Closing the Brownfield Information Gap: Practical Methods for Identifying Brownfields

Practice Guide #3

Fall 2002

Southeast Regional Environmental Finance Center

EPA Region 4

University of Louisville

Sarah L. Coffin
<coffins@slu.edu>
Peter B. Meyer

Center for Environmental Policy & Management

University of Louisville
Department of Sociology
Louisville, KY 40292

502-852-4749

lauren.heberle@louisville.edu
http://louisville.edu/cepm

6/9/2016

TABLE OF CONTENTS

Closing the Brownfield Information Gap 1

The Issues Involved 2

Setting up a Brownfields Information System 4

Selecting the Appropriate Data Sources 4

Getting Started 5

Table 1 – Sources and Uses of Data 5

An Application 7

Benefits from a Brownfield Information System 8

Table 2 – Purposes and benefits of a brownfield information system 10

Case Example: Louisville, KY 11

Some Concluding Thoughts 11

References 13

Closing the Brownfield Information Gap

How many brownfields are there? How big is the problem in terms of acreage? What sorts of health effects arise from contamination? Is pollution spreading to other properties? How many tax dollars are lost to abandoned and underutilized sites? What economic gains (jobs, taxes, and new businesses) could be attained through redevelopment? These questions – and many others – continue to be asked and their answers remain as vague now as when the brownfield issue first came onto the urban policy scene in the early 1990s.

The US Conference of Mayors posed the brownfield quantity question to US cities and reported the findings, initially in a 1996 report titled "Impact of Brownfields on US Cities: A 39-City Survey" (1996), updating those findings with a more comprehensive survey and report in 2000 titled "Recycling America's Land: A National Report on Brownfields Redevelopment, Volume III" (2000).

The Mayors' survey asked respondents from the cities to estimate both the total number of sites and number of acres that the city defined as brownfields, as well as their expected gains in tax revenues and jobs from redevelopment. These estimates ranged considerably with some cities apparently under-reporting and others perhaps over-reporting the extent of the brownfield problem. In one instance, two northeastern cities of about the same size reported the same number and acreage of brownfields, but one expected twice the tax revenues and ten times the jobs from redevelopment as the other. Since the two old industrial cities had generally comparable economies, at least one of the responses had to have been totally uninformed or misinformed.

Missing or inadequate information produces inefficient and ineffective public policy in any context. In the case of brownfields, with all their complex dimensions and often critical reliance on some public sector support, poor data can translate into a waste of severely limited resources. The national economic downturn has underscored this problem, with budget shortfalls and under-funded remediation programs in state after state.

Moreover, identifying the extent of a community's brownfield problem has recently taken on increased importance at the federal level with the 2001 Small Business Liability Relief and Brownfields Revitalization Act. Section 128 of the Act calls for development of a "timely survey and inventory of brownfield sites in the State" in order for states without existing brownfield program Memoranda of Agreement with the US EPA to be eligible for the considerable federal funding made available under the Act. The key elements of the inventory provisions in the Act are as follows:

- Local applicants for pilot projects and other federal monies under the Act ***may include*** development of an inventory as one of several possible uses of funds.
- A brownfield inventory is one of the ***required elements*** of a state brownfield response program for those states not in possession of a memorandum of agreement with US EPA for a voluntary response program.

This federal language could end up requiring little more than a count of sites and some minimal mapping of their locations, but could just as readily end up demanding far more data. As we have just noted, the collection of the additional information, albeit potentially a new public sector expenditure burden, may have the effect of enhancing brownfield program productivity and impact.

Since there are a number of different incentives for communities to begin collecting brownfield information, it becomes increasingly important for the potential developers of such inventories to understand the many ways in which the data can be collected, analyzed, and developed into a standardized brownfield information system. Such a system can provide powerful tracking information that will not only satisfy any possible state or federal requirements but also provide a useful redevelopment tool and means of focusing and tracking investments for communities looking to implement or expand local brownfield redevelopment programs.

This practice guide is designed to help communities navigate the complex network of available information that can be used to develop a comprehensive brownfield inventory that they can afford and maintain.

The Issues Involved

Federal, state, and local governments have repeatedly attempted to develop databases describing in detail the scope and breadth of the brownfield problem in the United States. These efforts were driven by a variety of objectives, including:

- a desire to get an accurate count of the extent of the problem, both for making arguments for budgets and resources and in order to get a sense of what needed to be done;
- a concern for identifying the types of contaminants and resultant health risks present in an area, in part to prioritize temporary or more permanent public cleanups or containment efforts;
- the need to provide preliminary information to potential site redevelopers, to lower their costs for collecting data on possible brownfield investments;
- a concern for tracking and maintaining some control over contaminated sites with only partial cleanups under 'risk based corrective action' (RBCA) responses, and their accompanying engineering controls or caps placed over remaining pollution and land use or institutional controls designed to assure that the caps provide the intended protections.

Much of the past difficulty in collecting this information was generated by liability fears, as property owners preferred to keep quiet about the potential extent of contamination. The government agencies were forced to rely on regulatory tools, so environmental contamination was typically only identified either when significant harm had already occurred or, in a more complex regulatory situation, recorded when any violator of even the least significant regulatory requirements got caught up in state or federal environmental investigations. (Many states, for example, maintain lists of sites with *any* spill–however small–of a regulated substance, while US EPA's original CERCLIS database, recording all reported problem sites prior to checking for actual conditions, erroneously contained sites that turned out to have little or no serious environmental problem.) There also appears to have been little public agency discussion of the question of delisting in response to remediation effort, leading to concerns about permanent labeling of problem sites.

Many property owners were concerned that revealed past contamination, even if remediated, would reduce their property values, or make property sales more difficult. Perceptions of contamination also affected the market for many properties. Stigma based on perceptions of contamination created levels of uncertainty that led the financial community to avoid entire neighborhoods based on the suspicion of contamination. This avoidance was based on ***lack*** of information, so communities had nothing to

lose in generating data about brownfields. If the data confirmed contamination, there were no surprises, no additional loss. If the new information repudiated the stigma, they witnessed considerable gain, as properties were made more attractive to developers. Individual property owners, however, saw the situation differently, since their properties might lose value relative to others in the local market if they exhibited environmental problems or any possibility of contamination.

As a result, initial attempts to uniformly identify potential brownfields encountered strong resistance when mention was made of developing a brownfields inventory. The following reasons could be characterized as the central barriers to developing a standardized brownfield information system:

1. Fears about the potentially negative impacts on property values;
2. Fears about using the wrong data to characterize a site as a brownfield;
3. Concerns about limited institutional capacity for developing such an inventory;
4. The inability of communities to coherently identify the purpose behind such lists.

Primary to these fears was the first barrier, the potentially negative impact that such identification could have on property values. Many in the development community cited real estate appraisal examples where perceived contamination pulled property values down below zero in market assessment. Upon closer examination of these appraisal practices, though, a conservative bias was revealed that resulted in an exaggerated effect of perceived contamination on property values. It was demonstrated that appraisers were, in effect, considerably undervaluing real estate assets by double counting uncertainty risks associated with perceived contamination (Meyer 2000). Thus, if a community developed sound data on brownfield locations, they could actually reduce some of the stigma fears. That is to say that lack of information was perhaps what was driving this first barrier and that by obtaining information on potential brownfield locations, a community might be able to counter the exaggerated stigma effects proffered by the appraisal community.

The second barrier came about in response to the debate over what constitutes a brownfield. Efforts to identify sites at the local level tended to use the US EPA definition from the mid-1990s, that brownfields were "abandoned, idled or underutilized industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived contamination" (US EPA 1997). Translating this language into actual characteristics that a local government can use to identify brownfields was not a simple proposition. Given that communities were unclear about how to identify a brownfield, they relied on data that may not have accurately reflected actual knowledge about sites' true environmental condition.

Some turned to the Toxic Release Inventory for information on the locations of potential contamination. While the industries reported in this inventory reflected locations for ***potential*** contamination, there was no way to identify whether releases actually made it beyond site containments in quantities sufficient to cause a problem, or if this potential alone and other factors might be leading to site abandonment or underutilization. Thus, communities who relied exclusively on this information were often incorrectly characterizing businesses that were active, thriving manufacturing firms who faced no problems related to brownfields. Reliance on tax delinquency or abandonment data alone, on the other hand, though used by some locations to pinpoint potential brownfield problem areas, resulted in missing underutilizations but also, and even more importantly, seemed to assume that any tax delinquency or abandonment was due to contamination issues when many other factors could lead a property owner to decide to abandon a site.

The third barrier, capacity to develop a brownfields inventory or information system, was (and in some cases still is) a very real hurdle that many communities faced in trying to address their brownfield problems; geographic information system (GIS) technology remains to this day out of reach for many communities. The computer hardware, software, and skill requirements needed to develop and maintain any sort of data on brownfields are often still beyond the capacity and capabilities of small jurisdictions with limited budgets and staffs. While GIS technology is becoming increasingly accessible and computing tools less costly to acquire, and more communities are overcoming this barrier, the sheer cost of translating not just plat maps but property land-use histories and other relevant information into a GIS may still stymie smaller local government units. Expansion of the capacity to develop an information system, therefore, may require some new forms of intergovernmental cooperation or collaboration. Such efforts, however, have benefits to economic development planning that extend well beyond addressing brownfields and could well serve the interests of the cooperating local governments.

The fourth barrier, lack of coherent purpose behind generating a brownfields inventory, resulted from a combination of the first three barriers: fears of negative impacts, posting incorrect information, and limited institutional capacity. Communities had difficulty agreeing upon the types of data that needed to be included in an inventory, often resulting in the identified purpose behind developing an inventory becoming unclear. Thus, there were questions about the types of information that should be placed in the inventory, what remained in the inventory for tracking purposes once remediation and redevelopment occurred, and for what sorts of uses such an inventory should be developed. The more expansive databases could permit determination of off-site (that is, neighborhood) impacts on property values and new job creations resulting from brownfield redevelopments, not just record the data for the sites on which the efforts were focused. These potentially more valuable information systems, however, would cost more to develop. The fact that consideration of off-site effects may produce better planning for site-specific interventions may not always be sufficient to generate the needed public investment in collecting and recording the data needed to permit the information system to best serve the community.

Setting up a Brownfields Information System

While misinformation and access to accurate brownfield data continue to stand as barriers to brownfield redevelopment, some creative combinations of existing information can help a community develop a more accurate estimate of its brownfield problem, potentially yielding a comprehensive brownfields inventory. The key is to be innovative in linking together currently available information, thus circumventing the need for physically examining individual suspected brownfield locations.

Selecting the Appropriate Data Sources

State and federal environmental agencies offer the most direct information about the confirmed locations of soil and groundwater contamination; if that was all that was needed to develop a brownfield inventory, then access to brownfield information would not be a problem, since this data is readily available via many sources. Confirmed contamination, however, only yields a partial brownfield picture. As was indicated previously in the US Conference of Mayors' Brownfield Report (2000), the potential–and still unknown–numbers of brownfields far outnumber what has been confirmed by state and federal environmental agencies, but that does not mean that communities are at a loss for developing an inventory of potential brownfields. Brownfield information resources extend

well beyond the information collected at state and federal environmental agencies. Other resources such as local property, industry, and business directory lists provide many clues on potential brownfield locations and–if creatively compiled–can provide a community with an extensive tracking system for potential brownfield locations.

Brownfield data resources can be separated into three types: federal, state and local sources of information. Federal and state sources are generated as a result of reporting requirements within environmental health and safety regulations. These lists are typically kept by the federal or state agency that enforces the environmental regulation. Local sources are often where the more valuable information is found as they provide information that is often left uncovered by federal and state environmental regulators, often for contamination or types of contaminants that are not sufficiently problematic to attract the attention of the higher levels of government. Data are typically collected by a variety of local government agencies such as economic development and property taxation departments. Other, less traditional sources of brownfield information can be found in local chambers of commerce or through the combination of US Census reporting data on commercial and industrial activity in a community.

Local government agencies can provide clues to the locations of potential brownfields. These sources, individually, may not reveal potential contamination, yet if creatively linked with existing environmental and/or land use information, can provide evidence of a brownfield. For example, county property tax administrators collect information about individual parcels, like current land use and identified zoning (where zoning exists) that could point to the potential for contamination. Further, these same property tax records also identify properties where delinquent taxes remain unpaid. Combining elements of the same dataset allows identification of those properties located in an industrial area that have had an industrially classified land use and now are tax delinquent, indicating a potentially abandoned property, which could be a brownfield.

Getting Started

With some minimal spreadsheet, database, and internet skills, a community should be able to develop the type of brownfield database that will assist it in identifying potential brownfield redevelopment opportunities, both in terms of health risks avoided and economic returns to residents and taxpayers. The following table is a listing of the World Wide Web addresses for some of the available data that can assist a community in getting started on the development of a brownfield inventory and database.

Table 1 – Sources and Uses of Data

Organization/Agency Location of data/Web Site Address	**Description of Resource and How to Use the Data**
US EPA – *www.epa.gov/superfund/sites/cursites/index.htm*	This website provides access to the USEPA's CERCLIS database. The data is accessible by state, county, and city and now contains only sites with enough problems to attract possible USEPA action. This source identifies specific sites and provides detailed information about current US EPA investigations.
RTKNET – *www.RTK.NET/rtkdata.html*	This website is a portal to a number of different databases collected by the Community Right-to-Know Network. This watchdog organization provides communities access to ***all*** federally collected environmental information. This source offers downloadable databases that identify sites by address. Data can be incorporated directly into any database program maintained at the local level.

Organization/Agency Location of data/Web Site Address	**Description of Resource and How to Use the Data**
NAICS – *www.census.gov/epcd/www.naicstab.htm*	This website offers information on the detailed classifications of manufacturing, commercial, and retail processes, many of which can be readily classified as either clean or at least potentially polluting. This source permits identification of potentially polluting activities that, when combined with data on the locations of individual firms engaged in those activities, can permit identification of potential brownfields.
D & B Small Business Solutions – *sbs.dnb.com/default.asp*	This website offers marketing information about the locations of specific firms by industry. Information from this website can be combined with other data sources such as tax delinquency records to identify potential brownfields. This source provides firm-specific address information that is organized by NAICS, allowing one to identify the locations of potentially polluting activities. This source serves as an example of the marketing information that is available on the World Wide Web. An Internet search using the term "industrial site location" or "industrial real estate" can reveal other data sources.
Local Property Tax Assessment office – Property valuation books, often mapped, and with identified land use data	Information regarding tax valuations, the basis for assessments, and recent property transactions. Some may also provide data on taxes collected and identified land uses on parcels. Any environmental easements appear here. If a parcel is identified as tax-delinquent and can also be identified as being a potentially polluting firm via NAICS or other identifying source, then the parcel could be a potential brownfield.
Building Permit/Code Enforcement Office and other municipal level offices	Permit data often contains intended uses; code enforcement data will include specialized vents, plumbing, and other installations; dates help identify recent activity. These data add to knowledge about on-site activities that may be contributing to contamination potential on site
Local Planning Office, if present Property zoning data	Local planning offices generate property specific information about building and redevelopment activity. Additionally, they create the zoning classifications and land use controls such as digging requirements, building setbacks, limits on land use activities, and limits on density of development to which identified land uses should comply. Zoning boundaries identify locations for different land using activities. When combined with property tax data, one could identify all properties within an industrial zone, then compare them with property tax and land use data to identify potential brownfields. Building permit data provides address-specific information about proposed land uses and can signal redevelopment activity should the property also be identified as having existing brownfield potential.
Library or local collection of historical property/community documents such as local business directories, Sanborn Fire Insurance Maps	Most libraries house collections of historical business directories and Sanborn fire insurance maps that offer information on past land using activities. Past land use information is a means for identifying properties with brownfield potential. These sources are especially useful when combined with property tax delinquency information as they can give more definitive brownfield evidence on properties that are currently vacant of building structures.
Local Chamber of Commerce Association membership lists	Local chambers of commerce typically collect information on industrial and commercial activity and serve as economic development consultants for cities looking to attract new businesses to the area. Data collected from local chambers of commerce also organize information by firm and can provide information on development activity within a community.
State or local economic development agency	These agencies can provide employment and revenue data that will allow a community to measure outcomes and assess off-site impacts of brownfield redevelopment.
Local environmental or public health agency – if only to file required state/federal reports	This agency with have recorded data on local environmental and public health concerns, in addition to records on emergencies associated with fires, floods, etc. They may also help the local governments prioritize attention on sites with recurrent problems.

Organization/Agency Location of data/Web Site Address	Description of Resource and How to Use the Data
Private environmental consulting firms	Private consulting firms can provide comprehensive digital environmental data commonly used for Phase I environmental site assessments. They can provide data generated from digitized Sanborn fire insurance maps and an array of topographical and land use data from local sources. Some additional resources might include building and zoning permit data, state environmental spill and hazardous response data. The degree of sophistication in the sorts of information they can provide varies in relationship to the comprehensiveness of the state and local data available. The point to keep in mind is that these firms, while potentially costly, can provide a quicker and easier way to incorporate the more difficult to discover information on potential brownfields. Local agencies might consider pooling resources to obtain a subscription to such a service. One such company is Environmental Data Resources at *www.edrnet.com*. Others can be found through an Internet search using "brownfield information" as a primary search term.

To get started, a community will need to assemble the data into some sort of readable format that is based on individual parcels. The structure can be as simple as a searchable spreadsheet or as complex as a user-driven database. Regardless of the format, the development of a brownfield inventory is within reach for most communities. However, to be able to put that information to use, a brownfield information system needs to be developed that will allow communities to be able to combine their brownfield data with other information in their community relating to community and economic development issues. These types of connections are what federal funding agencies seek to promote in providing grant money for brownfield, economic and community development projects. Such a system will allow a community to track current brownfield projects while allowing them to address the growing reporting requirements they have from the various funding agencies.

As an example, HUD's reporting requirements for the Empowerment Zone/Enterprise Community Program ask program participants to demonstrate how residents within these community-designated zones are benefiting from the program. Measurements typically involve numbers of jobs created from a project. Such measures can be a part of the brownfield information system as one in a series of input fields in a parcel record. Further, the US EPA's brownfield pilot program has reporting requirements that ask communities to keep track of jobs created and dollars spent for both the remediation and redevelopment activities on a site.

An Application

Data sources exist that identify individual firms by industry activity that can be used to isolate locations of potentially polluting manufacturing and commercial activities and creating usable brownfield data requires a creative combination of them. For example, one can first identify potentially polluting activities through the National Association of Industry Classification System (also called NAICS and formerly known as the Standard Industrial Classification). The NAICS breaks down industry sectors into specific categories that are reduced to the most detailed description of manufacturing process, e.g. the manufacturing sector is listed as 31-33 and within that sector, wood products manufacturing is identified as having an NAICS code of 321. Further, within the wood products manufacturing group, manufacturing processes like wood preservation (32114) can be identified, reflecting a potentially contaminating manufacturing process.

Once the NAICS has been identified, numerous electronic business directories exist, like the Thomas Regional Industrial Buying Guide, and the American Manufacturers Directory, that can be searched by NAICS code, providing the location of such manufacturing activity, even if the local Chamber of Commerce does not have members classified by the NAICS categories at the high level of detail that may be needed to identify potential contaminating activity. Thus, one can initially identify firms with manufacturing processes typically associated with brownfields. Finally, after these firms have been identified, they can be matched with tax delinquent properties listed within a local property tax assessor database to indicate a potentially abandoned or underutilized property–a potential brownfield according to the US EPA.

As another example, an historical brownfields profile can be developed that identifies potential brownfields based on previous manufacturing processes or commercial activity, noting that certain historical commercial land uses, notably sites occupied by dry cleaners and gas stations, are also strongly correlated with contamination. Researchers at Georgia Tech have developed a prototype for such a profile based on previously developed probability estimation for contamination[1]. As their resource, they researched historical city business directories dating back to 1910, manually inputting the addresses for businesses where, according to the probability for estimation, the business activity reflected a potential for contamination of 50% or greater (Leigh and Coffin 2000). This profile can then be incorporated with the tax delinquent property information mentioned previously to reveal potential brownfields.

Benefits from a Brownfield Information System

A brownfield information system can give communities the power to track all of the projects within their community and assess the impacts on other community development programs like Enterprise Community or Empowerment Zone Program. Additionally, states will be able to get aggregate data from the local governments in which projects proceed (or collect the data themselves from applicants to their voluntary cleanup programs) and will thus have a tool to reduce the costs and effort needed to comply with any new federal requirements for record keeping. And finally, US EPA itself will be able to draw on a standardized data-recording instrument to determine the jobs, new tax dollars and redeveloped acres generated by the brownfield projects it has stimulated with the new funds appropriated by Congress. (While this last point may not seem important to local officials, it may be that better data in the hands of US EPA translates into stronger federal financial support for local cleanup and redevelopment efforts.)

As states and local communities move toward developing brownfield inventories and project tracking systems, they need to keep the following in mind when developing a database:

- Front-end investment in developing an inventory and computerized reporting system, complete with implementation and maintenance training is crucial to sustaining an inventory that will meet future reporting requirements.

[1] The contamination probability estimates were developed by risk analysts Noonan and Vidich (1992). They evaluated 17 environmental engineering firms' experiences with cleaning up contaminated properties in the Northeastern United States during the period 1985-1989. The survey was designed to examine the connection between levels of contamination and prior land uses. With the results of this survey, the researchers established estimates for prior contamination probability based on previous land uses (commercial, industrial, residential, etc.). While their efforts are not exact measurements, (there is the potential for survey bias), their probability estimates have been widely cited since no other comparable data has been produced (Amekudzi, et. al., 1998).

- The precise protocols for updating the data on site and project characteristics that are NOT retained or collected by the agency maintaining the information system need to be in place from the outset, including cooperation agreements from the organizations from which updated data will need to be obtained.
- It will be much easier to meet federal reporting requirements for grant recipients (e.g. US EPA, HUD, EDA) with a computerized brownfield inventory/ project tracking system, and, in general, the more complete the database, especially for off-site conditions that projects may affect, the easier it is likely to be to comply with changes in reporting requirements.
- A comprehensive brownfield tracking system can provide detailed data on the returns to private investment in brownfields in states and different types of local markets to development officials. Thus the system can directly influence the uses of incentives funds and can be used to increase the cost-effectiveness of on-going brownfield redevelopment operations.

The table on the following page identifies a few specific purposes and benefits that communities may realize with a brownfield information system.

Table 2 – Purposes and benefits of a brownfield information system

Purpose	Benefit
Public information dissemination and disclosure	Reduced costs of neighborhood opposition to RBCA and lower stigma costs for residual contaminants left in place if residents can be more confident they know and have access to monitoring data about any remaining pollutants.
Long term stewardship activities	The recorded engineering controls (ECs) and land use or institutional controls (ICs) put in place as part of risk-based corrective actions (RBCAs) can help to target stewardship efforts; data on EC failures or IC breaches can permit actions to avoid damage to human health and the environment, thus saving litigation and liability claim costs and also reassure neighborhood residents; recorded failures and related issues, even if not litigated, can provide the basis for statistical estimates of liability risks associated with different contaminants and RCBAs, potentially lowering the cost of environmental liability insurance but, in any case, reducing the uncertainty facing potential investors assessing brownfield redevelopment projects.
Experience-rating environmental response risks	Private insurers may provide this activity, but they have data limited to the projects they insure, and some sharing of the data in public records may improve underwriting and reduce costs of coverage. Data that could be used for this purpose include information on any changes that had to be made in remediation plans approved by state regulators–and data on the original and amended response costs and time required. These data not only will facilitate experience-rating by insurers and lower the costs of cost cap insurance, but it will also reduce uncertainty for those redevelopers who are considering brownfield investment prospects.
Demonstrations of the public and community economic returns to redevelopment of brownfields	If the inventory data include standardized protocols for reporting on new construction expenditures, job creation and assessed valuations of remediated sites, the quality of the data on the returns on public investment in brownfields can be substantially improved at the same time that new, more statistically reliable data can be provided to prospective investors on their potential returns on investment. If neighborhood property value changes are also tracked, that will expand the quality of the data on public investment, and may be essential to help attract private capital to groups of scattered brownfields that may be holding down property values in whole sections of urban areas, but that could all generate high returns if remediated simultaneously.
Providing hard data on the actual risks associated with brownfield lending	Project success and abandonment rates, loan defaults, and similar data on regulated and publicly supported brownfield projects could be derived and these could be examined relative to non-brownfield real estate lending to provide hard data to lenders – and bank examiners – on the risks of brownfield loans. These databases thus could further environmental justice objectives, contribute to the goals of the Community Reinvestment Act, and, in general, make debt capital more readily available for brownfield projects by facilitating statistical risk quantification.

Regardless of the purpose behind a community's efforts to develop a brownfield inventory and tracking database, the benefits will extend far beyond just improving the community's ability to apply for external brownfield project funding. A brownfield information system, if developed properly, will offer a community a solid base on which to ground economic and community development planning. Additionally, communities can realize considerable cost savings and efficiency gains in other areas of government, such as public works planning and infrastructure development with a system that allows a community to manage brownfield properties and projects with solid information on past land use history and current environmental and institutional controls.

Case Example: Louisville, Kentucky

In Louisville, Kentucky, the city initially developed a brownfield inventory of sites with redevelopment potential in their enterprise community zone, capitalizing on both US EPA and HUD resources. They incorporated information from the USEPA, also listing properties found within their enterprise community where state environmental investigations had occurred, incorporating that information into their existing geographic information system (GIS) (US EPA 1997). Their GIS, called the Louisville/Jefferson County Information Consortium (LOJIC), is an extensive area-wide system that combined information from multiple agencies representing public works, property valuation, fire, police, planning, development, health, and code enforcement, to name a few. Thus, incorporating the brownfield inventory into their existing GIS allowed the City of Louisville to augment the brownfield information with important infrastructure features and socio-economic data, creating an extensive brownfield redevelopment resource.

In addition, they developed a tool they called the brownfield tracking database, which allowed them to manage their brownfield projects. The base information was generated from the LOJIC data system for Jefferson County, incorporating all properties in their county of jurisdiction. Then, a brownfield information system was developed that allowed them to identify specific properties and incorporate project-specific information about the remediation and redevelopment process. The database allows them to track projects by project number or parcel ID. Additionally, they can generate reports that allow them to track information regarding the parcel information; assessment, remediation, and redevelopment status; and outcome effects like jobs created versus project costs, something they have found increasingly beneficial as they further develop their city/county brownfields program (Biemer 2002).

Some Concluding Thoughts

While under the 2001 Small Business Liability Relief and Brownfields Revitalization Act some states may ***have to*** create some form of brownfield inventory, many local recipients of US EPA funding have the option of doing the same. Many state and local agencies dealing with brownfields already have their own *ad hoc* or highly specialized tracking systems and inventories in place, including those of the state agencies that have signed memoranda of agreements with the US EPA. The very diversity of information systems and inconsistency of tracking and data collection protocols may, by themselves, pose problems for brownfield redevelopment. Certainly a real estate developer operating in different local markets would be better off if all the locations in which it assesses investment opportunities could offer comparable data.

However, even when each municipality or other local entity develops its own system, those with the more complete data may have an edge of those that do not when it comes to attracting non-local investment. The databases that make up a brownfields information system can actually reduce the costs that prospective investors face in examining a locality's available brownfield sites–and that alone, can make one municipality a better place to do business than another. In other words, a strong brownfield

information system may not only reduce the reporting burden for a locality and enhance its ability to design an efficient and effective brownfield regeneration program, but it may also make it easier to attract private investment to clean up and redevelop those sites the locality targets.

References

Amekudzi, A., P. Fischbeck, J. Garrett, Jr., H. Kautsopoulos, S. McNeil, & M. Small, M. (1998). "Computer Tools to Facilitate Brownfield Development." Journal of Public Works Management and Policy **2**(3): 231-242.

Biemer, B. (2002). Personal Communication Regarding Brownfields Data in the City of Louisville. Louisville, KY.

Institute for Responsible Management (1996). Paper Presentation by Beverly Negri of the Dallas, TX Department of Economic Development at Conference sponsored by the Institute for Responsible Management.

Leigh, N. G. and S. L. Coffin (2000). "Industrial Era's Brownfield Legacy: Characterizing the Redevelopment Challenge." Urban Technology **7**(3): 1-18.

Meyer, P.B. (2000). "Accounting for Stigma on Contaminated Lands -- The Potential Contributions of Environmental Insurance Coverages." Environmental Claims Journal. 12(3): 33-55.

Noonan, F. and C. A. Vidich (1992). "Decision Analysis for Utilizing Hazardous Waste Site Assessments in Real Estate Acquisition." Risk Analysis **12**(2): 245-251.

US Conference of Mayors (1996). Impact of Brownfields on US Cities: A 39-City Survey. Washington DC, The United States Conference of Mayors Brownfields Task Force.

US Conference of Mayors (2000). Recycling America's Land: A National Report on Brownfield Redevelopment, The United States Conference of Mayors. Brownfields Task Force.

US EPA (2002). *Small Business Liability Relief and Brownfields Revitalization Act*. World Wide Web url <http://www.epa.gov/brownfields/sblrbra.htm> (last modified January 30, 2002)

US EPA (1997). Brownfield Pilot - Louisville, KY. Washington DC, United States Environmental Protection Agency.

US EPA (1997). Brownfields Glossary of Terms, Office of Solid Waste and Emergency Response. 2002.