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Municipal Experiences with Brownfield Cleanup and Reuse

by Gisele Hamm and Norman Walzer[1]

Vacant properties exist in most cities across the United States; however, not all of them qualify for assistance from the various state or federal brownfield programs. A brownfield is defined as an "abandoned, unused, or underused industrial or commercial property. It is a parcel of real property, or portion of the parcel, that has actual or perceived contamination and an active potential for redevelopment" (IEPA 2003).

Brownfield redevelopment as a priority for private investment and local economic development is a relatively recent concept. In the past, interest in brownfields focused more on the technical aspects and issues involved in remediation and redevelopment. In the 1990s, however, greater interest in brownfields as potential investment sites with possibilities for local economic development strategies arose.

In the fall of 2002, the Illinois Institute for Rural Affairs, in conjunction with the Western Illinois Regional Council, the Illinois Municipal League, and the Illinois Environmental Protection Agency's (IEPA) Office of Brownfields Assistance, conducted a survey of 86 Illinois municipalities with brownfield properties that had been working with the IEPA on remediation projects. Surveys were sent to municipalities with brownfield sites that met one of the following criteria: (1) had obtained a No Further Remediation letter, (2) was the recipient of an Illinois Municipal Brownfields Redevelopment grant, (3) received a Targeted Brownfields Assessment completed by IEPA, or (4) was awarded an USTFields Pilot Grant from the U.S. EPA.

Two separate questionnaires were mailed to the 86 qualifying municipalities. The first questionnaire was a general survey requesting comprehensive information pertaining to municipal conditions as well as procedures and experiences regarding brownfield remediation and redevelopment. Of the 86 municipalities surveyed, 52 (60%) sent back completed surveys.

A second questionnaire concerning specific parcels was sent to municipalities for 229 brownfield sites, and 121 (53%) of these surveys were returned. The parcel-specific survey included questions regarding previous uses, amount and types of investment, and outcomes resulting from site redevelopment.

In addition to the survey analyses, case studies were conducted in five cities representing various types and sizes of brownfield properties. This sample provided a diverse and in-depth examination of the remediation and redevelopment process.

Responding municipalities were categorized into downstate cities (IEPA Regions 1, 3-7) and Cook and collar counties (IEPA Region 2). Based on the 2000 census, the average downstate city population size was 24,886, compared with 27,723 for those in the Chicago region. In addition, cities within the Chicago area were reportedly wealthier and had healthier economic conditions than those located downstate. Municipalities were also grouped into prosperous versus stable or declining categories, based on self-assessments (Walzer, Norris, Hamm, and Sutton 2004).

Remediation and redevelopment of brownfield properties depends at least partly on the demand for developable property. When demand for property is low, there is little incentive for a municipality to initiate the redevelopment process. Both the downstate and Chicago regions reported limited or at best some demand for inexpensive

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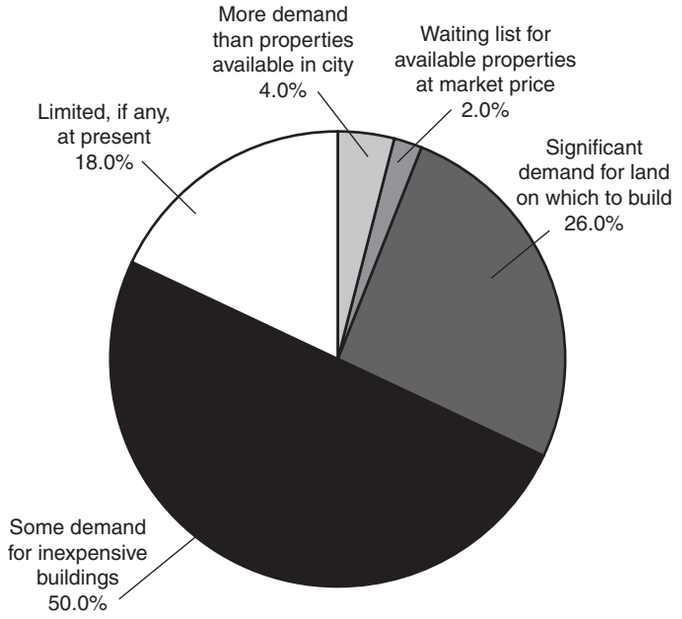
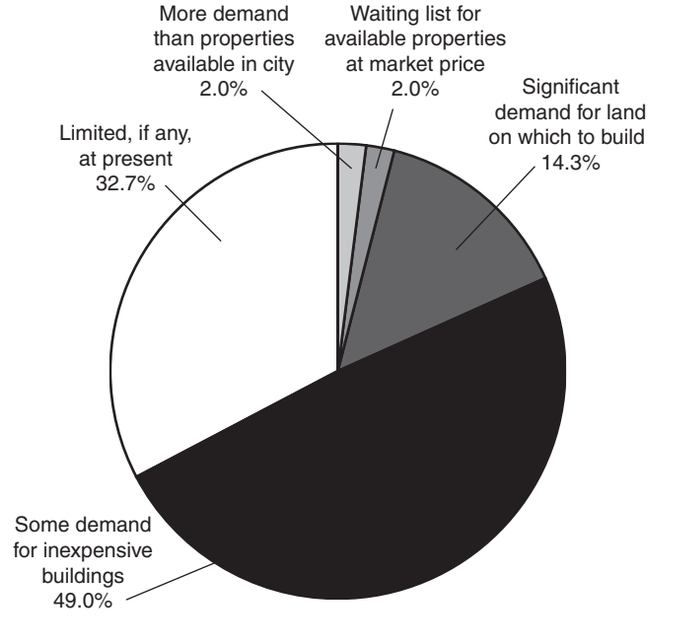
industrial or commercial properties. Statewide, 68.0 percent reported limited or at best some demand for commercial properties, and 81.7 percent reported limited or at best some demand for industrial properties, perhaps reflecting the nationwide economic recession and declines in manufacturing employment **(Figure 1)**.

Figure 1. Commercial and Industrial Demand for Property

Commercial Demand for Property in Municipality



Demand for Industrial Property in Municipality



Source: Brownfield Outcomes General Survey, 2002-2003.

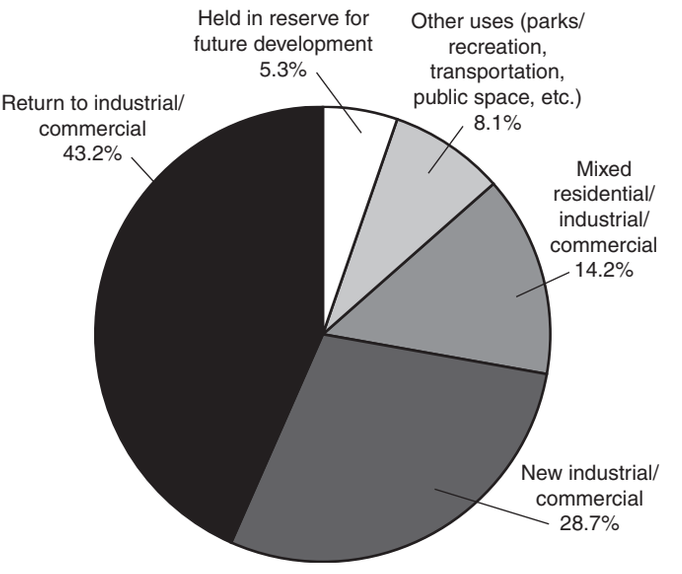
Statewide, private companies owned 54.3 percent of the brownfield properties when measured by square footage. City governments owned significantly less property (26.8%), and 19.0 percent was owned by other entities. Downstate cities reported a greater proportion of privately owned properties (60.3%) than cities in the Chicago region (36.1%).

Approximately one-third of the properties surveyed (33.4%) had been through the environmental assessment process, with assessments somewhat more common on brownfield sites located in Cook and the collar counties (36.2%) than downstate (31.6%). Also, prosperous cities were more likely to report assessments (44.0%) than stable or declining cities (28.7%). This could possibly be explained by the fact that prosperous cities have greater incentives and financial capabilities to pursue brownfield remediation projects.

The most commonly reported actual or planned use for brownfield properties was to return them to industrial or commercial use (43.2%), with cities in the Chicago region (48.5%) slightly more likely to report this use than downstate cities (42.1%). Municipalities also indicated that properties were used for a new industrial or commercial business (28.7%) or for mixed residential, industrial, or commercial uses (14.2%). Very few cities (4 in total) reported that remediated property was set aside for future development **(Figure 2)**.

Figure 2. Final Uses of Rehabilitated Properties

Actual or Planned Final Uses of Rehabilitated Properties (Percentage of Total Square Feet)



Source: Brownfield Outcomes General Survey, 2002-2003.

Outcomes of Brownfield Projects

Governmental fiscal tightening and a growing interest in accountability in recent years have placed greater emphasis on measurable outcomes resulting from publicly funded programs such as brownfields. Job creation and retention as well as the investment made by private entities and/or public agencies occurring from brownfield redevelopment projects can be significant, depending on the type of project; this can be difficult to quantify, however, because of the length of time involved in the job creation process.

Statewide, municipalities reported an average of 85 full-time jobs created and 41 full-time jobs retained due to redevelopment efforts. In addition, an average of 35 part-time jobs were created and 61 part-time jobs were retained from brownfield projects. Construction jobs are often created during the property conversion and redevelopment process; however, these jobs are temporary and have less of an economic impact on the community.

In the Brownfield Outcomes General Survey, mayors were asked how much money was invested in the brownfield redevelopment projects in their community during the past five years (1997-2002) via the following sources: private; leverage by financial firms; and/or local, state, and federal governments. Since the study analyzed investment on all projects regardless of current stage, size, type, and location, a wide range of investment was reported. Therefore, investment amounts are summarized in three categories: (1) small, (2) intermediate, and (3) large. In addition, the City of Chicago was analyzed separately due to its size and characteristics.

The amount of private investment in brownfield projects is of special interest to municipalities because of increased tax revenues. According to survey results, an average of $50,318 was invested in the smallest group, $2.95 million in the mid-range group, and $8.4 million in the largest private investment group.

Leveraged funds, which were reported by only nine cites, averaged $8.1 million. Cities reporting local government investment averaged $15,943 in the smallest category, $202,145 in the intermediate category, and $4.9 million in the largest investment category.

Average state government investment in brownfields was $31,368 in the smallest category, $108,571 in the intermediate category, and $460,471 in the highest investment range. Federal investment was less often reported, but averaged $34,500 in the smallest category, $275,000 in the intermediate category, and $1.0 million in the largest category. The amount of investment clearly depends on the stage of the remediation process.

Expected Public Financial Returns

Public financial returns resulting from brownfield redevelopment and investment provide insight into the level of success of brownfield projects. In the survey, respondents were asked several questions regarding expected returns, including increases in assessed valuation, increases in retail sales taxes resulting from the redeveloped properties, and increases in the number of building permits issued due to the projects.

Statewide, respondents reported an expected average net increase in assessed valuation of $6.0 million (based on 19 responses), with downstate cities reporting a significantly higher expected net increase ($7.9 million) than cities located in the Chicago region ($3.4 million).

Mayors were asked to provide both conservative and optimistic estimates of expected increases in retail sales taxes due to brownfield redevelopment. The average conservative estimate was $108,571 (based on 14 respondents) while the optimistic estimate was $245,520 (based on 13 respondents).

The number of building permits issued and the specific purposes of the permits varied widely among survey respondents. Whereas both areas reported that building permits were often issued for commercial and retail purposes, building permits for residential properties were more often indicated by municipalities in the Chicago area, while downstate cities reported more permits issued for industrial purposes.

The length of time a brownfield property has been inactive before the redevelopment process is initiated can signal the level of demand for property in the area. Also, the length of time a property has remained idle is often a factor in the feasibility and success of a brownfield project since the longer a property has stood vacant, the greater

the amount of effort and resources required to bring it to a marketable or functional state.

Mayors were asked, on average, how long properties had been inactive before redevelopment was initiated. Statewide, 32.6 percent of the municipalities reported that property had been idle an average of one to five years, 30.4 percent indicated an average of five to ten years, and 26.1 percent of cities reported that they had properties that had been inactive for more than ten years.

Properties in the Chicago region were most likely to remain idle for an average of one to five years (52.4%), while downstate properties were most often reported to have been idle for five to ten years (44.0%). Municipalities in the nongrowth category were most likely to report brownfield properties remaining idle an average of five years or more (65.4%), while 55 percent of prosperous cities indicated that properties were idle an average of five years or less. These results show a correlation between the economic state of the area and the length of time brownfield properties remain inactive.

Municipal Involvement

Mayors were asked about the importance of brownfield redevelopment as a component in managing growth and development. On a five-point scale wherein 5 is very important, the 52 cities indicated such efforts were important with an average rating of 3.48. When surveyed regarding the extent to which municipalities were responsible for brownfield remediation, however, mayors see cities playing a more moderate role (2.94), signifying that cities are also reliant upon private and governmental participation.

More than half of the municipalities (56.9%) reported that brownfield redevelopment is included in the city's formal economic development strategy; however, only 21.2 percent of the cities responding affirmatively indicated that a written policy exists. Cities in the Chicago region were more likely (66.7%) than downstate cities (50.0%) to include brownfields in their economic development strategies.

Additional Investments and Actions Required to Attract Businesses

In order to attract private investment in brownfield projects, additional spending and other actions by the cities may be necessary. When asked if brownfield properties would require additional public funds beyond assessment and cleanup to attract private investment, 62.5 percent of statewide respondents said that such funding would be needed. A higher percentage of nongrowth cities (73.1%) than prosperous cities (50.0%) reported that additional public funds would be required, perhaps due to private businesses being less willing to invest in property located in an economically stagnant area.

Besides additional public investment, municipalities were surveyed regarding additional city actions that would be used to attract businesses to brownfield projects. Statewide, a large majority of responding mayors (91.8%) reported additional actions would be needed **(Table 1)**, with nongrowth cities (96.3%) more likely to indicate the need than prosperous cities (86.4%), again, possibly due to lower demand for property in nongrowth cities.

Leading the list of possible actions to attract businesses was infrastructure upgrades (64.4%), and municipalities with 300,000 or more square feet of brownfield property were significantly more likely (76.5%) than cities with small projects (47.1%) to perform these upgrades. Large properties often have to be divided into smaller parcels requiring modifications to infrastructure, whereas smaller properties are frequently returned to similar uses. Technical support by city employees (57.8%), property tax incentives (53.3%), low-interest loans (46.7%), and land

Table 1. Attracting Investment and Businesses

	All Respondents	
Question	*Percent*	*Number*
Will additional city actions be used to attract businesses?		
Percent responding yes	91.8	45
If yes, which actions will be taken?		
Infrastructure upgrades	64.4	29
Technical support by city employees	57.8	26
Property tax incentives	53.3	24
Low-interest loans/revolving loan funds	46.7	21
Land price write-downs	44.4	20
Zoning concessions	20.0	9
Job training initiatives	15.6	7
Free city services	8.9	4
Loan guarantees	6.7	3

Source: Brownfield Outcomes General Survey, 2002-2003; n=52.

price write-downs (44.4%) are also common actions for cities to use in business attraction.

Promotion of brownfield projects is a crucial part of successful brownfield management and can involve many different parties. When rating the involvement of various groups in the brownfield promotion effort on a five-point scale, city administrators (4.22), mayors or village presidents (4.16), and IEPA representatives (4.14) were most involved **(Table 2)**. In addition, the City Council (3.98), private consultants (3.98), and property owners (3.06) play a significant role in brownfield promotion.

In order to gain support for brownfield programs, municipalities often engage in various forms of community outreach. According to the survey, 57.1 percent of responding cities used forms of public outreach, including public forums (51.1%), community advisory committees or task forces (42.2%), and distribution of promotional materials (31.1%). Overall, nongrowth cities were more likely to utilize community outreach techniques, possibly as an effort to promote brownfield redevelopment in areas with low property demand.

Table 2. Promoting Brownfield Projects

	All Respondents	
Question	*Mean*	*Number*
How much were the following groups involved in promoting Brownfield projects?		
City administrators	4.22	49
Mayors or village presidents	4.16	51
IEPA representatives	4.14	51
City Council	3.98	51
Private consultants	3.98	49
Property owners	3.06	48
Business investors	2.83	41
Economic/community development corporations	2.57	44
Other state agency representatives	2.38	21
Federal agency representatives	2.28	46
DCCA representatives	2.23	47
Financial institutions	2.16	45
General public	2.16	38
Regional planning commissions	2.02	45
Local environmental groups	1.61	44
Public health agencies	1.59	44
Nongovernmental organizations/community groups	1.58	31
Local colleges/universities	1.49	43
Code: 1=not at all; 5=very involved		

Source: Brownfield Outcomes General Survey, 2002-2003; n=52.

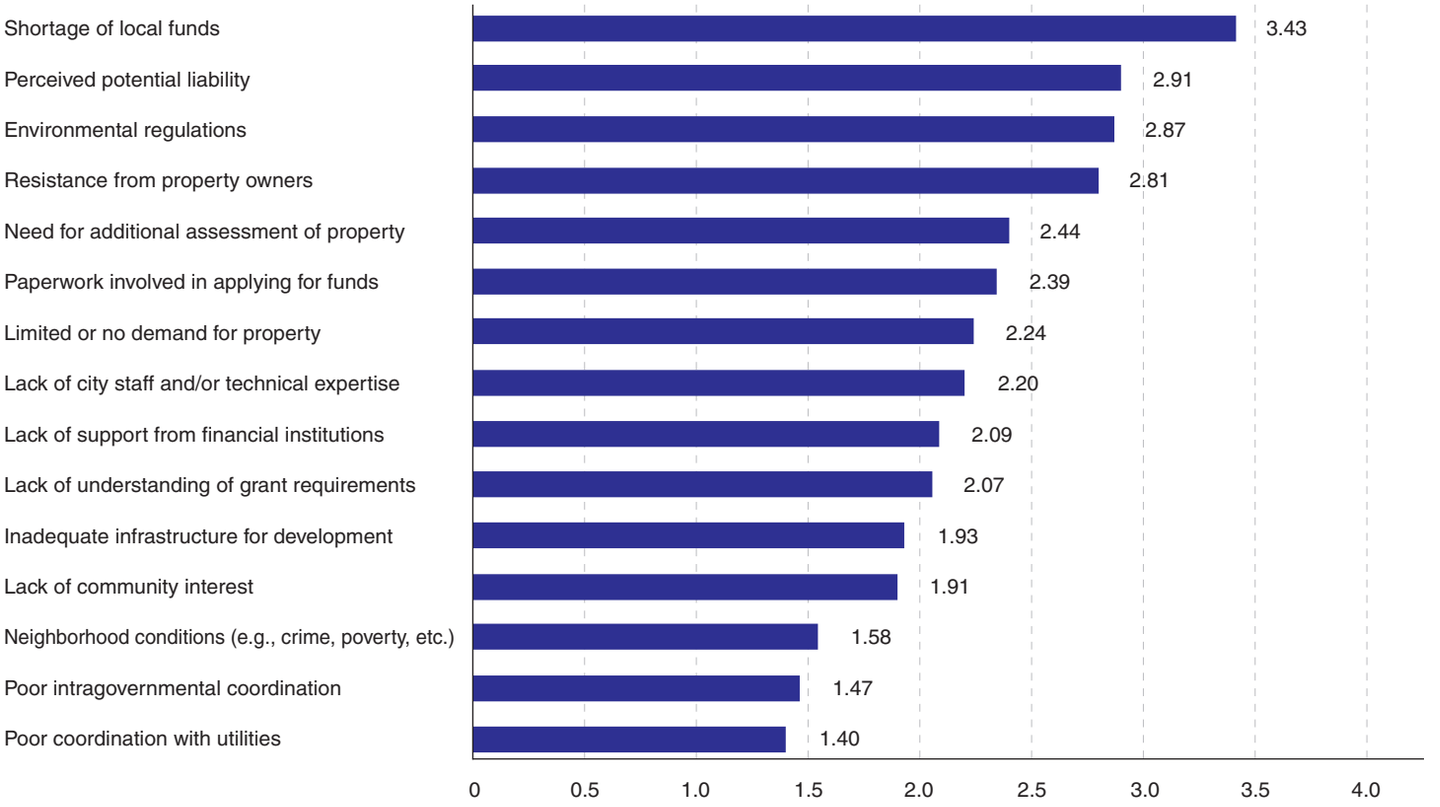
Limitations to Redevelopment

Respondents were asked to measure the extent that certain factors limited the successes of brownfield projects. On a five-point Likert scale, with 5 representing a major limitation, shortage of local funds to undertake projects ranked the highest at 3.43 **(Figure 3)**. The next greatest limitations indicated were perceived potential liability (2.91) and environmental regulations (2.87). Fortunately, however, investors are provided liability protection through the Small Business Liability Relief and Brownfields Revitalization Act that was passed on January 11, 2002. Also, the IEPA has made great strides in an effort to lessen concerns regarding potential liability, and a comparison of the 2000 and 2002 surveys conducted by IIRA confirms the success of these efforts.

Other limitations to project success included resistance from property owners, paperwork involved with grant funding, and limited or no demand for property. On the other hand, respondents did not consider poor coordination with utilities or governmental entities a significant limitation.

Figure 3. Brownfield Successes

To What Extent Have the Following Factors Limited the Successes of Brownfield Projects?



Code: 1=no limitation; 5=major limitation

Source: Brownfield Outcomes General Survey, 2002-2003; n=52.

Management Practices and Impact

The management of brownfield redevelopment sites involves some type of monitoring in a majority of the municipalities (80.4%). Downstate cities were much more likely (90.0%) to employ monitoring practices than cities located in the Chicago region (66.7%). Likewise, monitoring of sites was more common among nongrowth cities (85.7%) than prosperous cities (73.9%).

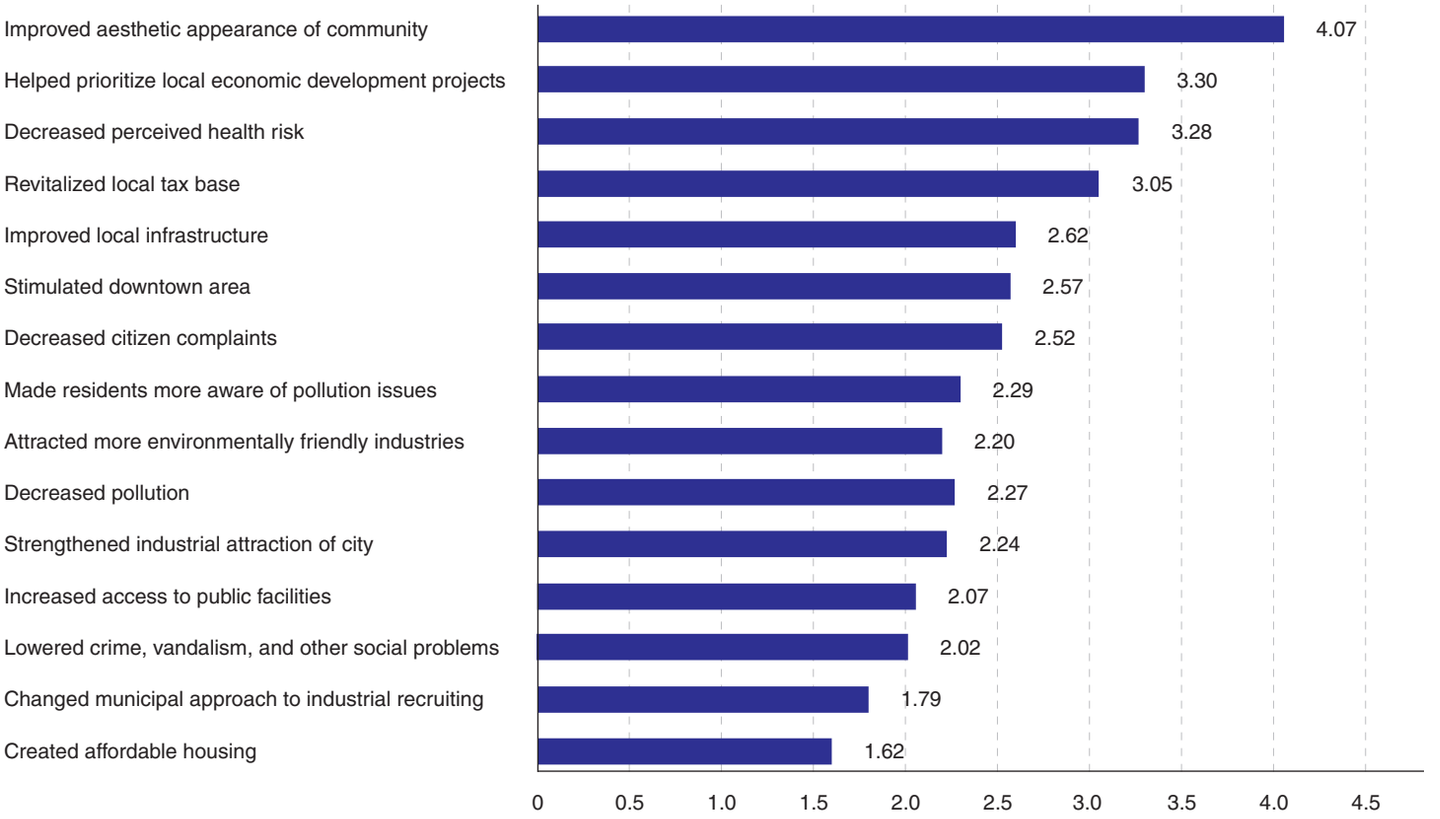
Municipalities reported using several methods to monitor brownfield sites, including inspections by city personnel (65.9%), meetings with developers (61.0%), and meetings with city representatives (60.0%). A much smaller percentage of cities (36.6%) identified the processing of complaints as part of the monitoring process. Institutional/ engineering controls such as land use restrictions, groundwater restrictions, or engineered barriers had been implemented on some or all brownfield sites in 56.0 percent of the cities.

Brownfield redevelopment can have significant impacts on a municipality. According to both the current survey and the 2000 survey conducted on brownfields in Illinois, nonmonetary impacts are often perceived to be as important, or even more important, to municipalities than the monetary or economic benefits (Walzer, Duncan, and Sutton 2001). According to the 2002 survey, improved aesthetic appearance of the community was rated as having the most effect (4.07 out of 5.0) **(Figure 4)**, which reinforces the 2000 survey results. By removing an eyesore in the community, not only is the appearance of the area improved, but a resulting increase in surrounding property values can also be a positive outcome.

Also listed as a major effect on the communities was that redevelopment efforts helped to prioritize local economic development projects (3.30). Priority status is often given for remediation and redevelopment of brownfields because

Figure 4. Impact on City

How Did the Brownfield Redevelopment Efforts Impact Your Municipality?



Code: 1=no effect; 5=major effect

Source: Brownfield Outcomes General Survey, 2002-2003.

of factors such as the availability of government funding, health and safety risks posed by the property, and the issue of aesthetics; however, property restrictions, unforeseen costs, and fears of potential liability may discourage the consideration of a brownfield site for redevelopment.

Reducing the perceived health risk (3.28) and revitalizing the local tax base (3.05) were also cited as important effects resulting from brownfield redevelopment. Brownfield projects were reported to have had little effect on lowering crime, vandalism, and other social problems (2.02); changing the municipal approach to industrial recruiting (1.79); or creating affordable housing (1.62).

When asked what additional assistance or information would allow local officials to more effectively address brownfield issues and concerns, mayors statewide reported that further information regarding financing alternatives was desirable (69.4%), as well as printed information concerning available programs (35.4%) and seminars and workshops on EPA programs (35.4%).

Brownfield Project Case Studies

In order to obtain a more detailed examination into the management practices, strategies, and resulting outcomes in brownfield remediation and redevelopment projects, case studies involving brownfield projects with distinctive characteristics were conducted in five cities. The case study process included interviews with city officials and business investors, analysis of survey information, and in-depth research into the history and redevelopment of the brownfield properties (Walzer et al. 2004).

Monticello, Illinois. Monticello (pop. 5,138), located in south-central Illinois, has been involved in an effort to remediate and market a former drug manufacturing site. The involvement and collaborative efforts of city administrators and stakeholders have been the key to the successful redevelopment measures of the Pepsin Hill site in Monticello. Although project financing has been an issue due to the unavailability of local government funding, assistance in the form of an IEPA Brownfields Redevelopment Grant has enabled the project to move forward.

Sterling, Illinois. The closing of a massive steel and wire manufacturing facility in Sterling (pop. 15,451) led to the remediation and redevelopment of the property by the city. The Northwestern Steel and Wire Company, a major employer in the region, closed in May 2001. This not only caused an economic setback, it also left the city of Sterling with 750 acres of brownfield property. Due to an aggressive and visionary approach by Sterling city officials, this brownfield project has progressed at an impressive rate. In addition, the continued effort to keep the public informed of the redevelopment process and outcomes has had a positive impact on the project. Funding from the IEPA, U.S. EPA, as well as from private foundations, has been crucial to the success of the initiative.

Alton, Illinois. Two significant brownfield properties—a former glass container factory renovated for commercial use and a former steel mill that has been redeveloped for manufacturing specialized steel products—are located near St. Louis in Alton (pop. 30,496). As is often true with other cities, the City of Alton was not capable of financially supporting the Owens-Illinois Glass project; however, the city was able to persevere by developing funding avenues through a TIF district, an Enterprise Zone, and government grants. The level of commitment by city officials has been an integral component to the success of the Owens-Illinois Glass project. While still in the early stages of redevelopment, the Laclede Steel project has also seen positive results due to an alliance formed between private investors and the local steelworkers union.

Calumet City, Illinois. Calumet City (pop. 39,071), located in the Chicago area, purchased several brownfield properties in the downtown area in an effort to revitalize a blighted neighborhood. In retrospect, city officials indicated that certain hindrances related to environmental contamination could have been minimized if the city had acquired more information on the past history of the properties and more in-depth testing had been performed; however, Calumet City has successfully overcome various impediments because of the city officials' level of commitment and their diligence in working with business investors, private consultants, and others. In addition, the IEPA and the U.S. EPA provided not only essential funding for the brownfield projects but also technical assistance that contributed to the projects' success.

Chicago, Illinois. The City of Chicago has developed an effective approach to brownfield remediation and redevelopment that involves a multifaceted organizational structure designed to manage all aspects of the brownfield remediation and redevelopment process. In order to provide a closer examination of the management of and processes involved in brownfield redevelopment projects in Chicago, five brownfield properties of varying types, sizes, and locations were studied, and interviews with city administrators from Chicago's Department of Planning and Development and the Department of Environment were conducted.

Through the formation of the Chicago Brownfields Initiative in 1993, Mayor Richard M. Daley brought together professionals in the areas of law, planning, environmental management, and finance to form an interdepartmental team which includes the Office of the Mayor, Office of Budget and Management (OBM), Department of Environment (DOE), Department of Planning and Development (DPD), and the Department of Law (DOL) to assist in the management of brownfield redevelopment projects. In 1994, the Brownfield Forum was formed out of the initiative to further examine various hindrances to successful brownfield redevelopment as well as economic development strategies in relation to brownfield redevelopment. Ultimately, a final report published by the Brownfield Forum contained many proposals that resulted in policy implementation by the city. The City of Chicago has been designated a Brownfields Showcase Community because of the success of its innovative forum-based planning program. Other cities have also adopted Chicago's approach.

Lessons Learned from the Case Studies

While the case studies were distinctive when compared by such factors as size of city, type and size of brownfield property, and former and intended use, certain commonalities in regards to keys to success can be identified.

Local Champion. In each project examined, a certain individual was recognized as the primary overseer of the brownfield redevelopment process. Local government officials often took the lead, providing fundamental

guidance and expertise. In Monticello, the Economic Development Director has played a crucial role in the city's brownfield redevelopment process, including acting as project coordinator, contact person, and liaison between public and private entities.

Clear Plan of Attack. The development of a detailed and organized plan of action had a positive impact on the process and outcomes of brownfield projects. Resulting benefits of an effective planning strategy can be noted during each phase of the remediation and redevelopment process. When faced with a brownfield site of significant size and complexity, Sterling city officials worked swiftly to develop an action plan and move forward with the remediation process. Because of a well-thought-out marketing approach, the City of Sterling has succeeded in attracting enterprises to the remediated brownfield property.

Public-Private Partnerships. Collaboration between private agencies and the city can help to make the redevelopment process move ahead more smoothly and efficiently. Although the City of Alton was not fiscally able to finance the remediation and redevelopment of the Owens-Illinois Glass brownfield property, city officials used alternative funding sources such as a TIF district, an Enterprise Zone, and various government grants in order to assist the private investors in moving the project forward.

Brownfields as Part of Overall Development Process. Cities that have integrated the redevelopment of brownfields into their overall development strategy revealed a more streamlined and effective method of dealing with brownfield properties because of factors such as economies of scale and targeted marketing. By instituting a sophisticated management and planning structure for brownfield projects that is a component of the City of Chicago's overall economic development plan, the city has recognized brownfield remediation and redevelopment as an important tool for economic growth.

Access to Specialized Expertise. The ability to obtain the necessary technical expertise in the area of brownfield remediation and redevelopment is crucial to overcoming obstacles incurred during the process. Smaller cities often lack the capacity to obtain legal and environmental assistance, which can ultimately impede progress. Even so, through governmental agencies such as the IEPA's Office of Brownfields Assistance, cities involved in the brownfield redevelopment process can obtain needed assistance. Through the technical assistance and funding provided by the IEPA's Office of Brownfields Assistance and the U.S. EPA, Calumet City was able to overcome several potential hindrances to its redevelopment project.

Persistence. Brownfield remediation and redevelopment projects often take several years to reach completion. In such instances, it is imperative that the local government institutes favorable policies and long-term plans for continuation of the brownfield projects that will be sustainable through changes in administration and economic conditions.

Conclusions

While the benefits of brownfield remediation and redevelopment in municipalities have gained greater consideration in recent years, limitations to the remediation and redevelopment of brownfields still exist. According to the survey findings, demand for industrial and commercial property is limited due to unfavorable economic conditions and a shift away from a manufacturing-based economy; however, results do show that brownfield redevelopment projects can represent significant monetary and nonmonetary benefits to municipalities. A majority of municipalities reported that brownfield redevelopment has been integrated into the local economic development strategies, but obstacles such as inadequate funding, perceived potential liability, and environmental regulations continue to exist. Additional resources such as information on financing alternatives and program information were desired by most cities, and agencies such as the IEPA's Office of Brownfields Assistance and the Department of Commerce and Economic Opportunity provide the necessary education and technical assistance to municipalities involved in brownfield remediation and redevelopment.

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