

Evaluating the Community Benefits of Brownfields Redevelopment

By

Tracy A. Dyke

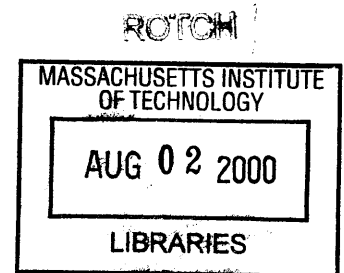
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Tracy A. Dyke

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ABSTRACT

Brownfields --abandoned, idled, or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination -- have garnered much attention from planners, politicians, and the media in recent years. Many brownfields are located in distressed neighborhoods, where they can lead to a downward spiral of disinvestment and declining quality of life for local residents. Policy makers and city officials hope that remediating and redeveloping brownfields will provide such public benefits including reduced health risks, jobs for local residents, revitalized neighborhoods, enhanced municipal tax bases.

However, little research has been undertaken to document the actual benefits of brownfields revitalization. Those studies that have estimated the benefits of brownfields redevelopment have tended to examine projects through a narrow lens of certain economic development benchmarks, or have aggregated benefits across the nation, thus complicating project-by-project comparisons. In addition, many state policies designed to encourage brownfields redevelopment do not require a detailed evaluation of the public benefits of proposed projects. Although public funding to provide incentives for brownfields redevelopment is quite limited compared to need for project subsidies, few state brownfields programs base public funding allocations on the degree to which potential projects would provide public benefits.

This research examines five brownfields redevelopment case studies, each in a different state and with a different type of redevelopment. The results from the case studies suggest that the benefits of brownfields redevelopment are indeed broader than those measured by the traditional benchmarks. Expanding the scope of project evaluation techniques to include community-based social, environmental, and economic benefits would provide a different picture of project success than evaluations based only on metropolitan or regional level economic benefits. This thesis identifies areas where new benchmarks could be developed, and suggests how this information could inform the prioritization of projects that require public subsidies.

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CHAPTER I: INTRODUCTION

The potential for brownfields redevelopment to revitalize distressed urban areas has garnered much attention from planners, politicians, and the media in recent years. Brownfields are commonly defined as abandoned, idled, or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination (Smart Growth Network 1996, Wright 1997, Simmons 1998, Brownfields National Partnership 1999, Greenberg *et. al.* 1999, Rafson and Rafson 1999). No two brownfield properties are alike: they vary in their location, history, type and degree of contamination, market value, size, and potential for reuse. Yet it is commonly understood that brownfields impose costs on their owners and especially on the communities in which they are located. Brownfields are thought to spur disinvestment in already distressed neighborhoods, leading to a downward spiral of declining quality of life, abandonment, and dwindling tax base. The U.S. Department of Urban Housing and Urban Development (HUD) claims that “The existence of derelict former industrial areas worsens many of the other problems cities must confront, such as out-migration of the middle class, poverty, crime and deterioration of the education system (HUD 1994).” The Brownfields National Partnership, a coalition of twenty-seven federal agencies and national non-profit associations and advocacy groups, asserts that brownfields are at the center of a vexing tangle of problems that include environmental degradation, unemployment, deteriorating infrastructure and housing, and crime. The Partnership’s 1999 report states that many brownfields were once “thriving factories or industrial centers – sources of economic vitality, jobs, and community pride. Now however, these neighborhood sites are sources of potential health hazards and indicators of urban blight.”

Brownfields are pervasive across American communities. The reluctance of cities and states to compile lists of brownfield sites for fear of further discouraging investment, as well as variations in brownfields definitions, complicate efforts to calculate the total number of brownfields in the United States. However, current estimates range from 450,000 to 600,000 brownfields sites across America (Simons 1998b, CUED 1999). A recent survey of 201 cities by the U.S. Conference of Mayors calculated that there are more than 81,000 acres of brownfields in this country (U.S. Conference of Mayors 2000). A 1994 report by the Conference of Mayors identified brownfields “as the number one environmental issue in the nation (Brownfields National Partnership 1999),” and in 1998 the Conference made the brownfields issue their first priority for legislative action in that year (Greenberg *et. al.* 1999).

If the brownfields problem seems vast, so too are the claims about the potential benefits resulting from brownfields redevelopment. Many people and organizations have invested great hope in the potential for cleaning and reusing contaminated properties. Expected benefits include reduced environmental health risks, jobs for local residents, revitalized neighborhoods, enhanced municipal tax base, and profits for real estate developers. Advocates for brownfields redevelopment believe that site reuse will create and retain jobs in central cities, “where some popular notions of justice suggest that the wealth-generating activities of the past should not be a costly legacy to the nation’s urban poor (Allardice 1995).” Christian Bollwage, Mayor of Elizabeth, New Jersey, exemplifies this perspective when she states that brownfields sites represent “new opportunities to create new industries, additional jobs, better housing, and more

tax revenues (U.S. Conference of Mayors 1998).” Massachusetts Governor Paul Cellucci provides another example of these expectations. In 1998 Cellucci introduced the state’s brownfields law with the assertion that it would “add fuel to the already red-hot economy by paving the way for the development of thousands of sites that have been abandoned, encouraging businesses to build, and creating new jobs for neighborhood residents (Bulkley, Richardson and Gelinas 1998).”

Not only do supporters expect brownfield redevelopment to revitalize the urban neighborhoods where the sites are located, but they also assert that redeveloping brownfields can reduce development pressure on rural and undeveloped sites, known as greenfields. “Many argue that urban-oriented brownfield redevelopment policies are needed to offset the current biases toward greenfield development that tend to produce urban sprawl (Allardice 1995).” Lee Clancey, Mayor of Cedar Rapids, Iowa, made the point clearly, asserting that “by redeveloping brownfields sites, we will be preserving valuable farmland and forests for future generations (U.S. Conference of Mayors 1998).” Governor Cellucci made similar claims for the Massachusetts brownfields law, saying that it would “preserve pristine greenspace by keeping economic development confined to commercial areas (National Governors Association 1998).”

Representatives from across the political spectrum have embraced the brownfields issue. For example, Presidential candidate George W. Bush, in a recent speech outlining his environmental policies, stated that “Brownfield cleanups and redevelopments represent the kind of cooperative spirit and results-oriented approach that, under my presidency, will guide our nation’s environmental agenda. ... The old system of mandate, regulate, and litigate only sends potential developers off in search of greener pastures – literally (Bush 2000).” Meanwhile, Vice President Al Gore has championed the brownfields issue for several years, claiming that “Revitalizing brownfields will help the citizens of America’s cities rebuild their own communities on a new foundation of hope (National Brownfields Partnership 1999).”

The media has joined politicians in praising the benefits of brownfields redevelopment. A recent study by Greenburg *et. al.* (1999) that analyzed media coverage of brownfields in 23 U.S. metropolitan regions found that “as a body of evidence the articles overwhelmingly cast brownfields in a positive light.” A majority (53%) of the stories was primarily about economic redevelopment, and 20% of the articles discussed removal of the hazard as an important benefit to the community. The overwhelming tone of the media coverage on brownfields has been very positive, leading the authors of the study to conclude that the brownfields issue is in a “honeymoon period.”

This recognition of the potential for brownfields sites has resulted in significant federal, state and local initiatives to encourage redevelopment. In the last three years, the federal government alone has invested an estimated \$385 million in order to encourage brownfields redevelopment (National Brownfields Partnership 1999). Meanwhile, all but four states have established some type of brownfields incentive program, whether in the form of a voluntary cleanup program, brownfields financing, tax incentives for cleanup, or some combination (Bartsch and Anderson 1998). More than half of the 231 cities responding to the U.S. Conference of Mayors’ 1999 brownfields survey indicated that local or state jurisdictions offered

tax incentives, liability protection, low-interest loans, or grants to spur brownfields redevelopment.

What has all this investment achieved, and how have policy makers evaluated progress towards brownfield policy goals? These questions are at the core of this thesis. I examine five brownfields case studies in order to evaluate the fit between the public benefits provided by the projects, the project goals, and evaluative techniques that have been used to date to measure the success of brownfields policies. I also compare different theories and practices of prioritizing brownfields projects in order to ascertain whether policies are in fact being implemented in ways that fulfill the frequent claims about the benefits of brownfields redevelopment. My purpose is to look for clues in the actual results of brownfields projects that could suggest adjustments to brownfields policy evaluation. Ultimately, I seek to provide data that could inform efforts to improve brownfields policies so that they may achieve the broadest possible public benefits given limited resources available to undertake redevelopment.

I have organized this thesis into six chapters. After this introduction, the second chapter summarizes background for the thesis, including the history of the brownfields issue, efforts to prioritize brownfields for redevelopment, and techniques that have been used to evaluate the outcomes of brownfields policies. The third chapter outlines my methodology for the case studies. The fourth chapter presents the five case studies. The fifth chapter analyzes the case studies to ascertain common goals and community benefits provided by the projects and compare these outcomes to those measured by the traditional benchmarks of brownfields success. The final chapter concludes by reflecting on what these results could suggest for the reprioritization of brownfields redevelopment and opportunities for brownfields policy implementation.

CHAPTER II: BACKGROUND

A. HISTORY

Brownfields in the United States are the legacy of a century and a half of intense industrial development. In the past, many manufacturers and industrial service providers were largely unaware of or unconcerned about the environmental impacts of their operations. Wastes were often stored or dumped on site, where they could contaminate the soil, groundwater, and/or surface water. In the 1970s, public concern about the environmental and human health impacts of such dumping practices grew. In response to public pressure, Congress passed the Comprehensive Environmental Reclamation, Compensation and Liability Act (CERCLA) in 1980. Congress intended CERCLA to force cleanup of existing environmental contamination by requiring those responsible for pollution to pay for its cleanup and damages. Since many of the polluting parties had already gone bankrupt and no longer existed as corporate entities, CERCLA established a \$1.6 billion, five-year revolving loan fund (Superfund) to finance environmental cleanups (Meyer, Williams and Yount 1995). In order to promote settlements with EPA, shift the costs of cleanup onto private parties, and create a disincentive for future pollution, CERCLA imposed a standard of strict, joint, and several liability. Strict liability means that any current or past owner or operator of a contaminated property, or any party that contributed to the contamination of the site, may be held liable without regard to fault for the contamination. Joint and several liability means that the government may sue any single party for the full cost of the remediation, regardless of how much of the contamination that particular party caused.

The direct impact of Superfund on contaminated properties has been immense: as of May 11, 2000, the US EPA listed 1,227 uncontrolled hazardous waste sites that required further cleanup on its National Priority List (NPL) (U.S. EPA 2000). However, CERCLA has affected far more properties indirectly. Because of fears of liability, the law has had a chilling effect on any real estate transactions involving a possible environmental contamination, however small the risk or slight the contamination. Brownfields sites are those that are not on the NPL, but still have some degree or perception of contamination. Real estate developers, prospective site owners, and lenders all have been wary of assuming the risks associated with brownfields, especially when the potential costs of cleanup are unknown and there is no certainty about which cleanup standards are adequate. Brownfields sites often face multiple challenges in addition to environmental contamination (HUD 1998). Sites may have low market value due to factors such as inadequate access or infrastructure for modern industrial facilities, small parcel sizes that require assembly, zoning or other regulatory constraints, or security concerns. All of these factors can further deter redevelopment.

In the past five years there has been a widespread effort on the part of federal, state, and local governments to encourage brownfields redevelopment. These brownfields initiatives can provide legal clarification to reduce liability concerns, set risk-based cleanup standards in order to reduce regulatory uncertainties, subsidize project financing and/or environmental insurance, or provide technical assistance and regulatory guidance to developers. The federal government has been active in encouraging brownfields redevelopment by removing some of the less

contaminated sites from the NPL, providing grants and tax incentives to spur cleanup, and issuing closure letters after cleanup is complete to assure developers and owners that the government will not sue them at some future time for additional cleanup costs. As of 1998, thirty-eight states had established formal voluntary cleanup programs (VCPs) (Rafson and Rafson 1999). VCPs vary by state but are generally designed to provide some legal certainty and closure on environmental liability by executing agreements with developers who voluntarily clean up a brownfield. In the past few years many states have created new incentives for redevelopment or revised their existing brownfields legislation. Local governments have also encouraged brownfields redevelopment by providing tax abatement programs, issuing general obligation bonds, and using their Community Development Block Grant (CDBG) funds as collateral to finance short-term loans for brownfields projects. Local governments sometimes catalog lists of brownfields development opportunities in order to attract developers, or they may assemble and clean sites themselves before turning them over for development.

The government's efforts to encourage brownfields redevelopment can be set in the broader context of changing theories of environmental policy. In recent years, environmental agencies have moved away from a "command and control" approach to more cooperative tactics to reduce pollution. Policy changes to enable brownfields redevelopment have embodied the notion that environmental agencies should encourage voluntary compliance rather than relying solely on enforcement and litigation. The regulatory framework encouraging brownfields redevelopment emerges from a common understanding that environmental legislation can go too far. The laws that turned each brownfield into a liability tar-baby have been widely renounced as being too restrictive and requiring too much cleanup. The standard of strict, joint, and several liability that was initially imposed on anyone in the chain of title for a contaminated property has been reined in. The EPA has tailored cleanup standards to the specific risks posed by environmental contaminants on the site, rather than requiring a one-size-fits-all approach to cleanup. Many hope that brownfield policies can provide environmentally safe, pro-development incentives that balance environmental, economic, and social objectives.

B. PRIORITIZING BROWNFIELDS

One of the difficult policy questions that complicate government efforts to spur brownfields redevelopment is the question of how to target redevelopment incentives. Research in the Great Lakes area has suggested that, at least for older industrial regions of the country, there are far more brownfields sites than there are sources of public or private funds to carry out redevelopment. For example, in Chicago, Cleveland, Detroit and Milwaukee, researchers estimate that there will be a 30-50 year supply of brownfields relative to demand (Simons 1998a). Simons concludes that the large supply-demand ratio for brownfields is probably widely applicable, noting that "Most large markets probably contain many decades worth of brownfields compared with demand for non-residential real estate."

It is also true that the conditions of brownfields vary widely. Some brownfields are highly marketable, while others, especially those in distressed neighborhoods, are unlikely to induce private sector demand, even with substantial public incentives. One common way to

characterize this situation is to divide brownfields sites into three tiers as follows (Smart Growth Network 1998, Simmens 1996):

- **Tier I: Sites with high development potential.** Due to favorable locations (e.g. waterfront, central business district, or suburban sites), transportation access, adequate infrastructure, appropriate configuration and acreage, minimal contamination, and high market demand, these sites are likely to attract traditional sources of private capital through market forces. Private sector developers are expected to take the lead on redevelopment, and public involvement is limited to non-monetary assistance such as clarifying regulations, reducing liability for innocent owners, or rezoning or permitting.
- **Tier 2: Sites with medium development potential.** These sites require public incentives and/or financial assistance to attract private-sector redevelopment interest, and would not be redeveloped without public sector involvement. If the public sector does commit to an up-front investment of resources, these sites can be successfully redeveloped and turned over to the private market. Redevelopment often proceeds through a public-private partnership with some public sector financing. Sites may be marketable for specialized developers with experience in brownfields redevelopment or access to alternative funding sources.
- **Tier 3: Sites with poor development potential.** Due to small size or poor configuration, extensive contamination, poor location, and/or low market demand these sites do not attract private-sector interest even with a full range of public incentives. They may remain abandoned indefinitely unless the public sector takes the lead on remediation and redevelopment.

One recent study attempted to distinguish the various impacts of these different tiers of brownfields on nearby properties (Greenberg *et. al.* 1999). The authors coined the term TOADS, or temporarily obsolete abandoned derelict sites, to identify a form of virulent brownfields that have a substantial negative effect on the neighborhoods surrounding the site. In the state of New Jersey, where the study was conducted, the authors found that only ten percent of brownfields sites caused certain neighborhood impacts beyond the perimeter of the site. The measured impacts included reduced property values, affected property transactions, and deterred land use in the surrounding neighborhood. Approximately one third of these sites, or three percent of the total brownfields studied, affected an area more than one-quarter of a mile away from the site and forced multiple land use changes. The authors also note that “Brownfields associated with the most serious neighborhood impacts are disproportionately located in neighborhoods where the neighborhood has crime, other unsafe conditions, is suffering from an erosion of its industrial employment base, and lacks services.” This study’s estimate of the percentage of brownfields having these off-site impacts may be conservative due to position of respondents. The study relied on a survey of appraisers, who are likely to err on the side of underreporting impacts on property value. In addition, the study’s conclusions may not apply in states other than New Jersey, and does not address other types of impacts not related to property use and value. However, this research does strongly suggest that only a fraction of all contaminated sites produce some of the negative neighborhood impacts typically associated with brownfield sites.

Unfortunately, existing brownfields incentives do not typically address those sites that have the most substantial off-site impacts. The authors note that “Most municipal brownfields programs appear to be focusing on tier one sites in order to gain as much benefit as possible in the shortest period of time.” The authors conclude by saying that “Neighborhoods affected by high impact TOADS and multiple other problems cannot be addressed within the relatively narrow framework of a typical brownfields project. A combination of government, community, for profit and non profit groups is needed to create and implement a vision for the neighborhood as a whole, including the brownfield as one element (Greenberg *et. al.* 1999).”

Taken together, these studies suggest the following conclusions: 1) the supply of brownfields exceeds the market demand for brownfields, 2) those sites that are not highly marketable will require some, perhaps substantial, public investment, 3) only a fraction of brownfields sites actually impose the type of negative neighborhood impacts as are typically associated with brownfields, and 4) those brownfields that do have significant negative impacts on surrounding properties are disproportionately located in distressed neighborhoods where private and public investment is less likely to occur. Although the evidence has not yet been fully developed, it seems reasonable to conclude that those brownfields that are *most* likely to impose costs on the general public (i.e. those in surrounding neighborhoods with no connection to the property) may be *least* likely to be redeveloped.

Given that 1) only a fraction of the brownfield sites in existence are likely to be redeveloped due to oversupply and 2) those sites that are most likely impose costs on surrounding neighborhoods may be least likely to be redeveloped, it is important to consider how current brownfields policies are allocating incentives for redevelopment. There are several theories about how public incentives for brownfields redevelopment should be targeted, and actual federal and state policies take a variety of different approaches. I review these theories and practices below in order to examine how brownfields sites are currently prioritized.

One theory about how to prioritize sites for redevelopment is to catalyze development on the most marketable (Tier I) sites first, recognizing that public funds are limited and many sites simply may never be redeveloped. This approach is commonly advocated as the only reasonable solution from an economic perspective. As the Allardice (1995) notes, “Identifying those sites that may require the least amount of cleanup and re-engineering while delivering the greatest economic development impact is a sound strategy and can ensure that resources are not squandered cleaning up a location that would be of little redevelopment value even when returned to sound environmental condition.” HUD (1998) quotes a city brownfields coordinator in Oregon who puts the situation in stark terms. “From a strategic perspective, take the least contaminated, high amenity location...put that to some good economic use, and then sort of work toward the darker hole, the black hole. Only because then you’ve got economics working for you, you can create a synergy...that works. If it’s not a high demand area, or can’t be created into a high demand area, it doesn’t matter what you do.”

If we accept the most-marketable-first strategy, the question then arises of what to do with non-viable sites that will not be redeveloped. Simons (1998a) suggests that cities be responsible for identifying and “banking” such land, indefinitely or until such time as demand

catches up with the supply of brownfields. He asserts that “More attention needs to be paid to reducing the negative effects of blighted brownfields on the local community. Because market demand is not sufficient to support most brownfields, a more modest goal is to turn them into neutral uses, such as buffers between incompatible land uses, active and passive recreation, or community gardens.” Of course, in order for contaminated land to be used as community gardens or parks, it must be remediated to relatively high standards because of the relatively large opportunities for human exposure to environmental contaminants. These standards will require relatively expensive approaches to site redemption. Yet, where sites are not redeveloped into economically productive reuses, the land will not generate revenues to offset the costs of cleanup and maintenance. Therefore, the land banking strategy would entail significant and ongoing public costs.

In fact, Charles Bartsch, a brownfields expert from the Northeast-Midwest Institute in Washington, D.C., notes that many cities that would like to take the land-banking approach are having difficulty in justifying the public costs of remediation and site maintenance (personal communication, April 2000). These city officials are looking for ways to quantify and monetize the spin-off benefits associated with re-use of sites as parkland and open space.

A second theory for how to prioritize sites for redevelopment combines several factors, including market demand, potential community benefits of site redevelopment, and potential impacts of redevelopment. This Smart Growth Network described this theory in its 1996 report *An Integrated Approach for Brownfield Redevelopment: A Priority Setting Tool*. The authors suggest that as a first step, public proponents of brownfields redevelopment such as city governments target geographic areas that contain: 1) mixed land uses and highly exposed minority and low income populations, 2) industrial areas with large tracts of land, and/or 3) waterfront or central business districts that would be highly marketable. Within each targeted geographical area, the agency would identify brownfields sites and characterize each site with regard to its marketability. For those sites with high marketability (Tier I), redevelopment would be driven by private investment, and the public role would be limited to simplifying or coordinating the permitting and regulatory procedures required for redevelopment. No further prioritization would be necessary for highly marketable sites, given that redevelopment would occur according to market demands.

For sites with moderate or low marketability (Tiers II and III), public involvement would be more extensive, and further prioritization would be necessary. In this case, the agency would screen sites for high potential benefits to the community based on characteristics of the neighborhood, the site, and the redevelopment plan. Finally, sites would be evaluated with regard to potential impacts of the project, such as environmental, social, and economic benefits, as well as any negative impacts of the project on the community. In this theory of site prioritization, public investment in brownfields redevelopment would be targeted to sites with moderate or low marketability and with significant potential for positive impacts on the surrounding community. This theory stands in stark contrast to the most-marketable-first theory of site prioritization, given that public funds would be directed to less marketable sites rather than the most marketable sites.

While these two theories of site prioritization have been articulated in the literature, in practice states implementing brownfields policies have taken a diversity of approaches to the issue. Many states do not target their brownfields incentives at all, but rather accept eligible applications on a first-come, first-serve basis. As Bartsch notes, the attitude of most states is “bring ‘em on down (personal communication, April 2000).” In this scenario, if a proposed project meets certain threshold conditions, the state makes no attempt to target incentives but rather tries to process as many applications as possible in the order they are received. In effect, this may become a most-marketable-first strategy, because private project proponents will only apply for incentives where there is sufficient market demand. The non-targeted approach seems to be especially common for states whose programs are only offering liability relief (e.g. covenant not to sue programs or no further action letters), rather than financial incentives for brownfields development. States may be more likely to see liability relief as a relatively unlimited resource (the only limitation being the time of public employees to negotiate and prepare covenants not to sue), whereas financial incentives are more clearly limited pools of resources that must be allocated among many potential projects.

When states do target incentives, policies frequently attempt to balance the goal of cleaning up sites in less advantaged communities with the need to leverage private redevelopment dollars in order to achieve site cleanup, thus requiring site marketability. Based on a state-by-state review of brownfields policies (Bartsch and Anderson 1999), I have selected several states that show the diversity of approaches to site prioritization¹. Prioritization methods vary widely between states and across programs within states. Some states, such as Indiana and Ohio, prioritize sites primarily based on economic distress of the neighborhood where the site is located. Other states, such as New York, Oregon and Massachusetts, use a combination of an assessment of the public benefit of the redevelopment and the distress of the neighborhood. Finally, states such as New Jersey and Texas have adopted the most-marketable-first strategy.

States may be adopting different approaches towards prioritization because of variations in their policy goals or the condition of brownfields within their jurisdiction. Alternatively, states may be taking diverse approaches because this area of policy is new, and each state is working in relative isolation to develop its own redevelopment strategy. If the latter explanation is correct (and in my judgement it is at least partially true), then it may be possible to learn from the diversity of policy experiments at the state level. Examining individual state policies may allow policy makers to draw some conclusions about the most effective approaches towards site prioritization given the general goals of brownfields redevelopment and the limitations of public funding. I describe individual state’s approaches to prioritizing sites for redevelopment below.

¹ I use the term “prioritization” broadly, to include both threshold criteria that the project must meet and more literal prioritization, where projects are ordered according to the degree to which they meet certain objectives. I include thresholds as a part of my prioritization discussion because by ruling out certain sites, threshold policies narrow the pool of eligible projects and thus target the incentives for redevelopment. I do not include as a part of this discussion threshold criteria relating to the eligibility or innocence of the site owner or prospective developer, since these characteristics do not relate directly to the conditions of the site itself.

1. Prioritization Based on Economic Distress

Ohio

Ohio's Voluntary Action Program (VAP) encourages voluntary brownfields remediation by providing covenants not to sue for owners that meet cleanup requirements. There are six state programs within the VAP that offer financial support for brownfields redevelopment. (Ohio Environmental Protection Agency 1999) Three of these financial incentives prioritize funding based on economic distress. Distressed areas include counties with low per capita income, high poverty rates, or high unemployment. The Brownfields Site Cleanup Tax Credit program is authorized to provide a total of \$40 million in nonrefundable tax credits against the business or personal income tax available for brownfield site cleanup. Under this program, applicants cleaning up sites in economically distressed areas are eligible for a \$750,000 or 15% tax credit, whichever is less. Applicants cleaning up sites in non-distressed communities are eligible only to receive \$500,000 or 10% in tax credit. The Urban and Rural Initiative Grant program was created to assist non-profit economic development organizations working in economically disadvantaged areas. The program provided a maximum of \$500,000 per grant award. Ohio's Urban Redevelopment Loan program provides grants up to \$500,000 for economically distressed areas that meet at 25% local match requirement. Thus, in Ohio, programs that prioritize brownfields sites for the purposes of allocating incentives are primarily based on the economic conditions of the areas in which the brownfields are located. Incidentally, several of the state's incentive programs have exhausted available funding due to demand for the programs.

Indiana

The Indiana Department of Environmental Management (INDEM) has established an Environmental Remediation Revolving Loan Fund, which provides funds to local governments for activities contributing to brownfields remediation. Funds are prioritized based on factors such as the ability of the community to contribute money to the project, the property's new use, the level of community support, and public outreach to the community. Applicants must show "evidence of their intent to involve local residents and community organizations in the cleanup process, and describe how cleanup efforts will create and sustain jobs (INDEM 2000)." The INDEM has established targeted areas for funding based on poverty levels and inclusion in federal brownfields programs.

2. Prioritization Primarily Based on Public Benefits of Redevelopment and Economic Distress

Massachusetts

The Massachusetts Brownfields Law (Chapter 206 of the Acts of 1998) established several different programs to encourage brownfields redevelopment, each with its own eligibility requirements and approaches to prioritization. Massachusetts relies on a combination of eligibility requirements and prioritization techniques to target incentives to projects that are located in distressed areas and/or provide public benefits.

The Brownfields Redevelopment Fund (BRF) provides low-interest loans and grants for site assessment and cleanup in Economically Distressed Areas (EDAs). The definition of EDAs is complex, and based on a previously defined units known as Economic Target Areas (ETAs). In essence, ETAs and EDAs include one or more contiguous census tracts with high unemployment, low household income, high poverty rates, significant layoffs of workers or military base closings, or high commercial vacancy rates (General Laws Of Massachusetts Chapter 23A: Section 3D). It turns out that EDAs are quite inclusive, including part or all of 43% (150 of 351) of Massachusetts' cities and towns, and covering diverse areas such as all of Boston and Cambridge (Massachusetts Office of Business Development 1998, Commonwealth of Massachusetts 1996). Proposed projects that receive assistance from the BFR must be located in EDAs and must result in significant economic impacts in terms of new jobs or contribution to the economic or physical revitalization of the area (Massachusetts Department of Environmental Protection 1998).

The Brownfields Tax Credit encourages private sector investment in the cleanup of contaminated sites in Economically Distressed Areas. A 25% tax credit is available upon completion of site cleanup, and a 50% tax credit is available if the remediation exceeds minimum cleanup requirements (Massachusetts Department of Environmental Protection 1998).

The Brownfields Covenant Not to Sue (CNTS) program is an alternative for parties who do not qualify for the statutory liability relief provided in other parts of the law. Priority for these covenants is given to projects in the 15 municipalities with the highest poverty rates, second to projects located in other Economically Distressed Areas (EDA), and finally to sites in all other municipalities (Massachusetts Department of Environmental Protection 1998). Projects eligible under this program are those that contribute to the economic or physical revitalization of the community in which the Site is located. In addition, each project must provide public benefits in the form of new, permanent jobs; affordable housing benefits; historic preservation; open space; or some other public benefit to the community as determined by the Attorney General (Massachusetts Attorney General's Office 1999).

Oregon

In 1995, Oregon passed legislation to amend the state's cleanup law and encourage redevelopment of brownfield sites. As a result of this legislation, the Oregon Brownfields Funding Task Force was created. The Task Force recommended several criteria as guidelines for reviewing applications for state funding, including (among others) return on public investment and marketability. In addition, the Task Force recommended that sites located in economically distressed communities be given special priority. In addition, the Task Force recommended that projects be prioritized in part on the degree to which they are marketable or achieve a public purpose.

Subsequent to the Task Force's recommendations, the Oregon legislature established a brownfields redevelopment loan fund to provide financial assistance for environmental cleanups. In making loans, the Economic and Community Development Department is required to consider, among other factors, the extent to which the real or perceived environmental contamination prevents utilization of the property, the degree to which redevelopment would

protect human health or the environment, and “the probability of the success of the intended use or the degree to which redevelopment...provides a public purpose...” (Chapter 285A Oregon Revised Statutes 1999). Other proposed legislation in Oregon would establish a Brownfield Redevelopment Pilot Program, that would, among other things, provide grants to redevelop brownfields that had been identified through a community prioritization process. Grants would be awarded based on the effectiveness of the community process in building support for redevelopment, the need for public funds, whether the project would redevelop a disadvantaged area and promote environmental justice, the likelihood that the redevelopment would function as a catalyst for additional development, whether the project could create and retain jobs, and whether the project would “maximize public benefit (69th Oregon Legislative Assembly 1997).”

New York

New York’s current brownfields policies do not prioritize sites for redevelopment. This is a problem according to Valerie Washington, Executive Director of the Albany-based group Environmental Advocates because it allows for “cherry picking,” that is, selecting the most promising sites for redevelopment and leaving the rest. (Washington, personal communication, April 2000) However, policy makers have proposed several new pieces of legislation to create a system of incentives for developers working within designated land use opportunity areas chosen by local communities. In one program, communities could apply for a \$50,000 grant to enable pre-planning for opportunity areas. Developers that work closely with community-based organizations would receive priority for any financial incentives. Another bill would create Brownfield Redevelopment Areas (BRAs), that have a poverty rates of at least 20% or unemployment rates of at least 125% of the statewide unemployment rate (New York State Legislature 2000). Municipalities conducting environmental remediation projects in a BRAs would receive state incentives for environmental remediation and cleanup of off-site groundwater contamination.

Regulations to further detail the criteria for brownfield opportunity zones and related incentives have yet to be promulgated. Washington expects the regulations would prioritize sites according to the degree to which they provided benefits to human health, the environment, and the economy (in terms of creating new job opportunities). Additional factors for consideration in prioritization would likely include local support for the project and the concentration of brownfields within the area.

3. Prioritization Based on Site Marketability

New Jersey

The state brownfields legislation establishes a Brownfields Task Force which is charged, among other things, with coordinating state policy on brownfields redevelopment and developing an inventory of brownfields sites that is prioritized based on “immediate economic development potential (Brownfield and Contaminated Site Remediation Act P.L. 1997).” New Jersey provides both grants and loans to assist with site investigations and cleanup activities. A total of \$55 million is available through the Hazardous Discharge Site Remediation Fund. According to

JoAnne Patrizzo, New Jersey's Brownfields Program Director, although the legislation requires prioritization based on economic development potential, in practice funds are usually granted on a first-come, first-serve basis (personal communication, April 2000). This may produce roughly the same results as prioritizing on a most-marketable-first strategy.

Texas

The Texas Voluntary Cleanup Program (VCP) provides administrative, technical, and legal incentives to encourage brownfields cleanup and redevelopment. The state has instituted liability relief for innocent owners, operators and lenders who did not cause or contribute to the source or sources of contamination. Charles Epperson of the Texas Natural Resource Conservation Commission notes that the state targets funds towards redevelopment projects that are economically viable (personal communication, April 2000). In addition, if a project is on a tight timeline due to an imminent project closing date, then the project may receive priority for a covenant not to sue. However, in Epperson's judgement, prioritization is not a large issue in Texas, given that the state does not have a large backlog of sites waiting for covenants.

Public Benefits as a Factor for Prioritization

Although few of the states described above looked primarily to the public benefits of brownfields projects as a means to target redevelopment incentives, public benefits was a component of several state policies. For these states – New York, Massachusetts, and Oregon – defining what is a public benefit and how benefits should be compared across sites can become an important issue. For example, the Massachusetts Attorney General's office, which is charged with implementing the covenant not to sue program under the state brownfields legislation, is required to consider the public benefit of redevelopment projects applying for tailored liability relief. Although the legislation provides general parameters of the dimensions of public benefits that the Attorney General should consider, there are no specific measurements that can be used across sites. This can become problematic as applicants try to stretch the definition of certain public benefits to suit their private development objectives. For example, one project included relatively moderately priced housing in a prosperous neighborhood as an "affordable housing benefit." At the same time, dimensions of public benefit described in the legislation are far more narrow than those actually provided by projects in the program. For example, some projects that have been submitted to the covenant not to sue program would reopen public waterfront access or reconfigure land uses to convert an industrial site sandwiched between residential lots into a more compatible residential project. However, the legislation did not anticipate these benefits, and it is up to the Attorney General's discretion to determine whether these public benefits fall within the bounds of the legislative intent.

For those states that already consider the public benefits of brownfields redevelopment as a factor for targeting incentives, the issue of how to define and evaluate the benefits of brownfields projects is key to developing successful brownfields policies. The issue may be even more critical for states that have not considered the prioritization issue. If a first-come, first-serve approach results in a de facto preference for the most marketable sites, and if more marketable sites are less likely to produce public benefits upon redevelopment, states may inadvertently be losing opportunities to reap public benefits from public investments. The

relationship between marketability and public benefits has not been tested, and indeed cannot be tested unless there is some common understanding of how to evaluating the public benefits of brownfields redevelopment projects. I shall return to the question of how states might realign their policies in order to better prioritize sites for redevelopment in the conclusions to this thesis. For now, I consider how the public benefits of brownfields policies and projects been evaluated to date.

C. EFFORTS TO DATE TO EVALUATE BROWNFIELD BENEFITS

Measuring the public benefits of brownfields is complicated. Projects vary vastly in their objectives, degree of public involvement, and degree of environmental contamination. Furthermore, state and local initiatives to promote brownfields differ widely in their approaches. Given all this variation between brownfields projects and programs, is there a standard set of metrics than can be used to measure the public benefits of brownfields redevelopment?

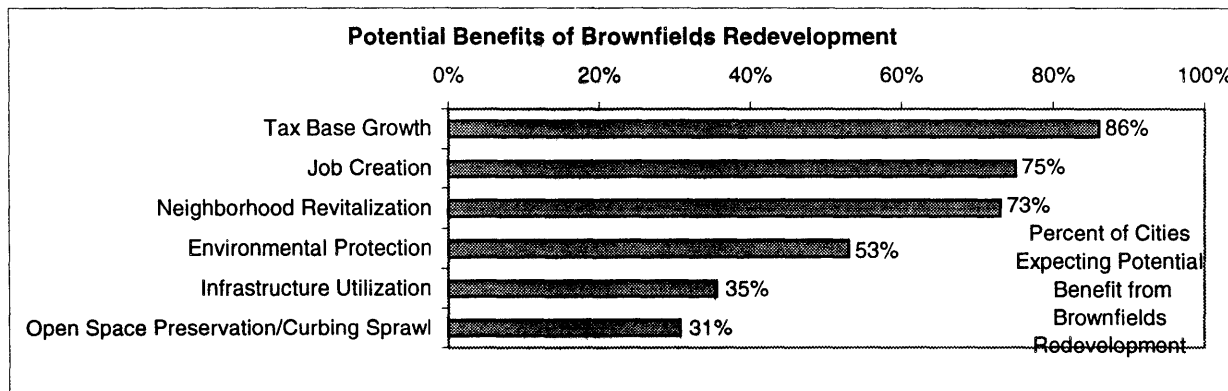
This question is further complicated because the evaluative metrics chosen imply a certain definition of the goals of a project. In the case of brownfields redevelopment, different stakeholders can have very distinct goals. Private, for-profit real estate developers involved in brownfields redevelopment define successful brownfields projects in terms of acceptable profit given certain levels of risk. Cities have a different perspective. For example, the President of the U.S. Conference of Mayors speaks about successful brownfields redevelopment in terms of economic vitality, utilizing existing infrastructure such as roads and sewer systems, and easing the pressure to develop open spaces and farmland. Community groups and environmental activists have a different focus. For example, the Citizens for Public Environmental Oversight has suggested the following definition of success: "Brownfields projects are successful when they improve public health and the environment, promote economic recovery without "redlining," create ownership opportunities for the community, and/or enhance the quality of life in targeted brownfields areas.... Members of the community (the residents and others most affected by brownfields or revitalization), not project proponents, shall define success." (1999)

Despite the difficulties in measurement due to varied project types and goals, there have been efforts to evaluate the benefits of brownfields redevelopment. However, these studies have generally taken either a purely qualitative approach or a narrowly defined quantitative approach to measuring benefits.

Numerous case studies have been written about brownfields redevelopment (Dennison 1998, Simons 1998a, Bartsch and Collaton 1997, Pepper 1997). Generally these case studies include a qualitative description of the benefits of the project. These descriptions vary by case, and are not organized into any standard or consistent format. One study developed a relatively comprehensive list of the potential benefits and costs of brownfields redevelopment (Appendix A) (Smart Growth Network 1996). This study, contracted by EPA's Office of Policy Planning and Evaluation, while very useful in identifying potential benefits, does not suggest how the degree of benefit provided might be evaluated. Thus, standardized, quantifiable measures are still lacking for much of the broad range of potential benefits of brownfields redevelopment.

Several quantitative studies have been conducted to measure the benefits of brownfields redevelopment, but these indicators of benefit are relatively narrow, compared to the full range of possible benefits identified in the qualitative studies discussed above. For example, the Federal EPA estimates that its brownfields pilot program has helped create more than 5,000 jobs across the country and has leveraged more than \$1.6 billion in funds for redevelopment (Brownfields National Partnership 1999). The U.S. Conference of Mayors conducted a survey of 231 cities with regard to their brownfield properties and found that cities reported that redeveloping their brownfields would collectively result in between \$878 million and \$2.4 billion in additional annual tax revenues, 550,000 new jobs, and capacity for 5.8 million new people in the cities without adding new infrastructure. (U.S. Conference of Mayors 2000). The Conference of Mayors also found that tax base growth, followed by job creation and neighborhood revitalization, were among the most commonly expected benefits of brownfields redevelopment (Table 2.) Neither the EPA or the U.S. Conference of Mayors suggest how their metrics might be normalized to enable project-by-project comparisons of benefits provided. Rather, they aggregate benefits across many projects, suggesting the potential for redevelopment on a national scale.

Table 2. Expected Benefits of Brownfields Redevelopment from a Municipal Perspective



Source: A National Report on Brownfields Redevelopment, United States Conference of Mayors, February 2000

A more detailed project-level study on the benefits of brownfields redevelopment was published by the Council for Urban Economic Development (CUED) in 1999. CUED's explicit goal was to focus on the economic development impacts of brownfields redevelopment. The authors developed two benchmarks (i.e. discrete, measurable elements) to evaluate a broad variety of projects in terms of their economic benefit. These benchmarks are powerful in that they can be used to measure the impact of a wide variety of projects, and they are relatively simple to compute and understand. CUED measured public cost per job created in each project and private sector funds leveraged per dollar of public investment for each project. The authors concluded that the median public cost per job created was \$14,003, and that the median leverage for a typical² project was \$2.48 (that is each dollar of public sector funds invested generated \$2.48 in private sector spending on the project).

² This figure excludes projects that resulted in a public cultural or recreational redevelopment use.

While these figures are impressive and the CUED's benchmarks are elegantly simple, they ultimately measure only limited dimensions of public benefit that could be produced from brownfields redevelopment. A report published by the Center for Public Environmental Oversight (CPEO) & the Urban Habitat Program (UHP) in 1998 stressed that the most common measures of public benefit from brownfields projects can neglect the impact of a project on the local neighborhood. "The traditional paradigm of 'success' is defined by government agencies as the 1) number of jobs created, 2) amount of money leveraged, and 3) tax revenue created. Evaluations using this paradigm are unable to show how a project benefited the people who were negatively affected by the brownfield property in the first place." Environmental justice and community advocates argue that evaluations of brownfields projects should measure the benefits that the project provides to the local community, not just project proponents. "Success cannot be merely defined in terms of dollars and cents. Rather it should be judged by the effectiveness of a community's ability to drive and benefit from the redevelopment process." (CPEO and UHP 1998).

One CPEO staff member suggested that brownfields projects that require public subsidies be evaluated on many dimensions (Siegel 1999). Proposals for brownfields projects requesting public investment would be evaluated on the degree each project would:

- involve the local community in planning
- protect public health
- generate local jobs and business
- provide needed services or housing for the community
- expand open space or otherwise improve the local quality of life
- generate additional tax revenues for local agencies
- retain the existing community and its cultural base
- provide any of the above in a particularly blighted area

To date there is no generally accepted method for evaluating this broader class of public benefits of brownfields redevelopment. CUED's rationale for focusing solely on economic development impacts may be indicative of the general reluctance to quantify the spectrum of public benefits created by brownfields redevelopment. First, CUED considers environmental and social dimensions of brownfields redevelopment to be more difficult to measure than economic impacts. Second, CUED notes that economic development is often cited as a primary goal of brownfields redevelopment. Third, data on economic benefits are often used by legislators and policy makers as a basis for allocating funding between projects and for measuring project success. Finally, as CUED states, "economic statistics are often seen as more rigorous than qualitative measures, which are often discounted as mere subjective pronouncements." Although CUED did briefly describe environmental and social benefits of the projects, there was no standardized method of evaluating these benefits.

While this rationale for limiting its project scope is understandable, there is a need for additional quantifiable benchmarks that address additional dimensions of brownfields redevelopment. Meaningful benchmarks must reflect the primary goals and desired outcomes of a brownfields program. While job creation and leveraging private investment are primary goals

in many projects, other projects have primarily social or environmental goals, or focus on other dimensions of economic benefit, such as increasing utilization of existing infrastructure or providing jobs specifically to local residents.

Brownfields policies are new and experimental. Even the most established federal and state brownfields programs have been in existence only for a few years. The wide variety of approaches to establishing incentives for redevelopment reflects the experimental nature of these policies: each jurisdiction is in effect a test case, and the most successful approaches will only become evident as more projects are completed. Therefore, it is important to monitor the success of brownfields projects and policies in order to provide a feedback mechanism for policy evaluation and improvement. One way to monitor the success of brownfields policies is to develop benchmarks that reflect the broad array of public benefits that have been invoked as the rationale for promoting brownfields redevelopment. Standardized benchmarks that can be applied across state lines could enable a comprehensive evaluation of the success of brownfields policies individually and as a whole in making progress toward stated policy objectives.

CHAPTER III: CASE STUDY METHODOLOGY

In order to examine the public benefits resulting from brownfields development, I used a case study approach. I researched five brownfields projects in order to identify the goals of the project and the expected and realized outcomes. These cases were chosen from the list of 107 cases reviewed in the CUED report. I chose to use the CUED data because they represented a selection of completed brownfields projects for which there were baseline data. CUED states that it selected only those cases that were complete³ from communities that were known to have an active involvement in brownfields redevelopment, as defined by the CUED authors. CUED notes that this selection criteria produced a non-random sample of projects. There are two sources of bias in CUED's case selection. First, the population of host communities was limited to those known by the report's authors to be active in brownfields redevelopment. Second, selecting only completed projects means that any unsuccessful projects (i.e. those that were not completed) would be excluded from the population of cases. The exclusion of failed projects is probably the more serious source of bias in the case selection. However, for the purposes of this study, I am not trying to estimate the degree of public benefits provided through brownfields projects (i.e. the results), but rather to determine the appropriate measures of public benefits (i.e. the evaluative techniques). Therefore, it will be most useful to examine projects that were completed, because presumably only completed projects would provide public benefits.

Once I identified the CUED cases as my population from which to choose cases, I selected a sample of case studies. My goal in case selection was to choose one case for each of several different types of brownfield project, and to choose the most "typical" case within the type. For the purposes of this study, I divided the types of brownfield projects in terms of categories of re-use. Thus, the five types of brownfields projects that I examined included industrial, commercial/office, public cultural/recreational, residential, and office reuses. The reuse types represent the most frequent reuse types among those listed in the CUED study. For mixed use classifications I categorized the project with the primary type of reuse. There are many other possible types of categorizations of brownfields that one could choose in selecting cases. For example, it would be possible to divide brownfields into type of location or nearby zoning code (e.g. industrial, residential, commercial, or waterfront). Other categorizations could be based on city size, degree of contamination, or size of the property. In this case, I decided to categorize brownfields by type of reuse because I assumed that the public benefits resulting from a project might vary more with the type of reuse than with the other factors just mentioned. However, I have not tested this assumption, and it represents a potential source of bias in my case selection.

Once I had selected the categories of brownfields cases, I wanted to choose the most typical case within the category to serve as a case study. For the purposes of this study, I chose three variables which I would use to assess the degree to which a project was typical. These were: 1) remediation costs as a percentage of total project costs, 2) percent of population within a one-mile radius of the site below the poverty line, and 3) public funds as a percentage of total

³ Although CUED stated it selected only completed project, in fact one of the cases I chose from their selection turned out to be not yet complete, as defined by the city brownfields coordinator. In this case the project had encountered unexpected delays, but was nearing completion.

funding for the project. I chose these variables as surrogates for the degree of contamination at the site, the economic distress of the neighborhood, and the degree of public subsidy for the project, respectively. In my judgement these factors are important variables for describing the project, although other variables (e.g. property size, type of neighborhood, etc.) could have been chosen. All data for the variables were taken from the CUED report.

Once I had the data for each variable, within each type of brownfield reuse, I calculated the median value for the variable within each group. I then calculated the squared deviation from the median for each property for each variable, and then summed across all variables for each property. I defined the property with the lowest sum of squared deviations within each group as the most typical project within that group. Unfortunately, three of the five selected cases selected with this methodology turned out to be within the same city: Emeryville California. In order to avoid having the results dominated by characteristics specific to Emeryville, I chose the next most typical project for two of the three project types where the initial project chosen was within Emeryville. Through this process I selected my initial case studies. Once I began to research these cases, it became clear that one project could not be the subject of a case study because the project proponent wanted to avoid publicity for the project, and so the city brownfields coordinator was unwilling to discuss the case and asked that I not include it in my research. Therefore, for that category I chose the next most typical project. The final case studies selected are shown in Table 1.

Reuse Type	Case Study	Remediation as a Percentage of Project Costs	Percent of Residents in a One Mile Radius Below Poverty Line	Public Funds as a Percentage of Total
Industrial	CSX/EHOB	2.59%	26.5%	13.0%
Office	FMC Technology Center	3.82%	28.5%	6.0%
Retail	East Baybridge	7.85%	24.0%	5.0%
Recreational – Cultural	Blockbuster Sony Center	6.21%	32.2%	45.0%
Housing	Westheimer Rigging	3.90%	35.3%	0.3%

Once I had selected cases, I determined case contacts by using EPA’s information on their Brownfields Pilot Projects. Almost all cases are located within EPA pilot cities, though most projects are not themselves pilot projects. I conducted telephone interviews with case contacts and those individuals who they identified as representing key interests in the project. The interview protocol was designed to identify the context and goals of the project, perceived benefits of the project, and perceptions of what would have occurred if the project had not proceeded (See Interview Protocol, Appendix B). In some cases, if an interviewee claimed to be familiar with only one aspect of the project, I would cover only the appropriate sections of the interview protocol. For example, if an environmental official offered that (s)he had no knowledge of economic or social dimensions of the project, I would skip the relevant sections of

the interview protocol. A total of nineteen contacts were interviewed for the five cases. The average interview took 24 minutes. No interviews were directly declined, although I was unable to contact several people who had been identified by other interviewees but who were frequently away from their offices.

In order to supplement the interviews with case contacts, I collected information on the history of the project and the characteristics of the neighborhood where the project took place. (e.g. demographics and neighborhood environmental characteristics). Using these data and the results of the interview, I compiled case studies that identified goals of the brownfields project and impacts on the surrounding neighborhood.

Once I compiled case studies, I examined the cases for common goals and benefits. For each area of commonality, I considered how the benefits had or had not been evaluated within the traditional brownfields benchmarks. Based on this analysis, I recommended areas of public benefit where future benchmarks should be developed.

CHAPTER VI: CASE STUDIES⁴

CASE I: WESTHEIMER RIGGING

SITE HISTORY

For many years, the 2.7 acre site at 117 Eastwood Street in Houston was known locally as the “East End Dump.” The property, which was close to a railroad and a shipping channel, had once been used by the Westheimer Rigging company as a truck maintenance yard. The company gradually expanded its facilities by buying up adjacent residential properties and paving over them. Property values in the largely residential area had plummeted, and there were several near-accidents involving local children and the company’s eighteen-wheeler trucks.

In 1979, the Goldberg family, who owned Westheimer Rigging, closed its operation and abandoned 117 Eastwood Street and its two buildings. The property was not secured with a fence. Consequently, in the seventeen years following the closure, illegal dumpers piled trash and debris onto the property. No one was quite sure what was being dumped there, and as the years wore on local residents became concerned that the debris might include environmental contaminants and hazardous waste. Residents became more concerned when a local girl was almost kidnapped on the premises. Local residents and community-based organizations contacted the property owners and informed them that they would face neighborhood opposition and perhaps legal challenges unless something were done to clean up and secure the property.

In 1995, the Goldberg family contacted several local community development corporations to see if any would be interested in accepting the property as a donation. Most of the local groups viewed the property more as a liability than an asset, however one group, the Latino Learning Center (LLC), was seeking a place to develop affordable housing for senior citizens and a community center. The LLC agreed to consider accepting the property if the owners would assist in cleaning up the debris. As a first step, the LLC secured a grant to cover the cost of an environmental assessment, and then convinced the owners to allow access to the property to enable the environmental assessment to proceed. After much negotiation, the owners signed a written agreement to grant the land to the LLC.

After Westheimer Rigging signed the agreement to donate the land, the LLC obtained a commitment letter from HUD for \$3.8 million Section 202 loan to develop the property. At that time, the owners tried to re-negotiate selling the property, but they had already agreed to donate the land to LLC. Since the owners wanted to dispose of the property quickly, they allowed the Phase I assessment to proceed and agreed to enter the Texas Voluntary Cleanup Program (VCP). The Phase I environmental assessment called for removal of the debris and the buildings. After the Phase I assessment, the owners and

⁴ Unless otherwise noted, information is drawn from interviews with the contacts listed at the end of each case study.

the LLC renegotiated the terms of the transfer. Ultimately, the owners paid \$150,000 into the project to contribute to the costs of cleanup. Site cleanup began in March of 1998, and on April 2 of that year the site entered into the Texas VCP. Cleanup was completed on April 20, 1998. The first phase of redevelopment is scheduled to be completed in the fall of 2000. A second phase of redevelopment is also expected.

POLICY CONTEXT

The Westheimer Rigging site was remediated under the Texas Voluntary Cleanup Program (VCP). The VCP provides administrative, technical, and legal incentives to parties who bear no responsibility for environmental contamination at the site. The VCP provides prospective lenders and landowners with a streamlined cleanup process and liability protection. The only requirement for parties applying to enter the VCP is that the site is not subject to an order or permit from the Texas Natural Resources Conservation Commission (TNRCC) or subject to a TNRCC enforcement action.

Applicants must agree to abide by a cleanup schedule and pay for all VCP oversight costs. After satisfactory completion of the cleanup, applicants receive a certificate of completion from the TNRCC, which states that all innocent parties are released from liability to the state for cleanup of areas covered by the certificate.

In addition to the VCP, another important factor of the policy context for the Westheimer Rigging site is that Houston has no zoning code or local land use restrictions. As one city official stated, there is a de facto zoning system because any project is subject to local protest and outcry if it does not meet community expectations. However, a representative of the LLC decried the lack of a zoning system because it allows incompatible land uses to exist side by side, and does not prevent polluting or otherwise disruptive businesses from purchasing and occupying parcels adjacent to residential properties. The lack of zoning controls can degrade property values and lead to public health problems. The ultimate result of such regulation can be disinvestment and property abandonment when residents have the economic means to move, or exaggerated injustices for those residents who can not move away from undesirable land uses.

The Westheimer Rigging project was the first brownfields site to occur under the oversight of the Mayor's Land Redevelopment Advisory Committee. A member of the LLC's board was appointed to the Mayor's Committee. Since that board member was familiar with LLC's plans for the site, he was able to help identify funding from the federal EPA to assist with the site assessment.

The project also benefited from inclusion in the city's consolidated plan for disbursement of HUD funding. At that time, Houston was receiving approximately \$50 million in Community Development Block Grants and other funds from HUD. When the current administration came into office the Mayor personally became a proponent of the project, and the administration adopted the Westheimer Rigging project as one of 20 housing projects that would receive mayoral support. This endorsement reduced some of the bureaucratic requirements for the project proponents.

NEIGHBORHOOD CONTEXT

The Westheimer Rigging property falls within the East End neighborhood of Houston, and is on the center of Census tract 301.01 in Houston (American Fact Finder 2000) The census tract income level is classified as “moderate,” with 1999 estimated median family income of \$28,121. Census data for 1990 indicate that there are 4859 residents living in the tract, 93.9% of whom are Hispanic. In 1990 there were a total of 1491 housing units in the census tract, 51.9% of which were occupied by renters, and 13.2% of which were vacant. The median age of the housing stock is 46 years. Within a one-mile radius of the site, 35.3% percent of the population is below the poverty line. The East End has seen tremendous growth in its elderly population in recent years. The LLC conducted a market survey documenting 6,000 elderly residents who would qualify for affordable housing benefits within a 5-mile radius of the project.

The census tract hosts eleven different hazardous waste handlers (EnviroMapper 2000) . The entire census tract and adjacent tracts fall within a federal Brownfields Tax Incentive Zone and enterprise community area.

Business conditions were in a steady decline in the five years before the Westheimer Rigging project. The oil bust had significantly influenced the neighborhood, and many locally owned small retail stores were closing.

Aside from the Westheimer Rigging project, there was one other significant project in the East End neighborhood. This was also a brownfields project redevelopment, located at 5245 Polk Street, which brought in a new industrial park, state offices, and state supported housing.

STAKEHOLDER GROUPS INVOLVED IN REDEVELOPMENT

The process of redeveloping the Westheimer Rigging site included over 30 stakeholder groups. Five key players were: 1) the LLC as the development entity, 2) the Mayor’s Office of Environmental Policy, 3) the Mayor’s Land Redevelopment Advisory Committee, 4) the TNRCC, and 5) the East End Chamber of Commerce.

DESCRIPTION OF CONTAMINATION AND REMEDIATION

Site contamination included general trash and debris, as well as low levels of hydrocarbons, metals, and arsenic in the soil and groundwater. The site also contained leaking underground storage tanks, which were removed during cleanup. Contaminated soil was excavated and removed. Groundwater on the site has not been actively treated, but contamination is expected to decline through natural attenuation. Institutional controls were put in place to prevent pumping of groundwater, which in turn is expected to prevent the “smearing” of the plume of groundwater pollution.

REDEVELOPMENT PLAN

The LLC planned to develop 65 supportive, affordable housing units for senior citizens. The plan also includes a community center, laundromat, and other amenities to support the housing units. The property provides parking for 1.5 cars per housing unit. The property is landscaped, and curbs and street lights have been replaced by the city after previous owners removed these amenities to facilitate truck access. The redevelopment plan has also incorporated a rails-to-trails conversion for an abandoned railroad right-of-way that runs through the property. The city obtained funding to complete the rails-to-trails project, and the LLC purchased the right of way and plans to maintain the property.

PROJECT GOALS

The city official interviewed described the central goal of the project as reusing the property in a way that was beneficial to the community. It was important to the city that the right kind of reuse exist on the site. In this case, community advocates defined the desired reuse type and drove the development process.

Primary project goals encompassed social, environmental, and economic benefits. Primary social benefits included improving neighborhood appearances and providing community services and housing. Environmental goals included reducing community health risks, protecting groundwater, and reducing urban sprawl. Economic goals included creating jobs for local residents, improving business conditions in the neighborhood, reducing abandonment of housing and businesses, and using existing infrastructure more effectively.

PROJECT BENEFITS/ IMPACTS

Economic Benefits:

The project has provided more than 150 temporary construction jobs, as well as eleven permanent jobs that will support the elderly housing development. The project does not provide tax benefits to the city, as the LLC is a non-profit organization and has made a 40-year commitment to operate the property as a non-profit to service seniors. Project proponents believe that the development has increased property values in the area, although this assertion was not borne out by local tax assessors' records, which show no change in property values in the area. In any case, two new houses have been built across the street from the site, and the LLC has put pressure on local landlords to improve maintenance of rental properties. In addition, local homeowners have benefited from HUD entitlement grants to support home improvement from qualified owners. Spillover economic effects have included improved business conditions and increased investment. According to project proponents, the redevelopment has reduced abandonment of housing and businesses and is beginning to be a focal point for renewal. For example, homeowners are painting their houses and upgrading surrounding

properties. The LLC has had several meetings with the committee that oversees the city's capital improvement fund. That committee had previously neglected the area near the project, but now the city is providing capital improvement funding to upgrade and replace curbs, gutters, streetlights, and sidewalks. The rails-to-trails program has converted the underutilized rail infrastructure into a productive recreational use.

Environmental Benefits:

There have been no studies monitoring environmental exposures or characterizing environmental health endpoints. However, the project did include measures designed to protect local groundwater protection and reduce public health risks. The project has indirectly improved open space through the rails-to-trails conversion. Although those interviewed believe that the project has reduced pressure for urban sprawl, they note that that impact is not observable.

Social Benefits:

A major benefit of the project has been its effect in helping to slow disinvestment in the neighborhood. The East End has lost much of its housing stock as homeowners abandon their small (50 by 100 foot) lots. There are over 70 such vacant lots within one mile of the project. Owners often become delinquent on taxes, and no one will purchase the properties because they are too small, the housing stock is old, and potential owners do not want to pay the back taxes. The pattern of disinvestment and deterioration is continuing, and the problem of absentee landlords who do not keep up the properties remains a challenge. Despite continued disinvestment, redevelopment of the Westheimer Rigging site has removed one neighborhood's liabilities, and has encouraged some reinvestment by local residents.

In addition to improvements in the project neighborhood, the success of the project has contributed to increased community organizing capacity in the broader region. LLC representatives have made presentations before church and neighborhood groups around the city, and have educated other communities about how to deal with contaminated sites, particularly those that are not severely contaminated but face problems of environmental stigma. In this way, community empowerment has been a significant result of the project.

No negative impacts of the project were identified in the course of case interviews, however, the redevelopment is not yet complete.

SOURCES OF FUNDS⁵

Public Sources	Amount (1996 \$)
EPA Pilot Grant	13,800
Publicly Supported Debt	
HUD Sec. 202 loan	3,800,000
	0
Private Sources	
Developer Equity	67,000
PRP	150,000
In-kind environmental Assessment	92,400
In-kind legal services	31,800
Private donations	123,855
Total Sources	4,278,855

USES OF FUNDS

Activity	Amount (1996 \$)
Site Preparation	273,200
Site Acquisition	50,000
Construction	3,800,000
Renovation and Equipment	155,655
Total Uses	4,278,855

TRADITIONAL METRICS⁶

Permanent Job Creation	11
Public cost per job created	\$1,255
Tax Base Increase	0
Leverage of Private Funds per Public Dollar Invested	309.1

PROJECT CONTACTS:

Dawn Moses
Brownfields Coordinator
City of Houston
Mayor's Office of Environmental Policy

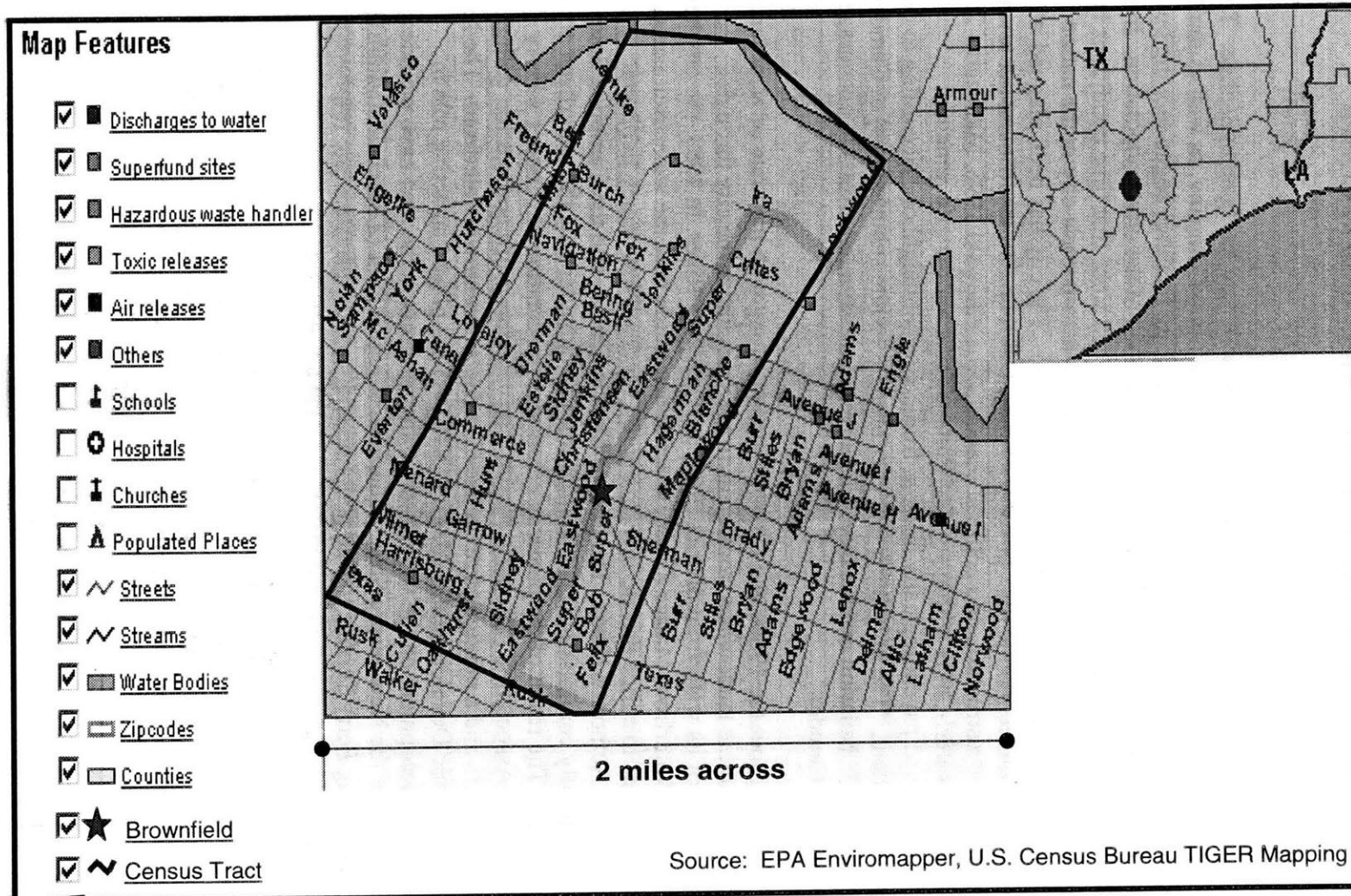
Eugene Mendoza
Latino Housing Economic Development Corporation (associated with LLC)

Byron Ellington
Texas Natural Resources Conservation Commission

⁵ All financial figures cited are drawn from the Council for Urban Economic Development, Brownfields Redevelopment Performance Evaluation, 1999. Job creation figures were drawn from interviews.

⁶ Figures for this site could be calculated two different ways, depending on whether publicly supported debt is considered part of public or private funding sources. Figures in the table include the debt as part of private costs, however if the debt were considered as a part of public costs, the following data would result: public cost/job = \$346,709, leverage of private funds per public dollar invested = 0.12.

Westheimer Rigging Site, 117 Eastwood Street, Houston



CASE 2: BLOCKBUSTER SONY ENTERTAINMENT CENTER

SITE HISTORY

Since the end of World War II, Camden, New Jersey has been in decline. The city once hosted the factories of RCA and Campbell Soup Company, as well as multiple shipyards along the Delaware River. But manufacturing facilities began moving out of Camden in the 1950s, and as jobs relocated so did much of the city's population. In the 1960s Camden experienced racial tension and riots, and since that time conditions have only worsened. In 1998, Camden was ranked as the fifth-poorest city in the nation, as measured by per capita income (Kocieniewski 1998). The city has been plagued with a host of social and economic ills: poverty, crime, abandonment, insufficient tax revenues, deteriorating infrastructure, and political scandal (Kocieniewski 1998, Mansnerus 2000). The Camden waterfront is within sight of Philadelphia, but the city remained economically and psychologically isolated from its larger neighbor. According to one long-time resident, "The only thing that ever brought [white suburbanites] to Camden was jury duty." Isolation and the city's negative image stymied efforts to encourage investment in Camden.

Throughout the 1980s, the City of Camden, along with the State of New Jersey and local corporate landowners, took steps to try to revitalize the city through improvement of its waterfront district along the Delaware River. In 1983, the city began to develop a Waterfront Master Plan in order to determine how the waterfront could be used as a means to entice private investment to Camden (New Jersey Economic Development Authority 1996). The City of Camden, RCA, and the Campbell Soup Company jointly commissioned a planning study to consider how the waterfront could be redeveloped. The result of the planning effort was the creation of Cooper's Ferry Development Association (Cooper's Ferry), a private non-profit corporation with ties to business leaders and a mission to revitalize Camden's downtown waterfront. The New Jersey Economic Development Authority (NJEDA) has played an active role in promoting development on the waterfront. Other projects in the area have included construction of the New Jersey State Aquarium, Wiggins Park (a baseball stadium), Penn's Landing Ferry Service to Philadelphia, and various infrastructure improvements including a parking garage and extension of Delaware Avenue.

The Blockbuster Sony Entertainment Center (the E-Center) grew out of a partnership between the NJEDA, which owns the property, Cooper's Ferry, which developed the site, and the Pavilion Partners⁷, who lease the property and operate the E-Center. The project first came together in 1993 and was put on a fast track to open for its first concert season in 1995. Informal agreements and strategic remediation procedures speeded up the procedure of obtaining development permits and approvals from local, county and state agencies (New Jersey Economic Development Authority 1996). For example, the NJEDA removed and disposed of contaminated soils prior to formal

⁷ Blockbuster, Sony Music, and PACE Entertainment are the parent companies for Pavilion Partners.

approval from the New Jersey Department of Environmental Protection. In addition, a contract with a private tenant on the site enabled the NJEDA to demolish buildings and remove asbestos before gaining formal site control. Finally, the NJEDA established site control on the primary leasehold tract, and held this land while it assembled critical adjacent parcels. In all of these actions, the NJEDA took on significant levels of risk in order to facilitate the project.

POLICY CONTEXT

Camden and Philadelphia share a joint designation as a Federal Economic Empowerment Zone, and Camden falls within a Brownfields Tax Incentive Zone (American Fact Finder 2000). The State of New Jersey provides low interest loans, incremental tax abatements, and tax rebates for up to 75% of cleanup costs sites within designated Environmental Opportunity Zones, which are chosen by municipalities. The state also offers a 25% matching grant program for qualified persons for innovative technology cleanups and for cleanups that do not require significant use restrictions. However, none of these incentives were used for the E-Center, which was completed under the standard procedures of the economic development agency.

NEIGHBORHOOD CONTEXT

The E-Center exists in a largely industrial area, with residential neighborhoods a few blocks to the east and north of the site. The closest residential neighbors live in the Royal Court housing development, a large low-income housing project. Royal court encompasses approximately 100 rental units that have recently undergone renovations and are being converted into fee-simple ownership. The Lanning Square neighborhood several blocks to the east of the E-Center has experienced considerable depopulation over the last 30 to 40 years, as people and businesses moved out of the area and buildings were demolished. Additional waterfront attractions, including the New Jersey Aquarium and the Wiggins baseball stadium, have been developed to the north of the E-Center. The South Jersey Port Corporation owns much of the industrial land south of the E-Center, where there is some talk of converting underutilized lots and warehouses into surface parking for the E-Center.

The E-Center lies in the north-central section of census tract 6005 in Camden. The tract is largely industrial. There are twelve point sources of hazardous waste, six sources of air releases, one site with discharges to water, and ten multiple sources of waste (EnviroMapper 2000). More than half (55.34%) of the census tract's 815 residents have incomes below the poverty line (American FactFinder). Estimated median family income for the tract for 1999 was \$18,465, up from \$13,917 in 1990. Over three-quarters (77.4%) of the population is African-American, and 19% of the population is Hispanic. Of the 594 housing units in the tract, 64.9% are renter occupied and 22.7% are vacant. The median age of the housing stock is 20 years. For the city of Camden as a whole, unemployment was 14% in 1998, down from 20% in 1996.

STAKEHOLDER GROUPS INVOLVED IN REDEVELOPMENT

Redevelopment efforts included business leaders, and state and local officials. Local residents were not extensively involved in the redevelopment plans.

DESCRIPTION OF CONTAMINATION AND REMEDIATION

The majority of the contamination on the property was associated with historic fill (cinders and ashes). Given the historic nature of the contaminants, the developers were not held to be responsible for cleanup. The primary contaminants of concern were lead, petroleum hydrocarbons, and naphthalene in the soil, and possibly also copper. The DEP conducted tests to identify hotspots of high contaminant concentrations. Then the project proponents developed a site-specific cleanup plan, and remediated and removed soils in the hot spots.

The only groundwater issues in the case were associated with the high levels of lead in the soil. There was concern that the lead could migrate from the soil into the groundwater and then discharge into the Delaware River. Both shallow and deep groundwater were monitored for several years. However, more recently, refined sampling techniques have shown that lead on the site is not contaminating the groundwater.

Final site remediation included both engineering solutions (caps) and institutional controls. The caps on the property, which include the parking lot and amphitheater building, prevent human exposure to the contaminated soil and also prevent infiltration of surface water, thus minimizing concern about further groundwater contamination.

The deed to the property includes restrictions requiring that before any future redevelopment on the property the project proponent will have to come back to the DEP to get a review of a plan. Until that happens, the NJ DEP considers the case closed.

REDEVELOPMENT PLAN

The E-Center is an essential component of an overall waterfront revitalization strategy focused on cultural and entertainment and recreational attractions linked to Philadelphia. The focus market for the project extends up to 50 miles from the site, and is targeted towards the Philadelphia suburbs, central and northern New Jersey, and Delaware (MRA International 1999). The area currently hosts 1.3 million visitors a year, and that figure is expected to grow to 6-8 million per year (Coopers Ferry Development Association, date unknown). The area recently was won bid to berth the historic battleship New Jersey, which will serve as a museum and tourist attraction.

Initially the Pavilion Partners had conceived of the project as a seasonal concert venue, however government officials and the South Jersey Performing Arts Center wanted the center to remain open year-round so that it might serve as a greater catalyst

for waterfront activities in all seasons. The E-Center was ultimately designed to include movable partitions and curtains that enable indoor winter performances, providing space for up to 25,000 patrons (Coopers Ferry Development Association, date unknown).

PROJECT GOALS

A major goal of the E-Center project was to enhance Camden's reputation and visibility within the region (Associated Press 1995). In addition, the state and city officials hoped that the development would create jobs and supportive business activity such as restaurants and nightclubs in the area. Local residents also hoped that the project would create a significant number of jobs, although it was understood that the majority of the jobs would be seasonal.

PROJECT BENEFITS/IMPACTS

Social Benefits

A primary benefit of the project has been its positive impact on the image of Camden as a tourist attraction. There have been no substantial incidents of crime at the E-Center, and this positive track record has helped to counter negative perceptions of Camden. Whereas outsiders once believed the adage, "Whatever you do, don't stop in Camden," perceptions have changed. The E-Center now hosts hundreds of thousands of visitors each year.

There has also been a moderate increase in community organizing capacity in the area as a result of the project, according to a representative for the state economic development agency. The appearances of the site area have improved substantially with the completion of the project and extension of the waterfront walkway to the site, but there have been no noticeable improvement of residential areas surrounding the project.

Economic Benefits

The project may have opened the way for additional investment in the area, but to date this development has remained largely focused on tourists and visitors from outside Camden. The state economic development agency is currently negotiating with potential developers of a retail shopping area and luxury apartments. However, there have not been investments in restaurants or other local economic development spin-off effects. One project, a restaurant and nightclub with retail businesses on the first few floors, had been envisioned for the lot between the E-Center and the boat basin marina, but financing for that project fell through. Some say the area has not yet reached a critical mass of development for tourist and leisure activities in order to support small, local businesses catering to the tourist trade. It may just be a matter of time and effort before the emerging cluster of large-scale projects on the waterfront create a more complete fabric of small businesses and locally driven development. At a minimum, the E-Center project has prevented further abandonment of housing and businesses in the area.

One could argue that the concept of the E-Center is not designed to promote supporting business development in the area. For example, refreshments, while expensive, are available within the E-Center, and parking is adjacent to the site. There are few connections between the waterfront area and the commercial areas of downtown Camden. Visitors have little reason to patronize local businesses on their way to or from a concert. Most restaurants are located five blocks from the center, with little in the form of attraction in between, and many local restaurants are only open in daytime hours. The employees of the center do patronize local restaurants, and pizza sales are apparently up for one local restaurant due to orders from E-Center staff.

While job creation was touted as a major benefit of the project, and in fact there are 515 jobs that were created as a result of the project, the benefits of those jobs to local residents has been minimal. The vast majority of the jobs are seasonal, part-time, minimum-wage jobs. Initially, the Pavilion Partners recruited local residents to fill these positions, but they encountered difficulties retaining those workers. Most of the current workers at the E-Center are teenagers hailing from the suburbs.

The E-Center does not pay taxes, as the land is owned by the state. The site managers, Pavilion Partners, will make a Payment in Lieu of Taxes of \$23 million over 30 years. One interviewee, who was not a city official, claimed that this benefit to the city would not begin until ten years after project completion, however that claim was unconfirmed. In any case, some residents have expressed concern that the city gave too large a subsidy to the project's private proponents, and that the city should receive more in the way of direct benefits from the project.

Environmental Benefits

The project has improved neighborhood appearances along the waterfront and at the grounds, and thus has enhanced the accessibility and desirability of open space in the area.

Negative Project Impacts:

The project has created a significant increase in local traffic during concerts, and has made it difficult for residents to travel across the traffic flow created by the visitors. At times, residents experience substantial difficulties leaving their apartment buildings due to traffic congestion. Elder residents have complained of lewd behavior and drug use among concert goers in parking lots adjacent to residential buildings.

In addition to the immediate concerns about the project impacts, there is a broader sense among some Camden residents that the project and the city's waterfront development as a whole have absorbed much of the political attention for improvement in Camden. There is a feeling among some that the downtown and waterfront areas have profited at the expense of the neighborhoods. However, others argue that the downtown development will ultimately benefit the neighborhoods, and that the two areas are not in opposition.

SOURCES OF FUNDS⁸

Public Sources	Amount (1996 \$)
South Jersey Performing Arts Center (state funded)	11,100,000
HUD	4,000,000
South Jersey Port Corporation	3,000,000
Casino Reinvestment Development Authority	3,000,000
Camden County Improvement Authority	2,500,000
NJ Urban Development	2,000,000
Total Public Sources	25,600,000
Private Sources	
Pavilion Partners	31,000,000
Total Sources⁹	56,600,000

Uses of Fund¹⁰

Activity	Amount (1996 \$)
Site Preparation (including remediation, shoreline re-stabilization)	8,900,000
Site Acquisition (includes cost of business relocations and lease compensations)	9,000,000
Construction	31,000,000
Renovation and Equipment	10,500,000
Total Uses	59,400,000

TRADITIONAL METRICS¹¹

Permanent Job Creation	500 seasonal, 15 full time
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⁸ Source of data is 1996 CUED National Economic Development Partnership Award Submittal, submitted by New Jersey Economic Development Authority June 4, 1996

⁹ Note: Sources and uses of funds do not equate; this may be due to different sources of data. CUED lists sources of funds as \$56.4 million, but does not fully detail each source contribution.

¹⁰ Source: Council for Urban Economic Development, Brownfields Redevelopment Performance Evaluation, 1999.

¹¹ Source: Council for Urban Economic Development, Brownfields Redevelopment Performance Evaluation, 1999.

Leverage of Private Funds per Public Dollar Invested	1.2
Tax Base Increase (in the form of a Payment-In-Lieu-Of –Taxes agreement for Pavilion Partners to pay the city \$23 million over 30 years)	766,666/yr

PROJECT CONTACTS:

Joe Meyers
Coopers Ferry Development Corporation

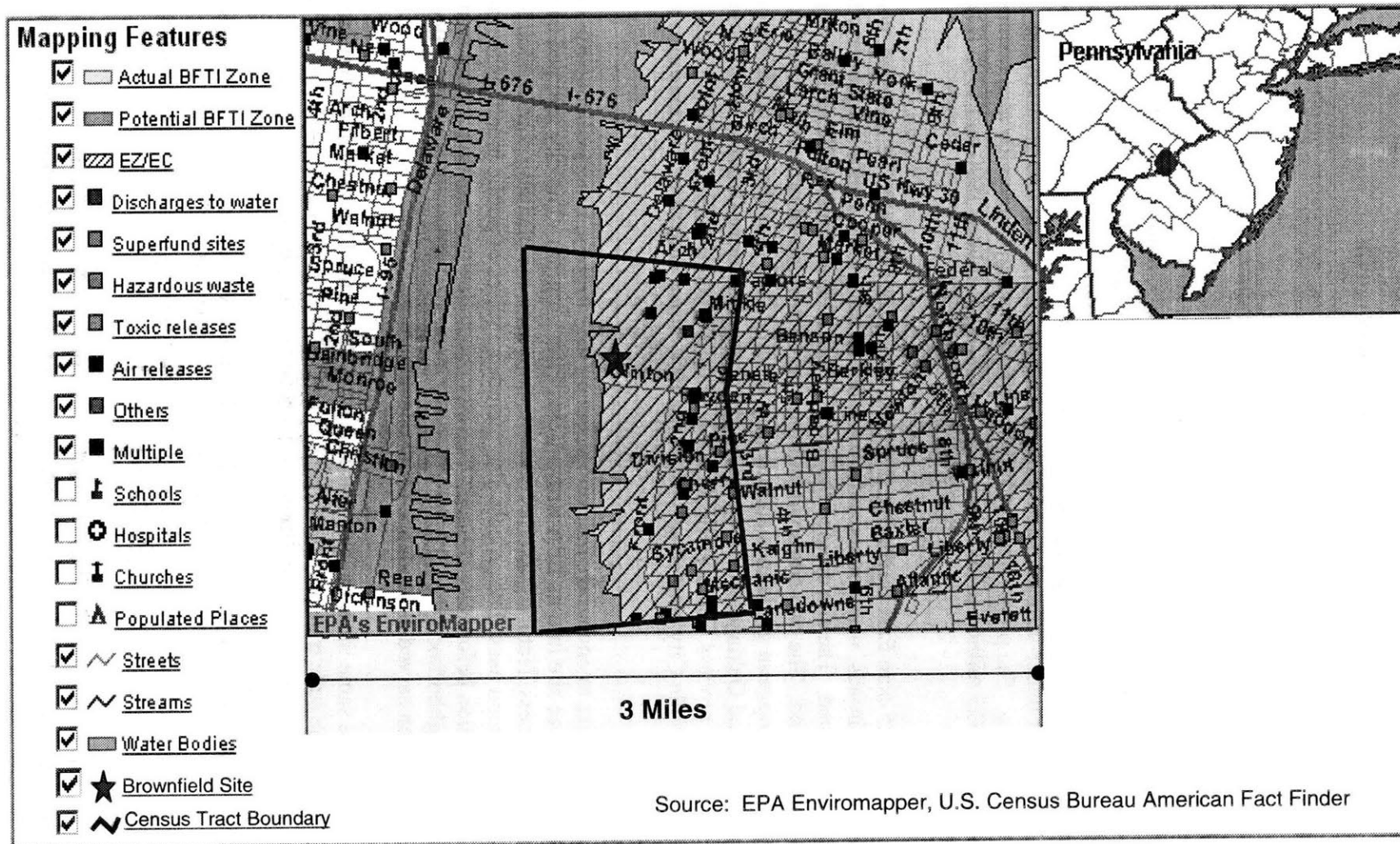
Chris Conatkis
New Jersey Dept. of Environmental
Protection

Tom Roberts
New Jersey Economic Development
Authority

Maria Franco Spria
New Jersey Dept. of Environmental
Protection

Frank Fulbrook, Community Activist

Blockbuster Sony Entertainment Center, 1 Clinton Street Camden NJ



CASE III: EAST BAYBRIDGE

SITE HISTORY

Emeryville, just east of San Francisco, is a small city with a long industrial history. The city was developed at the turn of the century as a regional center for transportation and manufacturing. However, in the latter part of the century, and particularly in three recessions between 1978 and 1995, industries seeking cheaper land and labor, less crime, better distribution and friendlier government abandoned the city. In 1995, approximately 385 of Emeryville's 780 acres were zoned for commercial uses, including industrial and mixed-uses (Dayrit 1998). Of this commercial acreage, 60.77% was vacant or under-utilized, and 55% was known to have soil and groundwater contamination. The preponderance of brownfields sites in Emeryville also resulted in the loss of over \$13 million in tax revenues and 650 jobs between 1990 and 1995 (Dayrit 1998).

The 25-acre East Baybridge property, owned by the Santa Fe Railroad, was once the site of railroads, warehouses and a truck depot, but by the 1980s the property had been abandoned. The site crossed the jurisdictions of both Emeryville and the adjacent city of Oakland. The two cities worked together to develop an urban design process to lay out development guidelines and identify specific land uses that would be encouraged. Emeryville and Oakland established a Joint Powers Authority (JPA) to oversee the development process. Emeryville took a lead role in coordinating redevelopment, and the entire Emeryville City council served on the JPA, along with three Oakland city council members.

In order to encourage redevelopment on the property, Emeryville incorporated the East Baybridge site into its EPA Brownfields Pilot program. The city initiated a master planning process, featuring a series of workshops with the planning commission to scope out possible land uses. The process also included a series of public meetings, culminating in a presentation before city council. The city concluded that creating a retail center to serve the neighborhood would meet a primary goal of residents. The result of the workshop then served as guidance for the developer.

At the same time, the city was suing the California Department of Transportation (Caltrans), the state transportation agency charged with building a new Cypress Freeway that passes by the site. After winning a court-ordered injunction, the city won a settlement with Caltrans for \$10 million to assist in building a \$27 million road and bridge project that could carry traffic from the freeway onto San Pablo Avenue, thus serving the East Baybridge development (Matier 1994). The City also negotiated the purchase and remediation of a contaminated gasoline station, whose future use as a road was a prerequisite to opening the Center.

The developer, Catellus Development Corp., which was spun off from Santa Fe Pacific Corp. in the early 1990s, proposed a big box retail development that would

generate taxes for the city, while luring customers off the freeway and providing retail services for local residents. Though many locals were less than enthusiastic about the proposed big box development, the development did include a discount supermarket – the first of its kind in Emeryville – that was well received by residents. Catallus also developed an adjacent parcel previously owned by Santa Fe Pacific as residential loft condominiums, 40% of which are designated affordable housing¹². Part of the revenues from the East Baybridge project went into funding the affordable housing.

The project progressed through an environmental review process similar to NEPA. The process also dove-tailed with the city's effort to obtain funds for the road and bridge improvement, and the city assisted the developer in raising money for infrastructure improvements. The negotiations regarding project planning ended in 1994-1995, and the project itself was completed in 1996.

POLICY CONTEXT

The East Baybridge project is an EPA brownfields pilot project. As a participant in the pilot program, Emeryville has a mission to “encourage residential and commercial development by building consensus and developing confidence among all stakeholders in a 'risk management' based model for brownfields redevelopment, thereby reducing cost and regulatory uncertainty, while protecting public health and the environment.” The city has used grants from EPA to develop a Groundwater Monitoring Program that includes many features to address the technical, regulatory, and financial obstacles to brownfields redevelopment across the city. Among other features, the program established a community Task Force and a Technical Advisory Team. The Task Force is a 14-member committee representing residents, businesses, developers, and lenders. The Task Force sponsored brownfields workshops for local stakeholders and developed a Public Participation Plan (PPP) for the city's brownfields projects. The Technical Advisory Team is a group of technical advisors from regulatory agencies and from the fields of hydrogeology, computer applications, public participation, risk communication, and finance. The Advisory Team assisted in the development of the PPP and maintains communications with other agencies doing brownfield work in the San Francisco Bay area.

In addition to benefiting from the city's Brownfield Pilot initiative, the East Baybridge project also made use of the California Underground Storage Tank Cleanup Fund, which was created by California's Legislature in 1991. The UST Fund provides money to clean up leaking underground petroleum storage tanks through a per-gallon storage fee assessed to every owner of a petroleum UST subject to regulation under California's Health and Safety Code.

¹² The affordable housing development is not considered a part of the East Baybridge Project for the purposes of this study, although the housing was built next to the retail center.

NEIGHBORHOOD CONTEXT

The East Baybridge retail center is located on the boarder between Emeryville and Oakland, in the southwest corner of census tract 4251. The tract is middle-income, with mixed residential and commercial land uses and a population of 5,740. Nearly 15% of the census tract population is below the poverty line, with 1999 estimated median family incomes at \$58,493, up from \$42,305 in 1990. Over half the population is of color: 22.78% of tract residents are African American, and 18.25% are Asian. Just over half (55.35%) of the housing units are renter occupied, and 11.35% of the housing units are vacant. The median age of the housing stock is 16 years. The census tract contains 53 hazardous waste generators, 10 point sources of air pollution releases, 2 toxic releases, and 19 multiple sources of pollution.

The property is located just across the border from Oakland, a few blocks from interstate 580. Though the interstate is well traveled (it is the eighth busiest juncture in the country, with 250,000 cars passing the site each day), the property and surrounding land uses were far from prosperous (Evenson 1991). One of the streets adjacent to the property, Sao Pablo Avenue, is a major corridor in Emeryville, and has a reputation as being seedy and unsafe. The street was run down, and littered with card rooms, liquor stores, and vacant properties.

STAKEHOLDER GROUPS INVOLVED IN REDEVELOPMENT

At the outset of the East Baybridge project the planning commission hosted a series of design workshops to envision possible uses for the site. Community members provided input on project plans through public meetings and at a final public hearing before the city council. Once the project was approved by JPA, it was subject to a referendum. The project barely won the vote, but with the city's support the project passed by a 5% margin.

DESCRIPTION OF CONTAMINATION AND REMEDIATION

As a former rail yard, the East Baybridge site had a history of industrial use including foundries and truck maintenance and repair. An asphalt manufacturer caused the largest contamination on the site. Contamination from this former tenant included asphalt and diesel fuel. The asphalt manufacturer used to spray the truck bed with diesel fuel to make asphalt unload easier and used waste oil as weed killer. This type of activity led to petroleum contamination of the soils. Remediation associated with that single tenant required \$2.5 million in cleanup funds. The tenants were required to conduct the remediation, but after starting the process and excavating much of the soil, the tenants ran out of cleanup funds. Catellus was ordered to step in and complete the remediation, which they did.

Catellus negotiated with local regulators, conducted risk assessments, and performed an additional characterization of the contaminants on site. After determining the necessary cleanup procedures, the developer treated and encapsulated the petroleum-soaked soil on site. Those soils containing lead, zinc, and PCBs were shipped off-site. Since part of the Catellus property was also used for a residential, soils from that section of the site were moved to the commercial-industrial portion of the property.

In addition to the soil contamination, three plumes of contaminants in the groundwater also transected the site. Two of the plumes contained solvents that originated from beyond the boundaries of the East Baybridge property. Catellus was not obligated to take any remediation steps for these contaminants. But the third plume contained solvents emanating from an unidentified on-site source. Catellus installed a groundwater extraction system and a monitoring system to address this contaminant plume. The developer also put in place several monitoring wells to confirm that encapsulated soils were not causing further contamination. Catellus developed an ongoing monitoring plan, but the developer is now considering whether it would be feasible to shut of the groundwater extraction system, given an eight-year track record of good monitoring results. Current concentrations of VOCs in groundwater do exceed state environmental standards. However, the developer argues that there is “no clean groundwater in Emeryville,” and that it should not be necessary to clean up the groundwater to the current drinking water standard given that ground water in the area is not used as a source of drinking water.

REDEVELOPMENT PLAN

The East Baybridge redevelopment plan included infrastructure improvements and construction of several retail chains, including Home Depot, K-Mart, and Pak-n-Save. The project included improvement of the road infrastructure, and a revenue sharing agreement between the city of Emeryville and the city of Oakland to share in the financial benefits of the project.

PROJECT GOALS

Local residents wanted the redevelopment of the site to include retail services, particularly a grocery store. The project affected both Oakland and Emeryville residents, although Oakland residents were more affected by the project’s traffic. The city of Emeryville was primarily concerned about increasing tax revenues from the property.

PROJECT BENEFITS/IMPACTS

Economic Benefits

The project has provided significant benefits to the city in terms of tax revenue generation. The project has been able to use the \$225,000 per year in increased tax revenues from the project to provide for other city services, including an affordable

housing development built on an adjacent property by Catellus development (CUED 2000).

The construction project was estimated to employ 500 workers, many of whom are local, which Catellus pledged to hire under special city employment programs (Evenson 1993). The East Baybridge center created approximately 600 new retail jobs with an average salary of \$10 per hour, and local residents received first priority for employment in these positions (CUED 2000). The project was expected to produce \$1.7 million in annual sales tax revenues, \$1.1 million of which would finance services in Emeryville and the remainder in Oakland (Evenson 1993). The project increased local property values, and has also spurred other investments in the area, including restaurants, retail businesses serving local residents, and housing development. The project has also increased demand for housing in the area, and has reduced housing abandonment. Finally, the project has increased use of existing infrastructure by activating what were once dead end streets backing up on an old rail spur line.

Social Benefits

The project has increased security in the neighborhood, due in part to a police substation that was located in the retail complex. The project also provides much needed retail services to local residents. The project is located in a relatively poor section of the city, with many elderly residents. Given the need for retail services among the local population, some neighbors have welcomed the construction of a discount supermarket (Pak-n-Save). Others have complained that the project does not go far enough to meet local needs, and that the project should be more oriented towards local restaurants and shops rather than big box retail chains.

Project proponents argue that the project has generally improved neighborhood appearances, but there has been controversy over the architectural design of the 450,000 square foot East Baybridge center (DeVecchio 1994). The buildings are boxy and windowless, with an exposed concrete block and steel exterior, simulating the industrial buildings of the prior era. Some argue that this design fits in with the industrial history of the neighborhood, but others feel that the design is unattractive at too large a scale.

When the project began, it was not common for the city to bring in residents into the design process. But through the course of this project and others like it, the City Council realized that they needed to go to the residents first when considering a major development or change in land use. Now citizen involvement is the standard mode of doing business in Emeryville, and this approach has been institutionalized through the citizen Task Force and the Public Participation Plan. The city has also seen more and more citizens' committees form in the wake of this project.

Environmental Benefits

From an environmental perspective, the project did increase public health protection through the remediation plan, and there has been ongoing groundwater treatment. In terms of preventing sprawl, this type of shopping center was going to locate

somewhere in the area, given market demand, whether or not it located on this brownfield site. Because of the limited development opportunities in the area, it was likely that the site would have located on a brownfield, and not in an outer suburb. Thus, it is not likely that the decision to locate the retail center on this site directly prevented development of a greenfield site. Also, big box development tends to be automobile dependent, and so the project may in fact promote sprawling development, even as it is located in the inner city (Evenson 1991). However, the East Baybridge development is accessible by the Emeryville-Go-Round, a public transit shuttle funded by property owners and the city. The project did not increase the amount of green space in the city, given that the open areas are paved as a parking lot.

Negative Project Impacts

Negative impacts on the community have been few. Property taxes have not yet increased, but real estate prices are on the rise. The city has taken active steps to avoid gentrification by providing affordable and senior citizen housing in the area, and by creating a 20% low income set-aside for all residential development.

While the project does not appear to have had substantial negative impacts, some charge that positive impacts could have been enhanced. The developer acknowledges as much. The project manager for Catellus points out that at the project's initiation in 1989, the area was just entering a recession. Since there was "nothing else going on" in terms of development in the city, the project received a lot of attention from public agencies. However, the economics of the project would not support the level of density desired by the city and the developer. The project manager said that, "Today, if same proposal put forward, it probably would have been rejected, because there was not enough density. This kind of retail was seen as a way to stimulate area When we began our effort in 1989...we were planning several million square feet of office, but [when the recession hit that] just went up in smoke. Mixed-use [development] was not feasible, and then major retailers began approaching us."

Critics charged that the big box retail format was an under-utilization of the land, and that the character of the retail would hurt the potential of the area instead of improving it. Indeed, not all of the retail services targeted have benefited the local community, and many are designed to attract customers from outside Emeryville. However, according to the project manager, East Baybridge has not had all of the negative impacts that critics were predicting. The impact on Sao Pablo Avenue has been much more beneficial than some predicted, and the upgrading of old infrastructure associated with the project has "knit this area into the fabric of this city." However, if the land sat fallow for another seven years, it probably would have been redeveloped into a more dense, mixed-use development.

SOURCES OF FUNDS ¹³

Public Sources	Amount (1998 \$)
Emeryville Redevelopment Authority	1,200,000
State UST Fund	370,000
Total public sources	1,570,000
Publicly Supported Debt	
City assessment bond	2,800,000
Private Sources	
Developer equity and loan from commercial bank	25,200,000
Total Sources	29,570,000

Uses of Fund

Activity	Amount (1998 \$)
Site Preparation	2,770,000
Site Acquisition	300,000
Construction	22,500,000
Infrastructure and Public Improvements	4,000,000
Total Uses	29,570,000

Traditional Metrics¹⁴

Permanent Job Creation	600 (30% to local residents)
Public Cost per Job Created	\$2,616
Tax Base Increase	225,000/yr
Leverage of Private Funds per Public Dollar Invested	17.8

¹³ All figures drawn from CUED Performance Evaluation report, with the exception of employment data which was provided by interviews.

¹⁴ Figures for this site could be calculated two different ways, depending on whether publicly supported debt is considered part of public or private funding sources. Figures in the table include the debt as part of private costs, however, if the debt were considered as a part of public costs, the following data would result: public cost/job = \$7,283, leverage of private funds per public dollar invested = 5.76

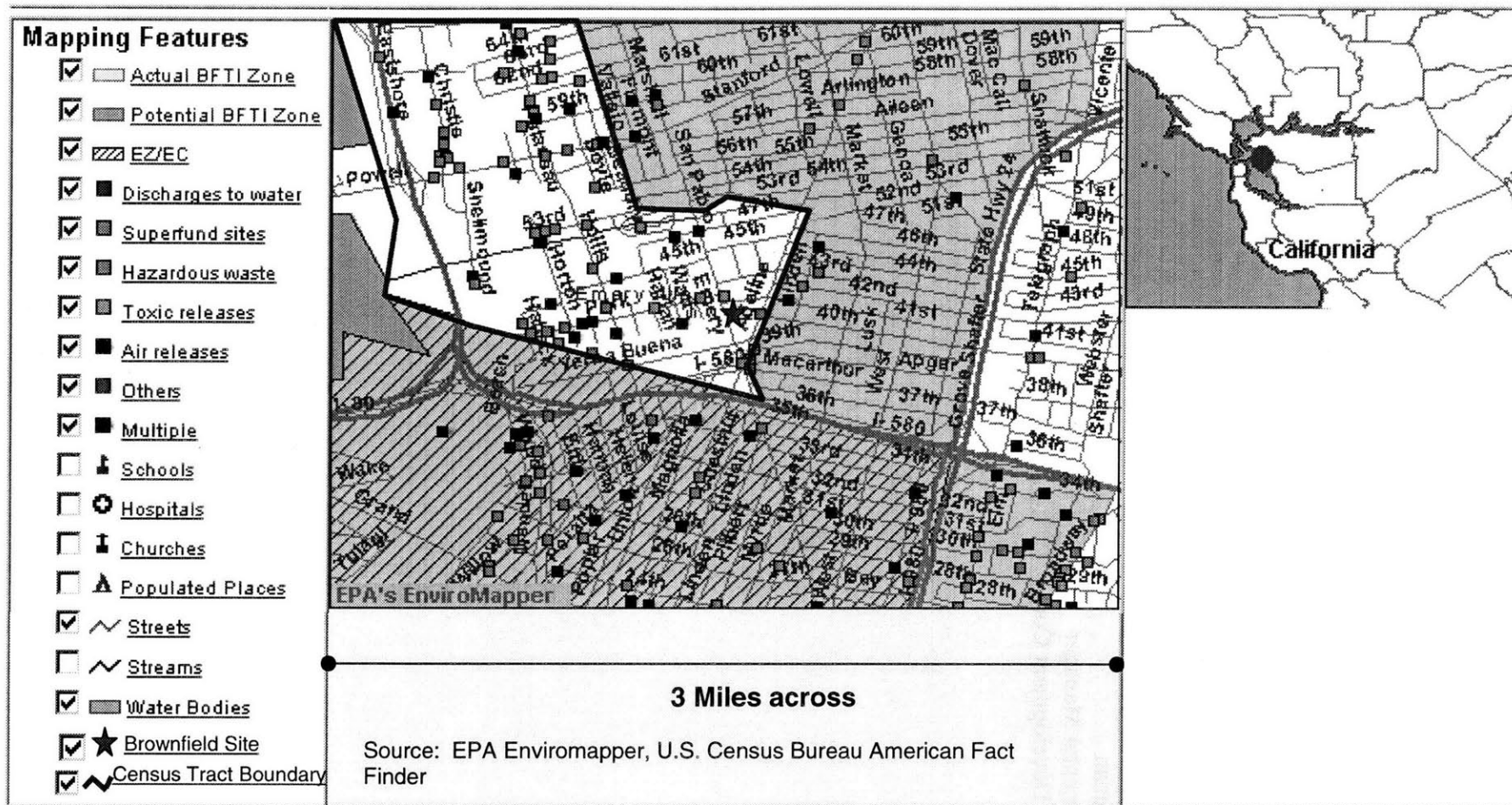
PROJECT CONTACTS:

Ignacio Dayrit
Project Director, Emeryville Redevelopment Agency
510 596 4356

Jim Adams
Environmental Manager
Catellus Development Corp

Pat Cashman
Environmental Manager
Catellus Development Corp

East Baybridge Retail Center, San Pablo Avenue and 40th Street, Emeryville CA



CASE IV: FMC TECHNOLOGY CENTER

SITE HISTORY

The FMC technology center stands on a site just south of the Mississippi River in Minneapolis. The area around the river played a central role in Minneapolis' history. The first settlers in the early nineteenth century used the river -- and particularly the St. Anthony Falls, the only waterfall on the length of the Mississippi River -- as a source of power for milling and sawing operations. Between 1880 and 1930, Minneapolis was the world's leading flour milling city, but by the 1950s flour milling operations on the riverfront had largely closed down (Minneapolis Community Development Agency 1999). What was once the city's industrial center became an abandoned and neglected area, and the area's few residential developments were home to some of the city's poorest citizens. The area directly surrounding the FMC site housed several oil company facilities and bulk transfer areas, and the Minnesota Gas Company conducted operations on a site not far away.

In the 1960s, the city identified the Central Riverfront area as a place in need of redevelopment. The city published its first plan for redevelopment along the river, the Mississippi Minneapolis plan, in 1972 (Minneapolis Community Development Agency 1999). Several other plans followed, including the Minnesota Technology Corridor Plan, which the Minneapolis City Council adopted in 1985 (Minneapolis Community Development Agency 1985).

The vision for the Technology Corridor was to attract high technology firms to locate in a defined area on the riverfront, in order to promote the city's competitive advantage in a changing national economy and in order to realize physical revitalization of the Mississippi waterfront. The Technology Corridor was placed just across the river from the University of Minnesota, and the city envisioned the university as a partner with the firms that would locate in the Corridor (analogous to the Route 128 region in Massachusetts near MIT, or the Silicon Valley region in California near Stanford University). The plan also envisioned an urban mixed-use environment that would offer housing for employees of the new firms, hotels, restaurants, retail stores, and recreational opportunities (Minneapolis Community Development Agency 1985).

The FMC technology site was an essential property within the Technology Corridor that was specifically identified in the Minnesota Technology Corridor Plan. Before redevelopment, the 3.6-acre site was used as a storage yard for underground gas tanks. The surface of the property was largely paved, with some areas of scrub trees growing up wild. There were no buildings on the site.

There had been some interest in redeveloping the site apart from the Technology Corridor plans in the mid-1980s. For example, a hotel had expressed some interest in buying the land. But the city's redevelopment agency decided that it would rather promote high technology development on the site. In order to prepare the way for such

development, the Minneapolis Community Development Agency (MCDA) bought the site from the previous owner, a gas company, for \$900,000. The MCDA was not aware of contamination on the site at the time of the purchase. This lack of awareness about the issues of contamination was probably due to the timing of the project; in the mid-1980s the city administration was far less aware of brownfields issues than it is today.

Once it purchased the land, the MCDA realized the property was contaminated with petroleum compounds, and the agency remediated the site. FMC Corporation, a research and development company that specializes in robotics and weapons research for the U.S. Department of Defense, then approached the MCDA with interest in relocating some of their office facilities to the site. At the time, FMC's operations were based in Fridley, Minnesota, a suburb of Minneapolis.

In order to address FMC's concerns about liability on the site, the MCDA retained title to the property and leased it to FMC at a nominal rate. FMC's lease contained an option to sell the property. Redevelopment began in 1985, and construction was completed in 1986. In the early 1990s, FMC experienced a decline in its defense business, and the firm decided to consolidate its operations at its Fridley location. FMC exercised its option to sell the property, and the University of Minnesota purchased it for research facilities.

POLICY CONTEXT

The FMC site was developed before any overarching brownfield policy in Minnesota. The redevelopment plan did fit within the plan for the Technology Corridor, as mentioned above, and it fit within a broader program of riverfront revitalization coordinated by the MCDA. The project benefited from the generous Tax Increment Financing available in Minneapolis at the time, as well as a state Enterprise Zone grant.

Since the development of the site, the state of Minnesota has passed a contamination cleanup grant program that provides financing for up to 75% of project cost for cities undertaking cleanup on sites with redevelopment potential. The State also passed a Voluntary Investigation and Cleanup Program in 1988, which offers several types of liability relief. The state also continues to offer various tax incentives for redevelopment, such as Tax Increment financing and zero property valuations to maximize the financial incentive for redevelopment

NEIGHBORHOOD CONTEXT

The FMC site is located within Census Tract 0047, in Hennepin county, Minnesota. The tract, which overlaps with the eastern half of the Technology Corridor, was home to 3,448 residents in 1990, 48.69% of whom were of minority ethnic groups (American FactFinder 2000). Median household income in 1999 was estimated at \$19,411, up from \$13,143 in 1990. In 1990, 50.2% of residents were below the poverty line, although this number may reflect a large number of students living in the area, given

the proximity of the site to the University of Minnesota. The area directly around the site is largely industrial and the census tract includes five point sources of hazardous waste and one point source of air pollution (EnviroMapper 2000).

STAKEHOLDER GROUPS INVOLVED IN REDEVELOPMENT

There was no formal stakeholder process for the redevelopment of the FMC site, except for an Industry Square Committee, made up of business people and industrial property owners within the area. This site was one of the first where the city became aware of brownfields issues through the process of redevelopment, and the city invited very little public involvement. Subsequent redevelopment projects in the area have included active multi-stakeholder groups with representation of local residents.

DESCRIPTION OF CONTAMINATION AND REMEDIATION

The MCDA undertook remediation on the site by partially cleaning up the soil, but not the ground water. Soil remediation included excavation and incineration. In order to address groundwater issues at the site, the city installed a vapor barrier under the building to prevent the contamination from migrating into the building foundation and working space. The MCDA also encapsulated part of the site. The MCDA was able to recoup \$1 million of the remediation costs from Pure Oil/UNICAL, which bought out the original owners of the site.

REDEVELOPMENT PLAN

The FMC development involved construction of a 247,000-foot commercial office building with associated parking facilities.

PROJECT GOALS

The MCDA framed the goals of the project in terms of turning vacant land into productive properties suitable for high-tech office parks in order to increase the concentration of high technology firms in the city of Minneapolis. The city also hoped to enhance the tax base and create jobs through the redevelopment.

PROJECT BENEFITS/ IMPACTS

Economic Benefits

Initial economic benefits of the project included job retention and a tax base increase. When FMC moved into the Technology Corridor, it relocated 540 research and development jobs from its Fridley facility to the inner city property. The MCDA believes that the project served to catalyze business development in the Technology corridor, and that the project pioneered the concept of reusing old industrial land along Minneapolis' waterfront and demonstrated that such redevelopment could be a success. Several other businesses, including a university super computer center, an office and research complex

for the Red Cross, and a graphic design business have moved into the area. Other businesses chose to stay within the area rather than relocating. However, after FMC pulled out to reconsolidate at its Fridley site, the concept of the technology corridor waned. Job benefits from the redevelopment were disappointing, given that the FMC redevelopment led to a transfer of jobs, rather than new job creation, and these jobs were transferred back to the Fridley site after a few years. Tax benefits were also short-lived. When the project was first developed, the tax base increase to the city reached \$1,300,000 per year. In the late 1990s the property was subsequently sold to the University of Minnesota, a tax exempt organization.

Redevelopment of the FMC site has also improved utilization of existing infrastructure in the area. The technology corridor suffered from a jumbled mixture of utilities and street access. It was very hard to access the river. Through this project and the others in the technology corridor, the city was able to sort out and reorganize land ownership patterns and reroute streets and utilities such as sewer lines. The result has been better connections to the river and better access to the interstate highways. This process of reorganization and rerouting was more efficient than rebuilding a new infrastructure system, as would have been necessary in a greenfield site.

Environmental Benefits

The cleanup of the FMC site did reduce contaminants on site, although public health issues with the site before cleanup were minimal given limited exposure. Soil remediation prevented further contamination of the ground water, which flows into the Mississippi River. Fifteen percent of the redeveloped site is not green space, an improvement from the vacant land and parking lots that preceded redevelopment.

Social Benefits

Social benefits from the redevelopment have been few, other than generally improved neighborhood appearances.

Sources of Funds¹⁵

Public Sources	Amount (1987 \$)
Tax Increment Financing	1,200,000
State Enterprise Zone	500,000
<i>Total</i>	<i>1,700,000</i>
Private Sources	
Developer Equity	26,000,000
PRP	1,100,000
<i>Total</i>	<i>27,100,000</i>
Total Sources	28,800,000

Uses of Fund

Activity	Amount (1996 \$)
Site Preparation	1,100,000
Site Acquisition	900,000
Construction	26,000,000
Renovation and Equipment	500,000
Infrastructure	300,000
Total Uses	28,800,000

Traditional Metrics

Permanent Job Creation (540 jobs retained)	0
Public Cost per Job Created	N/A
Leverage of Private Funds per Public Dollar Invested	15.9
Tax Base Increase	1,300,000/yr for approximately 10 yrs

PROJECT CONTACTS:

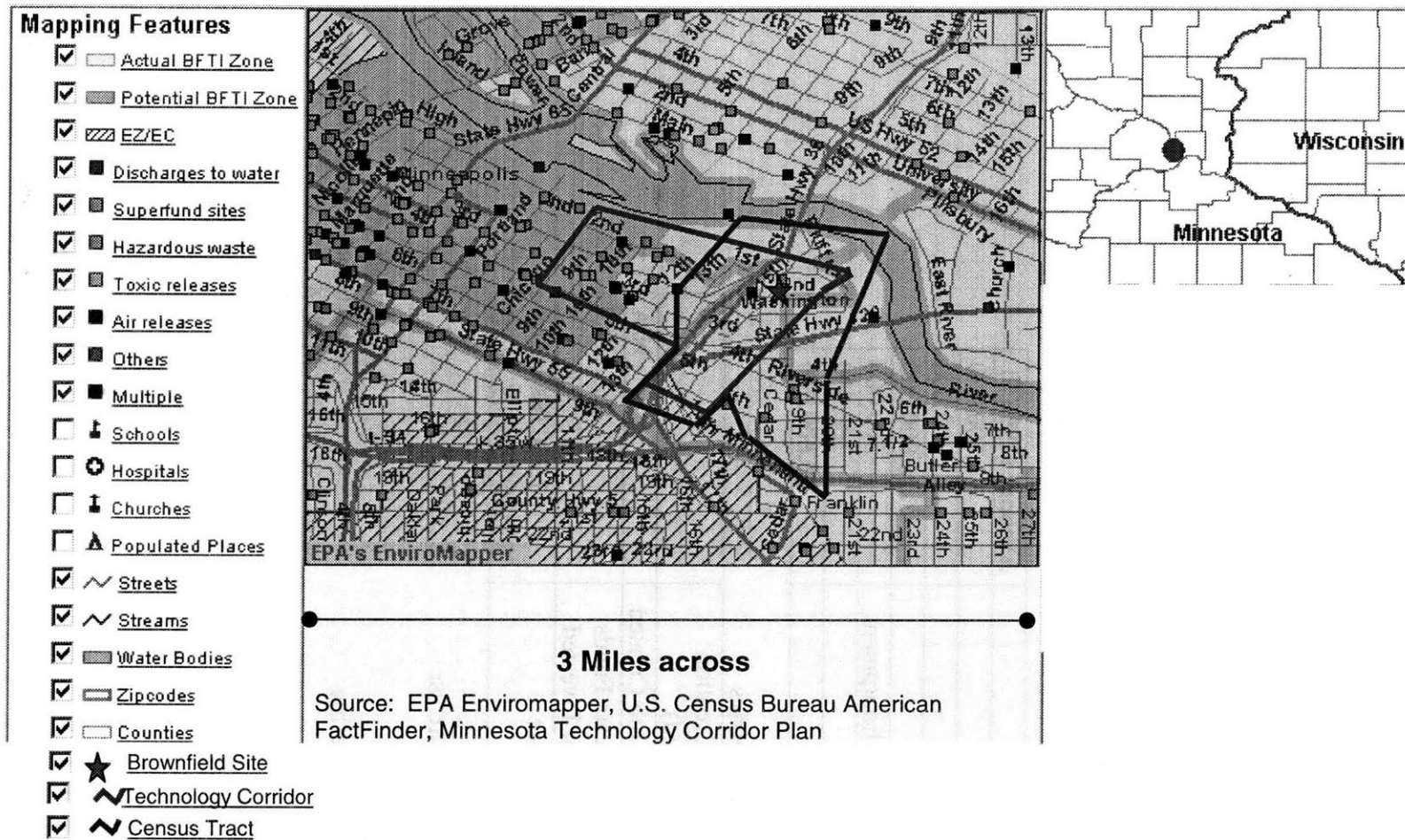
Larry Heinz
Head of Engineering
MCDA

Anne Calvert
Riverfront Revival Program
MCDA

Judy Cedar
Project Coordinator
MCDA

¹⁵ All figures taken from CUED report.

FMC Technology Center, 1300 2nd Street South, Minneapolis MN 55415



CASE V: CSX/EHOB

SITE HISTORY

The CSX site, as its name suggests, served as a rail yard until the early 1980s. The former owners of the property used the site for oil changes and maintenance. After CSX railroad abandoned the site, neighborhood residents used it on occasion for recreational purposes. However, the land largely remained unproductive.

In the early 1990s, the City of Indianapolis was facing an out-migration of industrial facilities from the central city to industrial parks on the north and east edges of the city, and with it a loss of industrial jobs. In an effort to preserve the city's industrial job base, the city began looking for sites where it could encourage business development or expansion. The city considered several locations, but settled on the CSX site as a location where it could minimize the subsidy that would be required by the city (i.e. the cost of the land over and above what could be recovered on the sale to a new business locating on the property.) The CSX site totaled twenty-two acres and had been on the market for seven to nine years. The city was also involved in a nearby renovation for a public housing project under the Housing and Urban Development Hope 6 program, which is designed to demolish large-scale public housing projects to accommodate small-scale, duplex public housing.

The City of Indianapolis acquired the property from CSX, conducted remediation, and made infrastructure improvements in order to attract development to the site. The city also actively recruited businesses to the site, including Elevated Head Over Body (EHOB), a manufacturer of medical equipment. After negotiating on the price of the property, the city agreed to subsidize the cost of the land and provide a tax abatement in order to encourage EHOB to locate on the easternmost seven acres of the property. Three to five months later the western section of the property was purchased by Dickey and Son, a family run machine and tool company that was planning to relocate to the suburbs. The city searched for a third tenant to locate on the middle section of the property, but after a deal with a Styrofoam cup manufacturer fell through, the city agreed to sell it to EHOB for its expansion plans.¹⁶

POLICY CONTEXT

The city had received some federal brownfields funding through the EPA pilot program. These funds were used to inventory brownfields in Indianapolis but were not tapped directly for this project. The project also benefited from several financial incentives, including a Community Development Block Grant, a general obligation industrial revenue bond issued by the city, a sliding-scale 10-year property tax abatement, a 5% personal property tax abatement for capital equipment on the site, and state employee training funding.

¹⁶ The second parcel of EHOB property is not included in the results of this case, due to lack of data availability.

NEIGHBORHOOD CONTEXT

The site is located in an enterprise zone approximately 1.5 miles from the central business district. The area is primarily residential to the south of the site. A mainline freight track for the CSX railroad is located to the north of the site.

The census tract where the site is located, tract 3414, is classified as having moderate income (American FactFinder). Roughly 20% of the population is below the poverty line. Unemployment within the city as a whole stands at 4%. Estimated median family income in the census tract for 1999 was \$37,756, up from \$25,721 in 1990. The tract contains a population of 2,239 people. Although 1990 census data show that only 4.91% of the population is not white, several people interviewed indicated that the neighborhood was largely Hispanic. Census data shows roughly equal numbers of Black and Hispanic residents. The census tract contains 901 housing units, 34.8% of which are occupied by renters and 10.9% of which are vacant. The median age of the housing stock is 51 years. The tract also encompasses five point sources of hazardous waste (EnviroMapper 2000).

STAKEHOLDER GROUPS INVOLVED IN REDEVELOPMENT

There was no significant stakeholder involvement in redevelopment, other than the involvement of the city and the potential buyer EHOB.

DESCRIPTION OF CONTAMINATION AND REMEDIATION

The property had been used for rail car maintenance, and waste oil from these operations was emptied into pits that drained directly into the soil. The site also contained a number of large objects buried in the ground, including a leaking storage tank. The tank was pulled and hauled to the landfill. Contaminated soil was removed, and clean fill was added. There was a plume of groundwater contaminants a little to the west of the site, but this problem was not addressed in the redevelopment of the CSX/EHOB property. Once the city completed remediation, it indemnified EHOB against any future environmental liability. However, this indemnity was simply a promise from the city to cover future environmental costs. The city did not have any environmental insurance or escrow funds in place, and so city officials took a risk that no additional serious contamination would be found on the property. It did turn out that once EHOB acquired the property, the company found additional objects in the soil, including stack houses and two underground vaults. EHOB removed these objects before building on the property.

REDEVELOPMENT PLAN

The project involved demolition of the buildings on the property and construction of a 60,000 square foot new building on the site for EHOB. The site included room for

expansion of facilities. EHOB has since acquired a second parcel in the middle of the CSX property where the company has built a 30,000 square foot building for their expanding manufacturing facilities. EHOB acquired the second parcel through a no-cost transfer from the city.

PROJECT GOALS

The city's goals in encouraging development of the CSX property were to retain and attract investment and jobs to the inner city, maintain the city's tax base, and tap into existing labor pools within the city. The city hoped that by facilitating development on the CSX site they could catalyze additional manufacturing development in the area.

PROJECT BENEFITS/IMPACTS

Economic Benefits

When the EHOB facility moved to the CSX site it expanded, creating 30 to 40 jobs in the packaging and manufacturing departments. Local residents have filled roughly half of these positions. EHOB employs a total of 100 people, and sixty-five of these positions had existed prior to the company's locating at the CSX site. The company recruited residents through a temporary agency and then simply by using signs at local businesses and at the front door of EHOB. Many of the local workers are native Spanish speakers. The company assigns bilingual employees to work with those who only speak Spanish so that these positions are accessible for local residents. The pay for these unskilled positions ranges from \$8.25 to \$12.00 per hour.

The CSX/EHOB project has encouraged additional manufacturing development in the area. Several additional properties, including the Westinghouse airbrake facilities, the Belmont Street warehousing complex, and a Transcom trucking facility have been either redeveloped or rehabilitated. The city did not directly facilitate these additional projects, rather, they seem to have emerged out of improved perceptions of business conditions in the area.

The city agreed to abate taxes on the property for the next several years. Once taxes are collected on the property the revenues will be available to the city and the county governments. Revenues collected when the railroad operated the site were available only to the state, because of the railroad ownership.

The project led to greater use of existing roads, and also prompted the city to install a storm drainage system that relieves flooding problems on the site and neighboring properties. In addition, the city re-paved and widened Turner Avenue, and added new sidewalks.

Social Benefits

A main benefit of the project has been the aesthetic improvement of the neighborhood. The buildings now on the site are more attractive than the previous rail

yard and associated buildings, and EHOB has landscaped the property. Approximately 30% of the site is open space which is planted in grass and open to neighborhood residents for their use. Local children use the site for ballgames and other recreational activities, and the neighborhood has continued their tradition of setting off fireworks at the site on the fourth of July.

Environmental Benefits

Environmental benefits resulting from redevelopment have been largely limited to soil remediation on site. Although the fact that EHOB moved to this site rather than expanding to a greenfield property is certainly positive, the company had limited funds for expansion, and probably would have been limited to lower-cost brownfields properties.

No negative impacts of the project were identified in case study interviews.

Sources of Funds¹⁷

Public Sources	Amount (1998 \$)
CDBG	82,044
General Obligation Bond	194,725
Revenue from sale of land	(35,000)
Total	241,769
Private Sources	
EHOB	1,600,000
Total Sources	1,841,769

Uses of Funds

Activity	Amount (1996 \$)
Site Preparation	47,700
Site Acquisition	190,909
Construction	1,565,000
Infrastructure	31,800
Miscellaneous	6,360
Total Uses	1,841,769

Traditional Metrics

Permanent Job Creation	30-40
Leverage of Private Funds per Public Dollar Invested	6.6
Tax Base Increase	N/A (Tax abatement)

¹⁷ All figures are taken from CUED report, except for job data which was taken from interviews.

PROJECT CONTACTS

Brad Hurt

Independent real estate contractor who worked for the city in acquiring the site

Larry Coffee

Indianapolis Department of Metropolitan
Development

Rob Ellis

Operations Manager, EHOB

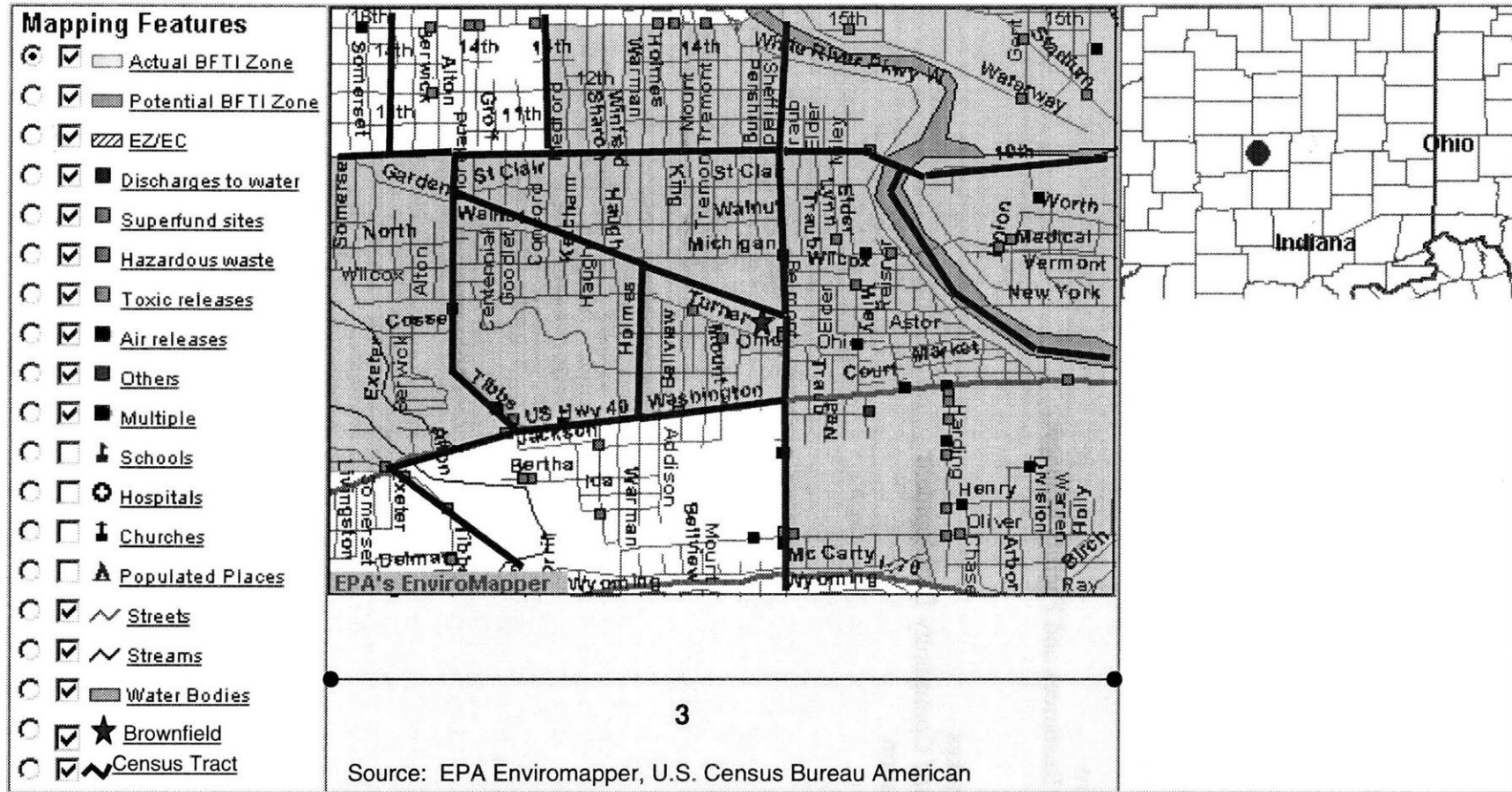
Ken Turo

Human Resources and Facility Manager,
EHOB

Mark Stokes

West Side Community Development
Corporation

CSX/EHOB, 2300 Turner Ave Indianapolis IN



CHAPTER V: ANALYSIS

The case studies described in the previous chapter vary widely in their project goals and benefits. A review of primary project goals (Table 1) reveals that economic development, narrowly defined in terms of job creation and increased tax revenues, do not dominate project objectives across all reuse types. Three additional project goals that emerge out of these case studies are provision of local services and amenities (e.g. retail and housing), fulfillment of planning objectives, and improved public perception of the project area.

Table 1. Summary of Project Goals for Case Studies

Reuse Type	Case Study	Primary Project Goals
Industrial	CSX/EHOB	Job creation, tax revenues
Office	FMC Technology Center	Fulfillment of plan for technology corridor
Retail	East Baybridge	Provision of retail services, tax revenues
Recreational – Cultural	Blockbuster Sony Center	Fulfillment of waterfront revitalization plan, improved city image, jobs
Housing	Westheimer Rigging	Affordable elder housing

The case studies show that project benefits are equally diverse (Table 2). Common economic benefits include not only job creation and increases to the tax base, but also reduced business and residential abandonment, increased business investment, increased local property values, and greater utilization of existing infrastructure. Environmental benefits tend to be either less extensive than social and economic benefits, or less observable to those people interviewed. However, environmental benefits do include open space enhancement and groundwater protection. Common social benefits range from reduced local housing and business abandonment, to increased citizen involvement and increased political or media attention to the area.

The evidence from a sample of typical brownfields cases for each of five redevelopment classes suggest that the benefits of brownfields redevelopment are diverse and site specific. Even for projects whose goals were primarily defined in terms of economic development benefits (job creation and increased tax revenues), public benefits included a diversity of broader social and environmental benefits. Some of these non-economic benefits turned out to be quite important in the overall results of the project, even if they were not identified as goals for the project. In addition, most of the projects examined had multiple goals, spanning both economic and non-economic dimensions of public benefit from the redevelopment.

Table 2. Summary of Project Benefits for Case Studies

CASE STUDY	Economic Benefits	Environmental Benefits	Social Benefits
CSX/EHOB	<ul style="list-style-type: none"> ▪ Between 15 and 20 jobs for local residents, 30 to 40 jobs created overall – salaries for local residents between \$8.50 and \$12 per hour ▪ Business development in the area ▪ Future tax benefits ▪ Utilization of existing infrastructure ▪ Increased municipal investment in local infrastructure 	<ul style="list-style-type: none"> ▪ Soil remediation ▪ Avoided company relocation to a greenfield area 	<ul style="list-style-type: none"> ▪ Aesthetic benefits ▪ Open space for recreation
Westheimer Rigging	<ul style="list-style-type: none"> ▪ 11 permanent jobs ▪ 150 Construction Jobs ▪ Improved business conditions ▪ Increased local investment and property improvement ▪ Increased municipal investment in local infrastructure 	<ul style="list-style-type: none"> ▪ Enhanced open space (rails-to-trails conversion) ▪ Groundwater protection and reduced public health risk ▪ Reduced pressure for urban sprawl (perceived, not documented) 	<ul style="list-style-type: none"> ▪ Provision of services (affordable housing) to local residents ▪ Reduced housing abandonment ▪ Increased community organization, collaboration with other community groups
Blockbuster Sony Center	<ul style="list-style-type: none"> ▪ 500 part-time, seasonal jobs ▪ 15 permanent jobs ▪ PILOT payment: \$770,000 per year for 30 yrs. 	<ul style="list-style-type: none"> ▪ Enhanced accessibility and desirability of open space near the site through aesthetic improvements (note that access to some of this open space is limited to ticket holders) 	<ul style="list-style-type: none"> ▪ Improved public image of Camden ▪ Improved appearance of site area ▪ Prevention of further abandonment of housing and businesses
East Baybridge	<ul style="list-style-type: none"> ▪ Tax base increase: 225,000/yr (helps to finance affordable housing development) ▪ \$1.7 million in annual sales tax revenues ▪ 500 construction jobs employing local workers ▪ 600 retail jobs, average salary \$10/hour ▪ Increased local property values ▪ Increased investment and business development ▪ Activation of dead-end streets 	<ul style="list-style-type: none"> ▪ Increased public health protection ▪ Groundwater remediation 	<ul style="list-style-type: none"> ▪ Provision of retail services, particularly a discount grocery store for local residents ▪ Increased security ▪ Improved citizen involvement ▪ Improve political awareness of area ▪ Increased housing demand, reduced abandonment
FMC Technology Center	<ul style="list-style-type: none"> ▪ 540 jobs retained (temporarily) ▪ Catalyzed business development in technology corridor ▪ Tax base increase: \$1,300,000 per year (until transfer to Univ. of MN) 	<ul style="list-style-type: none"> ▪ Prevented further contamination of ground water ▪ Limited green space creation 	<ul style="list-style-type: none"> ▪ Improved local infrastructure ▪ Increased access to the river

It seems that both project goals and benefits across the types of projects studied can be broader than the public benefits measured by the traditional benchmarks of jobs, taxes, and leverage of private funds. The fact that project goals are broader than traditional measures of project benefits suggests that the traditional benchmarks need to be reassessed and enhanced. As CUED (1999) states, “Meaningful benchmarks must align with the primary goals of the program....Projects whose primary goals are not economic may not score highly in economic benchmarks....While these sites may not produce ‘good numbers,’ there will be large human and environmental health gains.” If we accept that benchmarks should reflect project goals, then the benchmarks for brownfields redevelopment should be expanded beyond the traditional metrics.

However, this supposition is correct only if two additional conditions hold true: first, if there are additional dimensions of public benefit that are sufficiently common to a diversity of projects so that they could be usefully measured as benchmarks of success, and second, if adding additional benchmarks would enable a better overall evaluation of the success of brownfields policies or a better way to evaluate competing projects applying for public funding.

Regarding the first condition, although the projects provided a diversity of public benefits, the most common benefits other than job provision and tax revenues include:

- 1) reduced abandonment of housing and businesses,
- 2) increased investment in local businesses,
- 3) provision of amenities and services to local residents (housing and retail), and
- 4) increased utilization of existing infrastructure or resources (e.g. streets, utilities, and natural resources such as rivers and shoreline).

Of these benefits, the former benefits are not conducive to benchmarks for the purposes of prioritizing projects, since they are not easily predicted. However, residential and business trends in the neighborhood could be tracked after a brownfields project in order to assess the degree to which revitalization actually occurred. New business statistics - such as percent increase in businesses within the census tract or neighborhood - could be acquired through local Chambers of Commerce or city departments. Demographic changes such as increase or decrease in population, changes in ethnic or racial composition, and housing vacancies are easily tracked via census data (although these data are limited to ten year intervals). Tracking changes in property values could also be helpful to assess the impacts of the brownfields redevelopment on surrounding areas, and in combination with demographic statistics, these data could be used to monitor trends towards gentrification.

The latter common benefits of provision of amenities and services to local residents and increased utilization of existing infrastructure and resources could be predicted before project initiation, and therefore could be used as a standard tool to evaluate and prioritize potential projects. These benefits may not lend themselves to

quantitative statistics, but rather qualitative descriptions of the types of benefits provided and the populations that will be served. Qualitative benchmarks of amenity provision should document the extent to which there is local demand for services provided.

This research did not reveal an obvious case where traditional benchmarks and qualitative analysis told dramatically different stories about the result of each project. However, there are different conclusions that could be drawn from a qualitative analysis in comparison to evaluation of traditional benchmarks. Table 2 shows how each case study project would be evaluated according to traditional benchmarks.

Table 2. Traditional Benchmark Analysis

	Jobs	Tax Base Increase	Leverage
	a) Total permanent jobs created ¹⁸ b) public \$/job	a) gross tax base increase per year b) tax revenue per acre per year	a) Private Funds per Public Dollar Invested b) public \$ as a % of total
East Baybridge ¹⁹	a) 600 b) \$2,126	a) \$225,000 b) \$9,000	a) 17.8 b) 5 %
Blockbuster-Sony Entertainment Center	a) 515 (part time/seasonal) b) \$49,300	a) \$770,000 (PILOT for 30 years) b) \$5,133	a) 1.2 b) 45%
CSX/EHOB	a) 30-40 b) \$6,044-\$8,058	N/A (10 year sliding tax abatement)	a) 6.6 b) 13%
Westheimer Rigging ²⁰	a) 11 b) \$1,255	None	a) 309.1 b) 0.3%
FMC Technology ²¹	a) 0 b) N/A	a) \$1,300,000 b) \$361,111	a) 15.9 b) 6%

¹⁸ Includes seasonal jobs, excludes temporary construction jobs and retained jobs because such positions may have been created through other development initiatives even if this project had not gone forward.

¹⁹ Figures for this site could be calculated two different ways, depending on whether publicly supported debt is considered part of public or private funding sources. Figures in the table include the debt as part of private costs, however if the debt were considered as a part of public costs, the following data would result: public \$/job = \$7,283, leverage public: private funds =5.76, public \$ as a % of total funds: 14.78%

²⁰ Figures for this site could be calculated two different ways, depending on whether publicly supported debt is considered part of public or private funding sources. Figures in the table include the debt as part of private costs, however if the debt were considered as a part of public costs, the following data would result: public \$/job = \$346,709, leverage public: private funds = 0.1219, public \$ as a % of total funds: 89.13%

²¹ Figures are calculated based on use of the site by FMC Technology. The property has since been sold the University of Minnesota, and some statistics, e.g. tax base increase, no longer apply.

If viewed purely from the perspective of job creation, the East Baybridge project would clearly be a top performer, with creation of 600 jobs at a relatively low cost to the public. The E-Center, while ostensibly a cultural/recreational project, created the second largest number of jobs, but at a much higher public cost per job created. From a tax revenue perspective, the FMC Technology site seems to deliver the greatest public benefit, followed by East Baybridge as a distant second. If success is measured in terms of public leverage of private funds, the results are less clear. Depending on how publicly supported debt is counted, Westheimer Rigging may have the greatest or the least leverage of private funds. Aside from that project, East Baybridge and FMC have the greatest public leverage figures. Thus, across all three areas measured by the traditional benchmarks, East Baybridge and FMC Technology projects seem to lead the provision of public benefits.

How do these results compare to the qualitative sense of community benefits developed in the case studies? There is no clear winner in from the qualitative data, and yet it could be argued that a top performer from the quantitative sense -- East Baybridge -- was a site where further public benefits were initially envisioned were not provided due to slack market demand. In this case, the question became not whether the project was beneficial (it was), but whether it was good enough to meet local expectations. Had the project waited for an upswing in the real estate market, it would have been able to be built out to a greater density, with greater provision of services to local residents and perhaps less focus on customers passing by on the nearby interstate. Ultimately, the cities of Emeryville and Oakland decided that East Baybridge was good enough given current market conditions, but that conclusion was by no means unanimous, and the project only narrowly passed the local referendum. In this example, the city and the local residents clearly understood these trade-offs, and debated them actively.

However, in other projects, the trade-offs may not be as apparent. For example, the E-Center in Camden has been widely hailed as a successful redevelopment on the Delaware River. The project is explicitly oriented towards suburban, affluent customers on the outskirts of Philadelphia, and yet because of this orientation it has had few direct benefits for local residents, other than reduced housing abandonment. If the benchmarks of providing services to the local community and utilizing existing infrastructure and resources had been carefully considered both by project proponents and the community, perhaps the project could have been equally successful with out-of-town customers while still providing tangible benefits to the local residents. For example, revitalization beyond the confines of the waterfront district may have been more likely if local businesses were tapped to offer services and food within the E-Center, and if the street infrastructure leading to downtown Camden had been enhanced with lighting and streetscape improvements in order to draw customers to local businesses.

If these five cases studies were compared qualitatively across social, economic, and environmental dimensions, the results would likely differ than the traditional economically focused analysis. Although there are many potential benefits that could be assessed, I have selected two facets of each dimension of public benefits that I believe are

most important to add to the traditional benchmarks. My qualitative assessment of these factors is summarized below in Table 3.

Table 3. Alternative Benchmark Analysis

	Social a) Increased community organizing capacity b) Improved neighborhood stability	Economic a) Increased investment in local businesses b) Increased prosperity of residents	Environmental a) Reduced human exposure to environmental contaminants b) Reduced potential for off-site environmental contamination
East Baybridge	a) Yes b) Not clear from interviews	a) Yes b) Probably	a) Yes b) Yes, for that groundwater plume that is actively being treated
Westheimer Rigging	a) Yes, a significant benefit as a result of LLC's outreach b) Probable in the future, but results are not yet clear	a) Yes b) Not yet apparent	a) Yes, although contamination was not initially severe b) Groundwater monitoring only
CSX/EHOB	a) No b) Not clear from interviews	a) Yes b) Probably	a) Yes b) No
FMC Technology	a) No b) No	a) Yes b) No	a) Yes, although extent of exposure initially was small b) No
Blockbuster Sony Entertainment Center	a) No b) Not yet, although perhaps in the future	a) No b) No	a) Yes, although extent of exposure may have been small initially b) No

The results shown here are preliminary and subjective, based on my interpretation of the case study interviews and research. Further work would clearly need to be done in order to develop standardized methods to evaluate these factors. However, it is my sense that by using these alternative measures of project success in addition to the traditional economic development benchmarks, it would be possible to create more complete picture of project success. East Baybridge still stands out as a top performing project (given market constraints), as it did with the traditional benchmark analysis. However, the FMC project performs less well, as does the Blockbuster Sony Entertainment Center. Westheimer Rigging also performs very well in this analysis. It is worth noting that although East Baybridge and Westheimer Rigging were very different projects at different scales and with different goals, both included significant community involvement in the project planning and review processes -- more than any of the other projects reviewed. Though I do not have the data to prove a causal relationship between community involvement in project review and planning and community benefits resulting from redevelopment, it does seem reasonable to expect that community involvement would lead to improved community benefits.

CHAPTER VI: CONCLUSIONS AND RECOMMENDATIONS

- 1. While much of the discussion of policy goals for brownfields redevelopment speaks in terms of community revitalization, traditional evaluation techniques tend to focus on benefits for the broader (non-local) public.**

Traditional evaluative benchmarks for brownfields redevelopment, such as an increased tax base, leverage of private funds, and total job creation, are important and helpful to understanding the public benefits of brownfields projects and policies. However, these traditional benchmarks are more relevant to city officials and the public as a whole than to local residents who have most directly borne the impacts of brownfields. If the adage that what is measured is managed is true, then it is important to be thoughtful which evaluative measures are used so that the lessons learned can provide appropriate feedback for policy improvement. If part of the objectives of brownfields policies are to revitalize disadvantaged communities, it will be important to measure the progress in terms of benefits to the local community as well as the general public. Future evaluative techniques should include benchmarks of local community benefits, such as jobs for local residents, increased provision of community services, and enhanced access to local resources and infrastructure.

- 2. Traditional evaluative techniques for brownfields tend to focus on economic benefits, but the actual benefits demonstrated in typical projects are much broader, and many important (if unforeseen) results of such projects are social and environmental.**

Given the broad array of actual project benefits, evaluative techniques should be expanded to measure not only economic benefits, but also environmental and social benefits. As noted in the previous section, the most common benefits not included in the traditional benchmarks but found in this study include:

- 1) reduced abandonment of housing and businesses,
- 2) increased investment in local businesses,
- 3) provision of amenities and services to local residents (housing and retail), and
- 4) increased utilization of existing infrastructure or resources (e.g. streets, utilities, and natural resources such as rivers and shoreline).

Although the first two benefits are primarily economic factors, they closely relate to social benefits. The latter two benefits are primarily social, but may also include environmental aspects (e.g. access to natural resources such as water bodies). If these social and environmental dimensions of redevelopment are ignored, brownfields redevelopment may result in unnecessary tradeoffs between increased employment or tax revenues and improved social fabric and health of a neighborhood. Careful monitoring of all dimensions of redevelopment benefits should help avoid a lopsided implementation of brownfields policies that could encourage economic development at the expense of opportunities for enhancing quality of life and a healthy environment.

3. Environmental benefits are less evident in project results than economic and social benefits. Greater emphasis on evaluating the environmental benefits of redevelopment and coordination among various regulatory agencies could help avoid negative environmental impacts of reuse.

Brownfields are defined by their history of environmental contamination, yet in the redevelopment of these sites, it seems that the environmental benefits of remediation are less obvious or impressive to stakeholders than social and economic benefits. The most common environmental benefits include protection of groundwater and creation of open space. These benefits are important, and should be incorporated into project evaluations. Other potential benefits could be examined as well. For those sites with an industrial reuse, evaluators might consider the extent to which the new operations on the property employ pollution prevention strategies in order to prevent re-pollution of remediated sites. Although industrial practices have become cleaner in the last several decades, industrial facilities are often still responsible for air, water, and soil pollution, either on- or off-site. Employing pollution prevention techniques in order to avoid further contamination on sites and in neighborhoods that have a history of environmental distress would clearly be a benefit to the public and the community. This benefit should be included in an overall assessment of project outcomes. Likewise, any property reuse (particularly retail and office properties with significant acreage devoted to parking) could provide public benefits in terms of site design that minimizes the effect of urban runoff on nearby surface water. In order to realize these benefits, they will need to be incorporated into project evaluation.

In addition, brownfields regulators should coordinate with representatives of pollution prevention and environmental planning departments in order to identify opportunities for improving the environmental profile of redevelopment plans. Current regulatory approaches towards brownfields redevelopment often place responsibility for redevelopment oversight into the hands of hazardous waste cleanup and economic development departments. While these perspectives are clearly central to achieving appropriate remediation and redevelopment outcomes, additional expertise – particularly with regard to pollution prevention and site design – could help ensure that environmental benefits from redevelopment projects are optimized.

4. Since project goals tend to predict project benefits, it is important to consider the extent to which project goals and planning processes incorporate community perspectives.

Most of the projects reviewed in this research at least partially fulfilled their project objectives, however, not all projects incorporated community benefits as part of the project goals. For example, the Blockbuster Sony Center was largely oriented towards a non-local audience, and benefits were envisioned on the scale of an entire city (e.g. improved perceptions of and investment in Camden), rather than any specific neighborhood or community. The resulting benefits from this project have not tended to

accrue to the local community or even to other neighborhoods in Camden. Rather, the public benefits have tended to accrue to the city government and have benefited the residents of Camden only indirectly. More locally oriented projects, such as the Westheimer Rigging redevelopment, produced greater community based benefits.

Not only do project goals vary in the degree to which they incorporate community concerns, but so do project planning processes. Of the projects examined here, only two – Westheimer Rigging and East Baybridge – involved local communities in any significant way. Community input was incorporated either through a community-based project proponent or by way of public planning processes such as workshops, hearings, and a referendum. Although the ultimate public benefits any project can provide are limited by market demand for redevelopment, public involvement in the planning stages of the project can enhance the scope of benefits envisioned for the project.

Fortunately, there are models for increasing community involvement in project planning. For example, the EPA's brownfields pilot program includes a significant public participation component for project planning. The American Society For Testing And Materials Standard Guide for Process of Sustainable Brownfields Redevelopment (ASTM 2000) provides another model of community involvement. However, few state policies seem to encourage or require community involvement in planning for brownfields redevelopment. The proposed legislation in New York is one example where the state is providing grants to encourage community-based plans for redevelopment. If brownfields projects are to meet widely held expectations of revitalization of disadvantaged communities, then this approach should be more widely adopted.

5. Opportunistic, rather than site-specific, planning may lead to greater public benefits from brownfields redevelopment, especially when driven by public or non-profit agencies.

Two of the cases described in this research, namely Westheimer Rigging and CSX/EHOB, resulted from an opportunistic mode of development. Project proponents or city officials identified a certain type of development they wanted to promote – housing in one instance and manufacturing in the other – and then worked to find a suitable sites for redevelopment. The Westheimer Rigging project fulfilled the objectives of the Latino Learning Center – namely to provide affordable housing for elders and improve conditions in the East End neighborhood. These objectives were not initially tied to the Westheimer Rigging site, but rather the site was used opportunistically in order to meet those community objectives. The CSX/EHOB project emerged out of a city initiative to keep jobs in central Indianapolis and promote urban business development. The city went in search of a suitable redevelopment site and a manufacturing company to occupy it, and the results were substantial improvements to the neighborhood and provision of jobs for local residents. Both projects resulted in locally oriented redevelopment that provided tangible and substantial benefits to the local communities in which they were placed.

Although it is important to be cautious in drawing conclusions from such a small sample size, it is worth considering whether such an opportunistic approach to brownfields redevelopment could generally provide greater benefits for communities and the public compared to site-specific redevelopment plans. In this case, project initiators were either public (the city in the case of CSX/EHOB) or private non-profit (in the case of Westheimer Rigging). But private developers tend to operate in a similar manner: their objectives are to maximize profit given a certain level of risk through project development, and they work opportunistically find sites and locations that meet this overall goal. If publicly-oriented planners were to start by identifying project objectives and public benefits they wanted to provide, and then finding a brownfields site that could meet that objective, they might be more likely to produce the ultimate benefits sought.

Of course, this approach might result in “cherry picking” of the worst sort – i.e. public planners choosing first tier sites for redevelopment and ignoring the rest. But the results of this study suggest that the reality may not be so simple. Both the Westheimer Rigging and CSX/EHOB sites – those developed around a project specific plan - would probably be classified as Tier 2 sites, compared to the others in this research. Both are located in census tracts with moderate household incomes and moderate residential vacancy rates, compared to the others in this study.

Site	1999 Estimated Census Tract Median Family Income
East Baybridge	\$58,493
CSX/EHOB	\$37,756
Westheimer Rigging	\$28,121
FMC Technology Center	\$19,411
Blockbuster-Sony Music Entertainment Center	\$18,465

Site	Percent Vacancy
FMC Technology Center	7.96%
CSX/EHOB	10.99%
East Baybridge	11.35%
Westheimer Rigging	13.28%
Blockbuster-Sony Music Entertainment Center	22.73%

Although both sites were ultimately marketable for their respective goals, they required either substantial up-front public investment or involvement of a community-based non-profit agency. Therefore, based on this research, we might expect a project-based rather than site specific redevelopment strategy to address Tier 2 sites (and perhaps Tier 1 as well), but such a strategy might leave behind Tier 3 sites. This brings us to the next point.

6. Planning alone cannot provide public benefits beyond what the market will bear. Public investment is critical for less marketable sites.

This research confirms what is generally recognized in the literature, namely that no amount of planning, whatever its form, can push the envelope of public and community benefits beyond what the market will bear. Only public (or private non-profit)

investment in non-marketable sites can result in successful redevelopment with benefits for local communities. The East Baybridge example is instructive on this point. Although project proponents and community members all desired a higher density development, market demand at the time of the project did not support such density.

7. Building capacity and resources for community-based redevelopment could lead to significant public benefits, especially for second- and third-tier sites.

The Westheimer Rigging project is an excellent example of the potential for community-based redevelopment. Although in that case redevelopment funding came largely from private sources and publicly supported debt, in some cases it may be necessary to transfer funds to community based groups in order to undertake redevelopment. In other cases, community-based redevelopment could be promoted through training for community representatives and collaboration with developers.

8. Under certain circumstances, prioritizing projects for the purposes of public funding is essential. Impacts of the brownfield on the surrounding area and potential benefits of redevelopment should be carefully considered as factors for prioritization.

If public funds or resources are limited, as they usually are, and such resources are necessary to convert second- and third-tier sites into financially viable projects, then public agencies should give careful consideration to how to prioritize projects for public funding. Current negative impacts of the project on surrounding neighborhoods and potential benefits are particularly important factors that should be considered when allocating scarce funding. If the brownfield is currently a significant liability for the neighborhood or the city, and if the brownfield is actively contributing to local disinvestment, the project should take priority for public funding. Public officials administering funding should consider not only the condition of the neighborhood, but the relationship of the brownfield with the cycle of disinvestment. Since many factors in addition to environmental contamination can conspire to depress conditions in a neighborhood, officials should consider the extent to which the brownfield is a causal factor in the disinvestment. Other factors at work may include poor infrastructure, location, or security. To the extent that these factors can be changed, they should be integrated into a cohesive plan that addresses not only the brownfield but the general context of disinvestment and poor quality of life in the neighborhood.

If the brownfield is not having a substantial degree of impact on surrounding neighborhoods, or if disinvestment is less severe than in other areas, public officials may have the opportunity to push for greater public benefits to result from the project, perhaps by altering the project structure or delaying the project until market conditions improve.

9. Local and state governments should adopt a dual track approach for brownfields redevelopment.

Experts have suggested that strategies for brownfields redevelopment distinguish between the different tiers of brownfields sites (Bartsch personal communication, Smart Growth Network 1996). Those sites that are highly marketable should be allowed to proceed with minimal government involvement or investment, other than lifting the weight of environmental liability for innocent parties and easing regulatory burdens. Such programs can be largely privatized, although it is still advisable to require or suggest some level of community involvement in the planning process to ensure that opportunities for community benefits are not overlooked. Public officials should expect that these highly marketable sites be able to pay back any public investment that a city or state undertakes, either directly (e.g. through loan payments or tax revenues), or indirectly (through spill-over development and private investment in the area). Further research would be helpful in documenting the financial benefits of spill-over development resulting from brownfields.

For less-marketable sites, public attention needs to shift to revitalization of sites imposing the greatest burdens on their neighborhoods and those offering the greatest potential public benefits. Public investment can help make sites more marketable to the private sector (e.g. through infrastructure improvement), or may be purely public in nature (e.g. developing parks and recreation areas). In either case, public and community benefits should be sufficient to justify public investment. The notion that brownfields present win-win opportunities for the public and private sectors should not be overstated. Revitalization and redevelopment can go hand-in-hand, but only if attention is paid and resources are devoted to the opportunities for public benefits as well as the private sector requirements.

10. Although the problems that brownfields create give a sense of urgency to the call for redevelopment, brownfields redevelopment projects should be carefully planned with the long-term impacts of the project in mind.

Short-term thinking and inadequate information about the impacts of industrial development and operations first gave rise to brownfields contamination, but there is now a possibility that these same factors will lead to less than optimal redevelopment patterns. Since brownfields sites can lead to a host of environmental, economic, and social problems, there is a sense of urgency about providing incentives for redevelopment. This urgency is well placed, particularly for those fraction of sites that are truly having an impact on surrounding properties and natural resources, as well as the health and well-being of neighboring communities. However, if redevelopment is poorly planned, and any redevelopment is accepted as equally good simply by the fact of building on a brownfield, there may be huge opportunity costs. Different redevelopment options may have widely different impacts and benefits on the neighborhood and the region in which they are located. Some proponents of redevelopment may use the fact that the new facility covers up contaminated soil as an excuse for poorly planned development. In

order to realize the potential inherent in the redevelopment of brownfields, those who make and implement brownfields policies should encourage a careful weighing of the costs and benefits of the redevelopment options across economic, environmental, and social dimensions.

APPENDIX A: POTENTIAL IMPACTS OF BROWNFIELDS REDEVELOPMENT

Type of Benefit/Cost	Discussion
Environmental Benefits	
Reduced health risks	Evaluation of existing risks, based on contamination and exposures, and reductions in those risks resulting from remediation and redevelopment.
Environmental justice	Socio-demographic evaluation of the beneficiaries of redevelopment.
Prevention/Reduction of air pollution (mobile source emissions)	Due to curbing urban sprawl; most significant as commercial and industrial redevelopment occurs, providing jobs for city residents.
Ground water protection and flood risk reduction	Due to reduction in urban sprawl; greenfield development replaces absorptive land with impervious surfaces and treated lawns which can prevent clean rainwater from flowing into aquifers and streams.
Ecosystem and wetland restoration	Redevelopment plans may also include wetland restoration and protection within urban areas; also due to curbing urban sprawl.
Creation of green spaces	This applies to parks, open spaces, and community gardens redevelopment.
Economic Benefits	
Job creation and potential for higher incomes	Jobs created by the redevelopment may not benefit the local community if residents do not have the necessary education or training to fill these jobs. The redevelopment project may need to be coupled with education and/or job training.
Improve labor market efficiency	Increasing urban infill may provide more job opportunities to city residents, thereby reducing job search costs, labor market search costs, and relocation costs.
Increased property values in surrounding area and redeveloped brownfield site	While increased property values will increase owners assets and the city's tax revenues, increases in property values are not always desirable because higher taxes and rents may lead to gentrification.
Increased tax revenues	Due to returning property to productive use and increasing property values.
Spill-over economic effects	Redevelopment has the potential to improve neighborhood quality and overall business conditions in the area.
Avoided congestion, accidents, and highway costs	Due to reduction in urban sprawl and commuting.
Prevent housing abandonment	Increasing the desirability to live in the city may result from urban infill. Commensurate benefits include avoiding expenses of new construction, preventing crime that often occurs in and around abandoned buildings, and improving the aesthetics in the area.
Increased utilization of existing infrastructure	Reduced pressure to provide infrastructure to outlying areas as urban sprawl is

	reduced; higher utilization of public utilities and transportation in the city.
Social Benefits	
Increase in easily accessible services	This applies to commercial development; many inner city neighborhoods do not have easy access to grocery stores or other important amenities.
Affordable Housing	For residential development only.
Restored sense of control and neighborhood empowerment; renewed sense of hope and pride	These types of benefits are most likely to result when there is a high degree of community involvement in brownfield site cleanup and redevelopment planning.
Improved city services	Increases in tax revenues generated by redevelopment may enable the city to provide better public services (e.g., schools, transportation, recreation).
Aesthetics	Improved appearance and overall neighborhood quality may result from all types of redevelopment projects, although these are especially likely for parks, open spaces and community gardens.
Social and Environmental Costs	
Re-pollution or creation of eyesores	Industrial redevelopment of sites may have a negative impact on the community, if redevelopment occurs carelessly without pollution prevention and aesthetic considerations.
Potential future human health and environmental risks	Non-permanent, low-cost remedies (e.g., institutional controls) may harbor future risks, particularly if land uses change.
Disruption	Cleanup and development may cause temporary disruption, risk and annoyance to nearby residents.
Economic Costs	
Cleanup costs	Estimate cleanup costs and consider associated uncertainty.
Public development costs	Subsidies to business, building expenses associated with public projects, such as community centers, parks and open areas.
Infrastructure improvements	Road access, utilities, and other conditions may need to be improved before development can occur.
Environmental characterization	Environmental site assessments required, which involve engineering consulting fees and legal fees.
High financing charges	Liability uncertainties create difficulties in obtaining loans and may also increase the collateral required or the interest rates.

Source: Smart Growth Network 1996.

APPENDIX B. INTERVIEW PROTOCOL

INTRODUCTION:

Hello, my name is Tracy Dyke. I'm a graduate student in the Department of Urban Studies and Planning at MIT. I'm currently writing a thesis on the subject of how to measure the public benefits of brownfields redevelopment. I was referred to you by _____. I am hoping to use the _____ project as a case study in my thesis. I was wondering if you would be able to spend a little time talking with me about this project.

I believe it would take about 1 hour in order to go through the questions I have about the project. If you're willing to help, we could schedule a time for the interview that is convenient for you.

Interview:

Thanks for agreeing to spend some time talking with me about the _____ project. As I mentioned before, my goal in doing this research is to better understand how to measure the public benefits of brownfields redevelopment by considering a few projects of different types. In order to understand the project better, I am going to ask you some questions about the area where the project took place, your involvement in the projects, and your understanding of the goals and results of the project. Do you have any questions before we begin?

BACKGROUND

Please tell me whether the project is complete? If not, what stage of completion is the project currently in?

NEIGHBORHOOD CONTEXT

First I'd like to ask you a few questions about the neighborhood in which the project is located and the brownfields property before the redevelopment project occurred.

1. In which neighborhood did this project take place?
2. Are there other neighborhoods or areas that have been directly affected by the project? yes no

If yes, what are they?

3. I'd like you to think about the five years or so prior to the redevelopment project. In that time period would you say that there was an increase in economic activity (e.g. real estate development or new businesses opening), a decrease in economic activity, or no change?

- increase
- decrease
- no change

4. Are you aware of any plans other than the brownfields project that were directed toward improving the neighborhood? yes no

If yes, what were they?

GOALS

Now I want to ask you a few questions about the goals of the brownfields redevelopment project.

1. At the outset of this project or your involvement in it, what did you hope or expect would accomplish?
2. Were you aware of expectations or hopes that others had for the project? yes no

If yes, what were they?

3. Are you aware of any goals that were jointly established or agreed upon by individuals or groups involved in the project? yes no

If yes, what were they?

BENEFITS

Now I'd like to ask you a few questions about what the project has actually accomplished. My emphasis on public benefits provided by the project, rather than benefits provided to an individual property owner or the redeveloper of the property.

I'm going to read you a list of possible public benefits that could result from a brownfields redevelopment project. For each possible public benefit, I'd like you to tell me whether you believe that the project has produced this result. If you think the project has produced this benefit, please tell me how you have observed this change, or what evidence you have seen that leads you to believe that this benefit has been realized.

I have divided up the possible benefits into three categories: social benefits, environmental benefits, and economic benefits. The first category is social...

Has this project resulted in...

1. Improved neighborhood appearances
2. Greater local control over the future of the neighborhood
3. Improved sense of community empowerment and pride
4. Increased political attention towards the neighborhood
5. Increased neighborhood organization or organizing capacity

The next category is environmental benefits. Has this project resulted in...

6. reduced human health risks as a result of environmental cleanup
7. reduced environmental injustice, i.e. reducing environmental health risks to poor or minority communities
8. protecting ground water from contamination
9. preventing urban sprawl in your region
10. ecosystem protection or restoration
11. creation of green space for recreation or wildlife habitat

The next category is economic benefits. Has this project resulted in...

12. Job creation and/or higher incomes for residents in the project neighborhood
13. Job creation and/or higher incomes for residents outside of the project neighborhood
14. Increased property values in the nearby properties
15. Increased tax revenues
16. Improved business conditions in the neighborhood
17. Reduced commuting time and costs
18. Reduced abandonment of housing or businesses
19. More efficient use of existing infrastructure (e.g. public utilities and roads)

Are there other benefits that have resulted from the project? yes no

If yes, what are they?

What would you say is the most important public benefit that this project produced?

Are there public benefits that you expect this project to produce over the long term, but which have not yet been realized? yes no

If yes, what are they, and how long do you think it will take for them to be realized?

Are there any downsides or negative impacts that you believe are a result of this project?

If so, what are they?

What about

- 1) gentrification
- 2) increased traffic

- 3) increased pollution due to new industry
- 4) general disruption

BUT FOR THIS PROJECT

Now I want to ask you about what would have happened in this neighborhood if the project hadn't gone forward. First, let's consider the redevelopment use.

Were the redevelopers considering alternate places where could have built a _____ (type of project)?

Could you briefly describe the alternate sites?

Now I'd like you to think about what would have happened at this site if the property had not been redeveloped with this project. If this redevelopment project had not occurred, would the site still be vacant, or do you think there were other possible developments that might have occurred on the property?

Are there any changes or improvements in the neighborhood that may have occurred for reasons other than this specific brownfields project (e.g. general improvement of the economy, or investments in the neighborhood not related to the brownfields site)?

CONTACTS

Can you tell me who were the other key parties involved in the project? What is their contact information?

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