfields work, what would that item be, and why?

7. Can you suggest other people in your community I should speak with on brownfield issues?

APPENDIX F
RESULTS OF FOLLOW-UP INTERVIEW WITH
MUNICIPAL OFFICIALS

	Municipality	Phillipsburg	Newton	Newark	Atlantic City	Elizabeth	New Brunswick	Jersey City	Trenton	Paterson	Mode	Median	Average
Question	Description												
1a	DEP Effective	4	4	4	4	5	3	4	3	4	4	4	3.89
1b	EDA Effective	5		4	5	3	3	4		5	5	4	4.14
2a	DEP Satisfy	4	4	5	4	5	3	3	3	3	3	4	3.78
2b	EDA Satisfy	4		4	5	4	4	3		4	4	4	4
3a	Prop Tax Abate	1		5	4		1			2	1	2	2.6
3b	ISRA	3	4	2	4	4	4	1	4	2	4	4	3.11
3c	Spill Act Fund			3	4			3	2		3	3	3
3d	VCP	4	5	3	4			3	3		3	3.5	3.67
3e	Funds for Prop Owners	4		3	5				2	2	2	3	3.2
3f	Funds for muni's			5	5				4	2	5	4.5	4

APPENDIX G
LIST OF AGENCIES AND MUNICIPALITIES CONTACTED

SURVEY LIST

Federal Agency

United States Environmental Protection Agency
Region II Brownfield Project Manager

State Agencies

Department of Environmental Protection
Office of Site Remediation

New Jersey Economic Development Authority
Commercial Lending Division

Non-Governmental Organization

ISLES, Inc.
New Communities
Ironbound Community Development Corp.
Northeast-Midwest Institute

<u>Large Cities</u> <u>(over 75,000)</u>	<u>Population</u> <u>(1990 Census</u> <u>or latest estimate)</u>	<u>Sites on KCS list</u>
City of Trenton (Mercer County)	88,675	65
City of Elizabeth (Union County)	110,002	89
Jersey City (Hudson County)	228,537	264
Camden (Camden County)	87,492	61
Paterson (Passaic County)	140,891	97
Newark (Essex County)	275,221	254

<u>Small Cities</u> <u>(under 50,000)</u>	<u>Population</u> <u>(1990 Census</u> <u>or latest estimate)</u>	<u>Sites on KCS list</u>
New Brunswick (Middlesex County)	31,287	57
Atlantic City (Atlantic County)	37,986	160
Newton Township (Sussex County)	7,521	28
Phillipsburg (Warren County)	15,757	15

APPENDIX H
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