



**RESIDENTIAL DEVELOPMENT ACTIVITY ON URBAN BROWNFIELDS
IN MILWAUKEE AND CHICAGO:
AN EXAMINATION OF REDEVELOPMENT TRENDS, DEVELOPER
PERCEPTIONS,
AND FUTURE PROSPECTS**

Working Paper

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About this Report

This report was produced by the University of Wisconsin-Milwaukee Brownfields Research Consortium, which is supported and housed in the College of Letters and Science and is part of the UWM Center for Economic Development (UWMCED). The College established UWMCED in 1990, to provide university research and technical assistance to community organizations and units of government working to improve the Greater Milwaukee economy. In 2000, UWMCED also became part of UWM's "Milwaukee Idea," as one of the core units of the "Consortium for Economic Opportunity." In 2002, the Brownfields Research Consortium was established to bring together an interdisciplinary team of researchers with brownfields stakeholders to develop research projects and other activities to reduce the barriers to brownfields redevelopment. The analysis and conclusions presented in this report are solely those of the author and do not necessarily reflect the views and opinions of UW-Milwaukee, or any of the organizations providing financial support.

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The UWMCED strongly believes that informed public debate is vital to the development of good public policy. The Center publishes briefing papers, detailed analyses of economic trends and policies, and "technical assistance" reports on issues of applied economic development. In these ways, as well as in conferences and public lectures sponsored by the Center, we hope to contribute to public discussion on economic development policy in Southeastern Wisconsin and the Midwest.

Further information about the Center for Economic Development and the Brownfields Research Consortium and their reports and activities is available at their respective web sites: www.ced.uwm.edu and <http://www.uwm.edu/MilwaukeeIdea/CEO/brownfields/index.html>

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EXECUTIVE SUMMARY

Over the last two decades, policy makers, planners and urban researchers have been paying significantly more attention to methods designed to foster sustainable development and “smart growth” in America’s cities. One initiative that has gained widespread political support, during this time frame, is the redevelopment of brownfield sites, which are often located in the core sections of urban areas and, as such, are prime candidates for urban revitalization efforts. While a significant amount of consideration has gone into policies and programs to encourage redevelopment that creates jobs and new taxable activities, little has been done to take full advantage of the potential socio-economic and environmental opportunities that residential redevelopment on these sites can bring about. And, surprisingly, little research has been conducted to understand the nature and scale of such redevelopment and examine measures for facilitating it.

The present study addresses four questions related to residential brownfields redevelopment:

- 1) What kinds of residential brownfield redevelopment activities have been implemented in Milwaukee and Chicago in terms of scale, character, value and other key market variables;
- 2) Is brownfield redevelopment perceived as being less cost-effective and more risky than greenfield redevelopment for market rate and affordable housing?
- 3) Is government intervention important in this domain and, if so, to what extent and in what ways?
- 4) What implications does the project have for mapping out a strategy for future redevelopment issues in the cities of Milwaukee and Chicago specifically, and what broader implications does it have for redevelopment generally?

To address the first question, data on the location and characteristics of residential brownfield projects in the cities of Milwaukee and Chicago was gathered from local and state government sources and databases, as well as from the developers responsible for them. Analysis of the data reveals that residential development on brownfields has been rather extensive in both cities.

In Milwaukee, thirty-two projects were completed or were in the latter stages of planning from 1992 to 2004. Together these projects will produce 2,648 residential units on 91.5 acres of reclaimed land and are valued at just under \$500 million dollars. The reclaimed brownfield sites were previously utilized for a range of activities, and a third had lain vacant. The vast majority of units in Milwaukee are new construction (81%), multi-story (83%), market-rate properties (87%) that are for both sale (52%) and rent (48%). Government assistance amounting to \$5.19 million dollars for brownfields related costs (i.e., for site assessment, remediation, demolition, and related site preparation costs) was provided to 21 of the 32 residential projects (valued at \$329 million) from city (45%), state (47%), county (7.7%) and other sources. Projects that received public assistance typically involved more extensive cleanup.

In Chicago, 52 projects were completed from 1997 and 2004 on 133 acres of brownfield land and will generate 7,362 residential units (unit value based on 51 projects) valued at \$2.17

billion (value based on 49 projects). Almost half (44%) of the brownfields had previously been industrial properties, although many had contained other uses, including residential. Most residential units are newly constructed (93%), multi-story (83%), market-rate properties (64%), for both sale (47%) and rent (53%). Almost 36% of all units (2,653) were affordable. Government assistance of \$164 million was provided to 18 projects, primarily in the form of TIFs (\$104 million), to support multiple aspects of development (e.g., infrastructure, construction, cleanup and assessment, soft costs, etc.), not just brownfields related costs. Those 18 projects are valued at \$991 million. As part of their remedial management programs, 32 of the 52 projects have institutional controls in place restricting the extraction of groundwater and slightly over half of them (27) utilize engineered barriers.

To address the second and third questions, data was gathered via personal interviews with twenty-seven residential developers in the two cities (12 in Milwaukee and 15 in Chicago). Interviewees were asked questions related to: (1) the characteristics of the organizations they represent; (2) their attitudes towards the costs, risks, and benefits associated with residential brownfields redevelopment; and (3) the effectiveness of different policies and programs for getting residential projects developed.

In Milwaukee, most developers of brownfields were mature developers that focused primarily on brownfield properties and multi-story projects in the urban market. Factors attracting them to brownfields related primarily to location, but several also pointed out attributes associated with brownfield land (i.e., the low price of land, the availability of an area-wide development plan, subsidy provisions). In terms of barriers to residential redevelopment, the most common response was the cost (or amount) of cleanup required, with two or more respondents also mentioning liability risks, longer project duration, and "unknown" or "surprise" costs. Most of the public sector interventions perceived as necessary for increasing residential development on brownfields in Milwaukee related directly to improving the bottom-line of these projects, whether through some form of direct funding to help cover costs, relaxing regulatory requirements to minimize cleanup and/or time-related costs, or reducing land acquisition costs.

In Chicago, developers involved in brownfields were from established companies, but many were typically involved in slightly more projects on greenfields than on brownfields. Most of the developers interviewed specialized in residential construction and multi-story buildings (80%), although many stated that they also build townhouses/row houses, single-family dwellings, and duplex/tow-flat homes. The most common response in terms of what attracted them to brownfields was the property's proximity to public transit and the strength of the area's property market. Three or more interviewees also mentioned proximity to roadways and highways, good neighborhoods, and gentrifying/"yuppifying" neighborhoods. As in Milwaukee, the main barrier to redevelopment was identified as being the cost (or amount) of cleanup. Many interviewees also emphasized regulatory hurdles that added to project duration, as well as barriers related to unknown costs, the difficulty in obtaining financing, weak markets, and a lack of public funding. As for measures for increasing residential development on brownfields, over half pointed out the need to streamline regulatory procedures at both the state and local level, while most other suggestions related to helping them deal with relevant brownfields costs.

The present study has revealed that despite limited attention devoted to the issue, residential redevelopment on brownfields has been rather extensive over the past decade and will likely

continue to increase as more developers enter the urban market and become more comfortable managing the costs and risks. While the patterns of redevelopment activity differ slightly in both cities, it would seem that Milwaukee is following a similar path to that of Chicago, but is at an earlier stage along that path. Thus far, brownfields redevelopment in Milwaukee consists largely of mid- to high-end, high-density, market rate housing built by for-profit developers clustered in neighborhoods near the downtown core, while lower density and affordable units are constructed in other parts of the city mainly by non-profits or the municipal government with the hope of sparking interest in renewal. In Chicago, market rate and affordable projects are scattered throughout the city, although proximity to the downtown core continues to attract much of the private development interest.

The study has also revealed that developers are utilizing brownfields of many different types, sizes and contamination levels, which highlights the potential of residential redevelopment from a brownfields and an urban infill perspective. While private dollars seem to be going mainly to projects that involve minimal contamination and maximum location-oriented amenities, public dollars and support still play a key role in both attracting and situating new development in both cities.

While developing on brownfields is indeed perceived as slightly more costly and risky than greenfields, views regarding costs and risk are strongly tied to the experience of developers in managing them. The more experienced developers consider brownfields management as just another aspect of development, while those with less tend to react more cautiously, but are willing to "do it again." Projects, therefore, are occurring at an increasing rate driven by a small group of "veteran" urban developers, many of whom now concentrate on larger-scale mega-projects, and a cadre of new developers trying out the brownfields market on smaller properties. In both cities, the vast majority of developers feel that greater financial assistance is the key to increasing residential redevelopment. However, many are still willing to go about profitable projects on their own, particularly if it helps avoid bureaucratic entanglement and delays.

Government intervention is important for residential brownfields redevelopment on several counts. In areas with extensive cleanup problems, public funding is very important for managing costs. There are, in fact, many different tools that have been applied successfully to facilitate redevelopment. In areas with fewer cleanup challenges, the efficiency of government intervention is perceived as essential for managing time-related costs and attenuating developer frustration. Government intervention is also important for shaping the scale, character, and location of residential redevelopment. The needs of both government and developers can be satisfied as far as the market allows it, even to the point of mixing affordable with market rate housing.

It is important at this stage for governments to take a closer look at the potential of residential redevelopment to help manage the brownfields problem and to harness its potential in a more strategic way. Cities must take a more comprehensive look at their brownfields inventories, develop portfolios of city and privately owned brownfields, and then devise site-specific or area-wide strategies for renewal based on public and private interests. The market for residential redevelopment is strengthening in many cities across the US, and those with a better environment for developers to work in, in terms of procedures and incentives, will be best able

to “ride” that market. Clearly, residential reuse is an important piece of the brownfields puzzle that should no longer take a back seat to other uses.

Results from the analysis of redevelopment data, the surveys, and the case studies outlined in the appendix of the present study, have helped to answer the fourth question related to mapping out a strategy for future brownfields redevelopment issues in the cities of Milwaukee and Chicago specifically and in other cities more generally. Key recommendations are outlined below and organized on by level of government.

Housing and Urban Development:

- HUD should permit the use of risk-based methods for residential brownfields redevelopment, including the use of engineering and institutional controls, particularly given that the market and consumers have seemingly accepted them.
- HUD should focus more directly on promoting residential development on brownfields for both affordable and market rate housing given the location of many of these sites in communities in need of affordable housing, the potential of residential development generally, and to achieve the socio-economic and environmental benefits associated with redeveloping these sites.

Environmental Protection Agency:

- The EPA should work closely with state governments to develop and implement policies for regulating residential brownfields redevelopment in order to promote certainty and consistency for developers.
- The EPA should develop funding programs that promote residential brownfields redevelopment, particularly given the public return on investment that these projects can offer and the higher remediation standards that they are typically required to meet.

State Governments:

- State governments in Illinois and Wisconsin, as well as in other parts of the country, should provide more funding opportunities for residential brownfields redevelopment, particularly given that such projects are relatively under funded but generate significant benefits.
- State governments in Illinois and Wisconsin, as well as in other parts of the country, must examine ways in which to speed up the review process in their voluntary cleanup programs.
- State voluntary cleanup programs must retain better records of the remediation activities carried out at brownfields redevelopment projects and make better use of geographic information systems to map the location of engineered barriers and other controls in order to ensure long-term management.

Local Government:

- Local governments must implement a “one-stop-shop” approach to both facilitate and regulate brownfields redevelopment in their communities, preferably within a department that can link economic, environmental, and community-based aspects of redevelopment.
- Local governments must come up with both area-wide and site-specific strategies for redevelopment, preferably in consultation with the development community, to maximize the potential of smaller infill development and large-scale projects throughout

the city; this should be tied to a shift from cataloguing sites in an inventory to devising a portfolio of properties containing relevant information for developers.

- Local government must devise strategies for both market rate and affordable housing in conjunction with private developers and non-profits, and work toward generating a broader range of housing types and values.
- Local governments must improve how they track their involvement in brownfields redevelopment so as to better understand redevelopment outcomes related to both housing and economic variables, but also sustainability and equitability oriented ones.

INTRODUCTION

Over the last two decades, policy makers, planners and urban researchers have been paying significantly more attention to methods designed to foster more sustainable development and “smart growth” in America’s cities. One initiative that has gained widespread political support, during this time frame, is the redevelopment of hundreds of thousands of underutilized brownfield sites, which are often located in the core sections of urban areas and, as such, are prime candidates for urban revitalization efforts. Governments at all levels have started to implement a wide range of innovative policies and programs designed to lessen the costs and risks associated with brownfield redevelopment, thus stimulating private investment in them. Such measures have met with moderate success, as thousands of sites throughout the country have been cleaned up and redeveloped over the past decade (Simons and Jaouhari 2001, U.S. Conference of Mayors 2003). However, while many communities have started to realize the economic opportunities that can ensue from recycling brownfields into productive industrial and commercial uses, full advantage has not been taken of the significant social, economic, and environmental benefits that residential redevelopment activities on these sites can bring about (De Sousa 2002a). Indeed, the U.S. Conference of Mayor’s 2003 report estimates that residential reuse only makes up 14% of brownfield projects, despite the fact that investment in residential construction typically accounts for 60% of private investment and 50% of total investment in the U.S. (U.S. Census Bureau 2003).

In Europe and Canada, the residential re-use of brownfields has played a much more prominent role in the redevelopment of, and planning for, more sustainable urban communities. In Toronto, for instance, 59% of brownfield redevelopment between 1990 and 2000 was residential (De Sousa 2002b). In 1998, Britain’s Labour Government set a target that 60% of new housing should be built on brownfields, with an Urban Task Force insisting that the goal be 100% in some regions (Box and Shirley 1999). In the U.S., the focus of redevelopment efforts and government spending has been put instead on industrial and commercial uses, given that these provide direct monetary benefits through tax revenues or jobs (often referred to as *ratables*)(U.S. Conference of Mayors 2000, Greenberg *et al.* 2001). However, there has been a growing recognition in this country among a wide range of private, public, and nonprofit sector stakeholders (e.g., National Association of Home Builders, National Governors Association, International City/County Management Association, HUD) that the residential redevelopment of brownfields holds enormous potential for increasing the availability of housing in cities (both market rate and affordable) and for strengthening communities. There is also a growing level of advocacy for residential development in urban areas from experts who maintain that such activity reduces the environmental impact of development (helping to curb sprawl, encouraging the cleanup of contaminated lands, and reducing transportation oriented externalities), while improving the social and economic well-being of communities at the same time (by eliminating blight, reducing stigma associated with inner core neighborhoods, enhancing business activity, preserving historic buildings, improving community pride, enhancing local tax bases, raising property values, and maximizing the efficient use of services)(De Sousa 2000, 2002a, Greenberg *et al.* 2001, Kirkwood 2001, Deason *et al.* 2001, ICMA 2003, National Center for Housing and the Environment 2003).

Although some researchers have made some headway in gaining a better understanding of the barriers to housing development on brownfields, there has traditionally been relatively little scholarly interest in examining them in an empirical way. The purpose of this project is to do exactly that by addressing four critical research questions:

- 1) What kinds of residential brownfield redevelopment activities have been implemented in Milwaukee and Chicago in terms of scale, character, value and other key market variables;
- 2) Is brownfield redevelopment perceived as being less cost-effective and more risky than greenfield redevelopment for market rate and affordable housing?
- 3) Is government intervention important in this domain and, if so, to what extent and in what ways?
- 4) What implications does the project have for mapping out a strategy for future redevelopment issues in the cities of Milwaukee and Chicago specifically, and what broader implications does it have for redevelopment generally?

Through a compilation and analysis of development data, interviews, and case studies, this study identifies the nature of the costs and risks to developers and, then, examines which policies make the most sense for supporting the efforts of key stakeholders.

BROWNFIELDS BACKGROUND

The *Small Business and Liability Relief and Brownfield Revitalization Act*, passed in 2002 (Public Law 107-118, H.R. 2869, p.6), defines *brownfields* as “real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.” In the traditional urban science literature, the term *brownfield* has been used in alternation with *contaminated land* and *derelict land*. Today, however, brownfield is the preferred term because it does not evoke the negative connotations associated with expressions such as “contaminated” and “derelict,” and because it constitutes a semantic counterpart to *greenfield*, the term designating an agricultural or undeveloped site in the urban periphery. It has been estimated that there are currently over 500,000 brownfields throughout the U.S. (Simons 1999). To get a concrete grasp of the extent of the urban brownfield problem, the U.S. Conference of Mayors surveyed over 200 cities in 2003, finding that nearly 24,000 brownfield sites currently exist in those cities alone.

Similar statistics have been gathered by virtually every industrialized nation because of analogous migrations of industries from cities to greenfield areas. Urban geographers have devoted a significant amount of attention to the documentation and analysis of this trend. Early theories attributed the exodus of manufacturing activities out of the city core to two economic and demographic facts—namely, to the tendency of manufacturing enterprises to follow the exodus of higher income groups (Park, Burgess, and McKenzie 1925) or to the desire to get hold of cheaper land and better infrastructure (Alonso 1960). More recently, different conceptual frameworks have been developed attributing the migration pattern to the globalization of production and the need for businesses to locate to areas where skilled workers have moved, and to be in a situation to reduce transportation costs (e.g. locating near airports) (Storper and Scott 1992). This framework appears to explain many of the relocation patterns witnessed in Mid-West/North-East cities. Whatever conceptual framework is adopted, the end

result has been a steady exodus of businesses from city cores, leaving brownfield sites behind, a depressed real estate market, increased crime rates, a sense of isolation by urban dwellers, and an overall situation described typically with the term “blight” (Smith 1996; Greenberg 1999; Greenberg and Lewis 2000). As some socio-geographic frameworks suggest, however, this pattern might be only part of a cycle, whereby after suffering mass migration, abandoned urban neighborhoods start to experience a sense of renewal and rebirth, leading to their rehabilitation (Bourne 1981, 1991; for a more comprehensive review of these frameworks see McCarthy 2002).

Socio-economic revitalization of urban areas and the management of environmental risk are the primary reasons for the rising interest in brownfields redevelopment, which falls under the rubrics of *Sustainable Development* and *Smart Growth* (European Commission 1996, Bjelland 2004). The main environmental benefits are: mitigating the health and environmental risks posed by contaminated soil and groundwater, restoring natural processes, and reusing urban land to minimize development pressure on greenfield lands. Among the various socio-economic benefits, revitalizing neighborhoods, creating jobs, enhancing local tax bases, and promoting economic renewal can be highlighted. Given such benefits it is little wonder that governments have started in earnest developing policies and programs aimed at encouraging more brownfield projects, while geographers, planners, and other urban researchers have started to study their overall role in urban contexts (Wernstedt and Hersh 1998, McCarthy 2002, Simons and Jaouhari 2001, U.S. Conference of Mayors 2003).

The first policies directed at addressing the brownfields problem were devised in the late-1970s. These focused primarily on finding appropriate engineering methods for efficient site cleanup and on developing suitable criteria for allocating financial responsibility for cleanup. Following such media-dramatized incidents as the “Love Canal” and the “Valley of the Drums” the federal government passed the *Comprehensive Environmental Response and Liabilities Act* (CERCLA 42 usC. 9601-9675, 1980), commonly referred to as *Superfund*. CERCLA made funds available for remediation and gave governments the power to require cleanup and damage costs from virtually anyone they considered responsible for producing a brownfield. But this measure ended up deterring private investors, especially banking institutions, from getting involved in any property that was remotely suspected of being contaminated and, in the end, worked against many efforts to get brownfields redeveloped (Business Round Table 1993; Stroup 1997).

Things began to improve considerably in the mid-1990s when governments at all levels began experimenting with and implementing a new range of approaches and strategies for encouraging remediation and redevelopment. In 1995, the EPA introduced the *Brownfields Action Agenda* to help clarify the government’s role, to make funds available for pilot projects to test redevelopment approaches, and to provide direct assistance to those interested in redeveloping high-risk sites. At about the same time, state governments began implementing *Voluntary Cleanup Programs* (VCPs) to loosen the rigid redevelopment policy structures, offering more flexible cleanup options, allowing more leeway to the private sector to work on its own terms, and providing investors with various kinds of technical assistance, financial support, and protection from legal liability. Nationwide, the BAA and the VCP approach culminated in the 2002 passage of the federal *Small Business Liability Relief and Brownfields Revitalization Act* (Public Law 107-118, H.R. 2869). The Brownfields Law expanded EPA’s assistance by providing

new tools for the public and private sectors to promote sustainable brownfields cleanup and reuse.

Brownfields grants continue to serve as the foundation of EPA's Brownfields Program. These grants support revitalization efforts by funding environmental assessment, cleanup, and job training activities. Brownfields Assessment Grants provide funding for brownfield inventories, planning, environmental assessments, and community outreach. Brownfields Revolving Loan Fund Grants provide funding to capitalize loans that are used to cleanup brownfields. Brownfields Job Training Grants provide environmental training for residents of brownfields communities. Brownfields Cleanup Grants provide direct funding for cleanup activities at certain properties with planned greenspace, recreational, or other nonprofit uses.

The Department of Housing and Urban Development is involved in brownfields primarily through the Brownfields Economic Development Initiative (BEDI), which is a key competitive grant program aimed at promoting economic and community development. BEDI grant funds are primarily targeted for the redevelopment of brownfields sites in economic development projects and the increase of monetary opportunities for low- and moderate-income individuals as part of the creation or retention of businesses, jobs and increases in the local tax base. BEDI funds are used to encourage local governments and private sector organizations to become involved in redevelopment or continue phased redevelopment efforts on brownfields sites where potential or actual environmental conditions are known and redevelopment plans exist. HUD emphasizes the use of BEDI and Section 108 Loan Guarantee funds to finance projects and activities that will provide immediate results and demonstrable economic benefits. BEDI projects are designed to increase economic opportunity for persons of low- and moderate-income levels or to enhance activities that lead to economic revitalization. BEDI funds are made available on a competitive basis.

The state of Wisconsin has become a focus of brownfield researchers for the reason that it has over 10,000 brownfield sites. Redevelopment efforts got under way in 1994 with the passage of the state's *Land Recycling Law*, which provided financial and liability tools for redevelopment, as well as making available state-developed inventories for brownfield sites (Consumer Renaissance Development Corporation 1998; U.S. General Accounting Office 2000; Wisconsin Brownfields Study Group 2000). Many of the policy and funding initiatives can be traced to the efforts and suggestions of a multi-stakeholder Brownfields Study Group established in 1998 to advise the government. The state's brownfields program is administered by three agencies—the Department of Natural Resources, the Department of Commerce, and the Department of Revenue—that are responsible for administering the programs listed below. The DNR is primarily responsible for overseeing the state's Voluntary Party Liability Exemption program which exempts any individual, business, or government agency that conducts an environmental investigation and cleanup of a contaminated property from future environmental liability if regulations of the Department of Natural Resources are followed.

| PROGRAM NAME |
|---|
| <p>Grant Programs</p> <ul style="list-style-type: none"> • Brownfield Site Assessment Grant • Brownfields Green Space and Public Facilities Program • Community Development Block Grants (Small Cities) • Dry Cleaner Environmental Fund • Environmental Fund • Petroleum Environmental Cleanup fund • Sustainable Urban Development Zone Program • Wisconsin Blight Elimination and Brownfields Redevelopment • Wisconsin Brownfields Grant Program |
| <p>LOAN PROGRAMS</p> <ul style="list-style-type: none"> • Land Recycling Loan Program • Industrial Revenue Bonds |
| <p>TAX INCENTIVE PROGRAMS</p> <ul style="list-style-type: none"> • Business Improvement Districts • Cancellation of Delinquent Taxes • Environmental Remediation (TIF) • Rehabilitation Income Tax Credits • Tax Increment Financing (TIF) • Wisconsin Community Development Zone Program • Wisconsin Enterprise Development Zone Program |

Table 1: Primary Financial Assistance Resources for Urban Brownfield Redevelopment, State of Wisconsin

While the role of state governments in cleanup processes is undoubtedly important, ultimately, the duty of attracting investors, guiding the redevelopment process, and managing most of the brownfield inventory falls on the shoulders of local governmental agencies. The present study looks at the kinds of strategies initiated by the city of Milwaukee (pop. 600,000) to encourage brownfields redevelopment generally, and housing projects on brownfields specifically. It is estimated that the city of Milwaukee has over 879 hectares (2,171 acres) of brownfield sites, making up 4 percent of its land area (Simons 1998). The city's brownfields redevelopment program is carried out by a partnership between four city agencies: the Department of City Development (DCD), the Health Department, the City Redevelopment Authority (RACM), and the Milwaukee Economic Development Corporation (MEDC). Taking direction from the city's "Land Reuse Strategy," this partnership focuses its brownfields efforts on attracting private investment and creating jobs while restoring the environment.

Milwaukee's commitment to addressing the challenges of brownfields redevelopment is evident in the fact that it has budgeted for numerous staff positions, established various Tax Incremental Districts (directing cleanup), and set up an environmental testing fund for tax delinquent properties. The city also supports the use of MEDC and RACM resources for redevelopment, as well as undertaking an extensive review of brownfield tax delinquent properties for development opportunities and approving a "Land Reuse Strategy" policy

mechanism. City staff have participated in the city's task force to encourage flexible closure, clarify liability, streamline regulatory hurdles, allow new methods of cost recovery, and facilitate groundwater negotiated agreements. In addition, the city has taken a "one-stop" centralized approach for development permits in an effort to make the development process simpler, timelier, and more fluid.

The Illinois Site Remediation Program (SRP) was created in 1995 to provide a mechanism for redevelopers to receive guidance from the Illinois EPA on site assessment, general technical issues, and "no further remediation" (NFR) determinations to facilitate cleanups. The program uses a Tiered Approach to Corrective Action (TACO) that permits the property to be remediated appropriately in line with its intended use, providing direction on issues related to contamination and site conditions. Those in the SRP must agree to conform to state regulations, allow their site to be evaluated by the IEPA, and prepare a remedial action plan approved by the program. Upon approval, the IEPA issues a clean site NFR letter certifying that the site does not pose a threat to human health or the environment. It also offers a variety of financial assistance programs for site assessment and remediation, including the Illinois Municipal Brownfields Redevelopment Grant Program, the Illinois Brownfields Redevelopment Loan Program, the Brownfields Cleanup and Revolving Loan Fund, the Underground Storage Tank Fund, and the Environmental Remediation Tax Credit.

Although Chicago's Brownfields Initiative originally focused on industrial and economic redevelopment, job creation, and the provision of tax revenues, the city has expanded its purview to include the creation of green space, housing, parking, office space and other amenities. An interdepartmental team of project managers from the Mayor's Office and various City Departments guides the Initiative, which ultimately seeks to make brownfields redevelopment as attractive as any other type of redevelopment. Chicago began its brownfields program in the mid-1990s by investing \$2 million from General Obligation Bonds to redevelop five specific brownfield properties. This "Brownfields Pilot" was a resounding success, helping the city secure \$74 million in Section 108 loan guarantees from the U.S. Department of Housing and Urban Development (HUD). It was subsequently designated a Showcase Community by the U.S. Environmental Protection Agency (U.S. EPA). The funds allowed the city to engage in research, assessment, and redevelopment oriented activities.

As part of the initiative, the city evaluated an initial sample of brownfields on the basis of access and control, cleanup cost estimates, and developmental value. If a brownfield has industrial, commercial or residential development potential, the city can acquire the site through negotiated purchase, lien foreclosure, or tax reactivation on property that has been delinquent for two years or more. Once the nature of the site's contamination is assessed, the city may choose to add the property to its list of acquired sites. On occasion, the assessment is done during the acquisition phase. After the initial assessment, a risk assessment is performed if needed, and cleanup strategies and cost estimates are then determined. Remaining contaminants can be eliminated or reduced in various ways, depending on time, funding, and, primarily, on future development plans. The city enrolls nearly all its sites in the Illinois EPA (IEPA) Site Remediation Program.

HOUSING BACKGROUND

Milwaukee

The City of Milwaukee has seen growth in housing development and revitalization over the last decade, involving numerous condominium and other specialty housing projects. Historically, the city underwent large growth from the turn of the century until the 1950's, when de-industrialization began to impact the need for more housing. Of approximately 228,000 housing units nearly 70% are single family, townhome, condominium, or duplex buildings, with the remaining 30% consisting of multifamily parcels (City of Milwaukee 2002).

The market for condominiums has been expanding throughout the downtown and east side areas. In 2001 there were a total of 7,082 new units, of which 5,209 were in the downtown/eastside area. Many of these were condominium, townhouse style, or loft, and the overall investment poured into this development activity (from 1997 to 2004) amounted to 1.3 billion dollars (City of Milwaukee DCD 2004). According to the Department of City Development, 1,210 new housing units are currently under construction or are being planned for the downtown core. The city's housing market is benefiting from the same factors that are enhancing housing projects throughout the nation: low interest rates, high consumer confidence, and low unemployment (Bayer 2005). Further, the easy commute to downtown is bringing many professionals to the area, as well as couples in their 50's and 60's who are looking to reside in a more socially-active locale.

Condominium construction has contributed significantly to strong growth in Milwaukee, with specific neighborhoods getting a greater share of this type of housing market. Brewer's Hill, the Third Ward, Walker's Point, Concordia, Coldspring Park, and Washington Heights are increasing in land value at a far greater rate than is the average for Milwaukee (Public Policy Forum 2003). Although, there is some increase in single-family housing on the city's north side, the properties lag behind in average assessed property value. Conversely, the downtown area and eastside have seen such value exceed those of neighboring communities.

Though Milwaukee's housing market is strong, there are several relevant issues that need attention. On a larger societal scale, the issue of segregation remains a problematic one. The Mumford Index of dissimilarity ranks the Milwaukee-Waukesha PMSA third, behind Detroit, Michigan and Gary, Indiana (Public Policy Forum 2003). The Milwaukee region is plagued by discrepancies in segregation patterns, with the outlying areas being comprised primarily of affluent and primarily white residents, whereas the central city core is inhabited largely by non-white residents. Other issues of concern include overcrowding and substandard housing, as well as boarded up homes and graffiti. Many of these problems are concentrated in the north/central part of Milwaukee, with issues of affordable housing related to the downtown and eastside areas.

Strategies being employed to address such issues include the following (City of Milwaukee 2002b):

| STRATEGY | DESCRIPTION |
|------------|---|
| Strategy 1 | Increase new housing that contributes to Milwaukee's unique urban landscape |
| Strategy 2 | Promote preservation of existing housing |
| Strategy 3 | Provide public housing and community service programs that strengthen the social, economic and physical environment |
| Strategy 4 | Maximize state, federal and private dollars so as to help the city carry out its housing strategy |
| Strategy 5 | Market Milwaukee for in-fill and new housing development |
| Strategy 6 | Promote affordable home ownership responsible rental property ownership |
| Strategy 7 | Promote a range of housing opportunities with appropriate supportive services for the City's special needs population |

Table 2: Housing Strategies, City of Milwaukee

Recently, the Common Council amended the zoning code to allow for above ground-floor housing in the downtown area, which is a clear sign that the above strategies are being implemented.

Chicago

The City of Chicago (pop. 2,896,016) has seen significant housing growth since the 1990's, after a previous 40-year decline (Chicago Department of Housing 2004). As a consequence, the city has added more jobs to its economic base, with the residential population growing commensurately. The city has maintained a good level of affordability, ranking as the third most affordable of the 10 largest cities in the U.S. Despite the growth, the majority of housing stock is more than 30 years old, many of which is 60 years old or more. Although there has been an increase in the social diversity of homeowners, Chicago still faces segregation issues, given that residents of African American origin continue to locate themselves in city's far west and far south sides (Leachman and Nyden 2000).

As the city has become a much more desirable location for both business and residences over the last 10 to 15 years, undesirable public housing sites have started to receive widespread development attention. The challenge for the city lies in developing these sites without further displacing its lower-income residents. Long established high-rise housing projects such as Cabrini Green are either being replaced, or undergoing renewal. They are quickly becoming areas of interest for housing, posing a significant challenge in terms of accommodating real estate growth while simultaneously providing for the needs of lower-income residents. Essentially, the entire Chicago area is under a large "growth spell," with new condominium units or rehabilitated buildings sprouting up continuously throughout the city core.

However, this growth has not been of benefit to all the residents, as gaps still exist—and in some cases even widening—between what is available and what people can afford. Especially hard hit are lower-income residents, who tend to find themselves in economically-depressed areas. This situation came about, in part, by the resistance from suburban communities against affordable housing developments in their areas over the last three decades (Leachman and Nyden 2000). In addition, many market rate units for sale have recently become far too expensive for the average resident in the city, thus prompting concerns along several lines.

The City is addressing the situation with strategies and goals through the Department of Housing. These include the following (Chicago Department of Housing 2004):

| Strategy | Description |
|----------|---|
| Build | Add to the stock of affordable housing, with expanded opportunities for low and moderate income households and rental properties. |
| Preserve | Protect federally-assisted housing stock that is in danger of conversion to market-rate housing, employing tax relief, subsidies and various financing tools. |
| Assist | Enhance affordability so as to help low-income and senior residents remain in their homes. |
| Lead | Work with other departments to seek funding and continue to strategize into the future. |

Table 3: Housing Strategies and Goals, City of Chicago

The Department of Housing has recently devised other strategies to help alleviate the financial burden on homeowners. One of these is TaxSmart, which allows homeowners to subtract 20% of their mortgage interest payments from their federal tax liability. The so-called Housing Initiative also makes housing more affordable (State of Illinois 2003-18). Other programs, such as the New Homes for Chicago and the Chicago Partnership for Affordable Neighborhoods (CPAN), provide incentives to developers so as to reduce development costs in order to provide new housing for moderate-income working families

LITERATURE REVIEW

Even though the scholarly literature on the redevelopment of brownfields and contaminated lands has become rather extensive over the last decade, the issue of housing has received relatively little attention. The brownfields literature has tended to focus on five main areas of research: (1) the technical (engineering) aspects of redevelopment (e.g., Asante-Duah, 1996); (2) the nature of national policy-making (e.g., Meyer et al. 1995, Page 1997, Rogoff 1997, De Sousa 2001); (3) specific economic development policies (e.g., Bartsch 1996, Simons 1998); (4) barriers to redevelopment and potential solutions (e.g., Leigh 1994, Bartsch and Dorfman 2000); and (5) assessing the resulting “outcomes” of redevelopment activity (e.g., Simons and Jouhari 2001, De Sousa 2002b;).

Only a handful of studies exist on the housing re-use issue in the United States. The work by Greenberg and his research team (Greenberg *et al.* 2001a) presents solid arguments both for reuse (since brownfields constitute an available supply of land for housing which can improve neighborhood quality) and against it (given that incompetence and greed are factors that might make such redevelopment risky on many counts). In an editorial, Greenberg (2002) comes out in favor of residential reuse because he sees it as the best strategy for revitalizing inner city communities, as long as civic leaders and public health officials are involved in the process and developers are provided with financial assistance to help them attenuate costs. The basis for his assessment is a 2001 study (Greenberg *et al.* 2001b) in which Greenberg and his team interviewed 779 New Jersey residents to gauge their willingness to live on redeveloped brownfield lands. The team found that 14% of respondents were willing to do so, most of whom were young and childless families, middle-class Latino and Asian-American families, and economically disadvantaged individuals living in apartments. The authors point out (p. 534) that a "critical challenge is to interest developers in building housing on brownfields", given that "developers have historically made large profits building in the suburbs;" and concluding that there is a need for "more data on what is needed to help developers."

In a brief case-study review, Kirkwood (2001) argues that the redevelopment of brownfields for residential development presents itself as a nation-wide opportunity for easing housing shortages, redirecting urban growth, and creating more balanced regional diffusion of investment. These findings are echoed by Coffin (2002), who found that low-income households are already locating near brownfields, and a more formalized strategy would help provide solutions to both the brownfields and affordable housing dilemmas in low income communities. The International City/County Management Association (2003) has summarized the direct and indirect benefits to governments associated with residential brownfields redevelopment as follows: (1) it saves money through the use of existing infrastructure; (2) it increases tax revenues; (3) it promotes economic development, (4) it helps cleanup the environment, (5) it improves community morale, removing blight, reducing crime, preserving historic structures, protecting public health, revitalizing neighborhoods, curbing sprawl, and inspiring unique design. Perhaps the most commonly cited benefit associated with residential brownfields redevelopment is that it will reduce redevelopment pressure on greenfields given that urban brownfields redevelopment is particularly more dense. Indeed, a study by Deason *et al.* (2001) found that the redevelopment of one acre of brownfield for residential purposes would require 5.6 acres of greenfield land.

The barriers facing residential brownfields redevelopment have received some attention. A survey of 44 state Voluntary Cleanup Programs by Bartsch and Dorfman in 2000 found that there was relatively little support for residential brownfields projects, with only 21 states providing suitable liability protection for them and only 8 making incentives available. A more recent study published by the National Center for Housing and the Environment (2003) discovered that funding and liability issues (in states that have not entered into an MOA with the EPA) continue to persist within the new framework of federal brownfields legislation. ICMA examined residential brownfields redevelopment from the perspective of local government and finds the key challenges to be the cost of remediation, protecting public health, the compatibility of surrounding land uses, preventing gentrification, preserving traditional neighborhood character, and addressing specific community concerns. A recent report by the Northeast-Midwest Institute (Schopp 2003) highlighted some additional concerns, including the

presence of poor markets in some locales, higher cleanup costs for residential projects, and the impact of barriers imposed by the policies of the Federal Housing Authority (including remediation and technical constraints before a loan application can be considered). A study of HUD's site contamination policies carried out by ICF Consulting (2003) also found that many of their policies were not facilitating residential redevelopment and require upgrading. A study by Meyer, Wernstedt, and Alberini (2004) put a monetary value on some of the incentives that could be aimed to redevelop brownfields for residential use. From a survey of over 300 developers, the study found that eliminating third-party liability risk was the most effective strategy, followed by the elimination of cleanup cost risks, and the requirement of holding a public hearing. Other than this study, little work has been done to examine the application and effectiveness of alternative policies and programs to alleviate the barriers to residential brownfields reuse.

Issues related to residential brownfields redevelopment have received more attention in an international context, particularly in the UK where various levels of government have set an ambitious target of building 60% of new brownfield housing (Fulford 1998, Bibby and Shepherd 1999, Box and Shirley 1999, Cozens *et al.* 1999, Walton 2000, Adams *et al.* 2001, Adams 2004 Tiesdell and Adams 2004). Examining the controversy related to the location of housing in the UK, and assessing the strategies and interests of diverse stakeholders, Adams and Watkins conclude that setting ambitious goals for residential brownfields redevelopment and pitting brownfields versus greenfields may not be productive ways to achieve sustainable housing. They suggest that more fundamental changes in the institutional relationship between the public and private sectors and their respective modes of operation are needed.

Studies on the Canadian situation indicate that the housing option can result in a solid return-on-investment to private developers in such strong residential markets as the city of Toronto; and that the attractiveness of residential brownfield projects can increase considerably with minor changes to existing land use policies and programs (De Sousa 2000). The substantial societal benefits of having people reside on urban brownfields, as opposed to suburban greenfields, were also calculated for the Greater Toronto Area (De Sousa 2002a, 2002b) in an effort to determine if there was a monetary benefit to redeveloping brownfields versus greenfields. Overall, residential use constituted 59% of Toronto's brownfield redevelopment activity between 1990-2000.

However, despite the useful insights that studies in other jurisdictions can provide, their transferability to the American situation is limited by dissimilarities in demographic structure, political organization, social and private sector attitudes, policy-making philosophies, and urban development trends. The present research aims to fill an existing gap in the current U.S. literature, so that a database can be established to assess the residential option empirically. It also takes a comprehensive look at what has been done so far and what needs to be done in this planning domain from the perspective of developers/builders.

METHODOLOGY

The study was designed to be consistent with notions, approaches, and theoretical frameworks used by previous researchers in the area of brownfields redevelopment. Gathering the information necessary for this study required a multi-method approach combining both

qualitative and quantitative techniques. This made it possible to gather relevant information on both the attitudes of those directly involved in residential brownfield redevelopment and on the empirically-quantifiable outcomes that such redevelopment entails. The multi-method approach consisted of:

- 1) gathering data on the location and characteristics of residential brownfield redevelopment activities in the cities of Milwaukee and Chicago from local and state government sources and databases;
- 2) interviewing developers and other relevant stakeholders involved in the development of market-based and affordable residential development in order to assess their attitudes towards costs, risks, and measures for attenuating or overcoming them;
- 3) reviewing residential redevelopment case studies so as to draw out implications from them related to the factors leading to project success from the perspective of the developer and the neighborhood.

The city of Chicago was selected because it is a “rust-belt” city with a very strong residential market that has witnessed an increase in its urban population over the last decade. The city of Milwaukee has also witnessed some residential redevelopment activity in certain areas, but it continues to lose population, and its residential market is much weaker than its suburban one. Both cities are in states with very good voluntary cleanup programs that offer a range of programs and incentives to promote brownfields redevelopment, including for residential use.

In the first phase of research, general data on the location and character of residential brownfield activity in Milwaukee and Chicago was collected and classified from databases maintained by city and state governments. A different approach had to be taken for gathering data from the different cities because each state and city had its own distinct way of collecting and maintaining its information base.

For the city of Milwaukee, the Department of Community Development maintains a database with information about brownfields projects dating back to 1992. This database was cross-referenced, using address information, with their MPROP database that contains information on property characteristics (e.g. assessed value, residential type, etc.). Unfortunately, many projects were not completed or assessed, which necessitated gathering information on property characteristics directly from the developers. Project data was also cross-referenced with the Wisconsin Department of Natural Resources’ remediation database (BRRTS), which contains information on remediation and regulatory issues. Census information was then gathered at the tract level. In order to identify brownfields projects that did not involve the city, a listing of all new development projects maintained by the City Assessors Office was cross-referenced with the BRRTS database to find matches. Relevant MPROP and Census data was then gathered from those sites.

For Chicago, the Illinois Environmental Protection Agency maintains a database with relevant information on site remediation and on the physical state of the brownfield sites enrolled in its Site Remediation Program, including those that have already received a No Further Remediation letter. The NFR database from August 2004, which contains information on projects that received NFR letters between 1997 and 2004, was used for the present study

because the sites are now remediated and have been developed (or are in the latter stages of development). While the NFR database points out whether a property was cleaned to a residential level, it does not explicitly state whether the resulting project is residential. For a few sites, IEPA records could be cross-referenced with property assessment information from the Cook County Assessors office to obtain property information. However, site visits and telephone calls to development companies were required to determine if the final end-use was in fact residential and to gather project information (given that many sites were not assessed). Once the residential brownfields projects were identified, information on city funding and involvement was gathered from individual city departments given that a single department does not maintain such information as it does in Milwaukee.

While the merger of these databases helps paint a more comprehensive picture of residential brownfield redevelopment patterns and characteristics in these cities, several brownfield sites or residential projects may have been missed for several reasons. First, many new residential properties (with many new addresses) can be constructed on a brownfield property with a single address. Therefore, the boundaries of the original sites had to be used to assess where the new development(s) took place. In addition, the site address may change entirely if developers reorient projects on a corner lot from a main street to a side street or vice-versa. Moreover, address information may be maintained in a different manner depending on the database, which required the use of values and text in multiple searches. Ultimately, however, a field visit was made to each brownfield project to ensure that information in the databases was accurate.

In the second phase of research, personal interviews were conducted with residential developers in the two cities. All but one interviews was conducted on a face-to-face basis, which was useful because it helped garner a higher response rate and more forthright answers. This also made it possible to double-check the accuracy of development information for some projects. Twenty-seven interviews (12 in Milwaukee and 15 in Chicago) were conducted. Interviewees were asked questions related to: (1) the characteristics of the organizations they represent; (2) their attitudes towards the costs, risks, and benefits associated with residential brownfields redevelopment; and (3) the effectiveness of different policies and programs getting residential projects realized. Data from the survey is relevant for answering research questions 2 to 4 above regarding developer perceptions and activities, as well as providing a basis for coming up with recommendations for overcoming the barriers to redevelopment.

The third phase of the study involved a more in-depth analysis of different types of residential brownfields projects. Information was gathered by means of interviews with the developers and/or other stakeholders involved in the project, as well as by accessing project records and reports and media reports so as to identify the types of development challenges encountered, how they were overcome, the benefits realized, and the lessons learned. The interviews were largely informal and open-ended. Data from this phase of the research inform all of the research questions by providing "real world" examples of the types of projects being developed (affordable/non-profit, market), their challenges, and the approaches to overcoming them.

Given the complexity of brownfields redevelopment, the real estate market, and the enormous amount of stakeholders and regulatory activity involved in the redevelopment process, it is obvious that no single study and analysis can ever presume to be exhaustive and

all-encompassing. Suffice it to say that the objective here is to flesh out general patterns in residential brownfields redevelopment that can be used as frameworks for future research efforts.

RESULTS OF DEVELOPMENT ACTIVITY ANALYSIS

City of Milwaukee

LOCATION & CHARACTERISTICS OF REDEVELOPMENT

Overall, thirty-two residential brownfields projects have been developed or are in the latter stages of development in the city of Milwaukee. Twenty-one of these projects have received some public support for site assessment, remediation, and/or site preparation activities. These residential projects will be referred to as publicly-assisted projects and represent 30% of all publicly-assisted brownfields redevelopment in Milwaukee. Eleven projects have not received any public funding for brownfields management, but have been built on properties that had one or more records on the State of Wisconsin's BRRTS (brownfields) database. These projects are referred to as private projects, however, it should be noted that a few of these did receive public funds for affordable housing or other property improvements. Of these thirty-two projects, twenty-eight have already been constructed and four are either under construction or in the latter stages of planning.

Figure 1 reveals that a cluster of these projects is concentrated along both sides of the Milwaukee River in an area known as Beerline B which is in close proximity to downtown, although several sites are scattered throughout the south and north sides of the city. In terms of size, the sites take up over 91.5 acres with publicly-assisted sites using more than private ones in terms of total, average, and median size (71 versus 21 acres, 3.4 versus 1.9, 1.0 versus 0.8). Slightly less than half (43%) of the publicly-assisted projects are less than one acre in size, while 29% are between one and three acres, or over 3 acres in size. Most of the private sites (73%) are less than one acre, while 18% are in the one-to three acre range, and 9% over three acres.

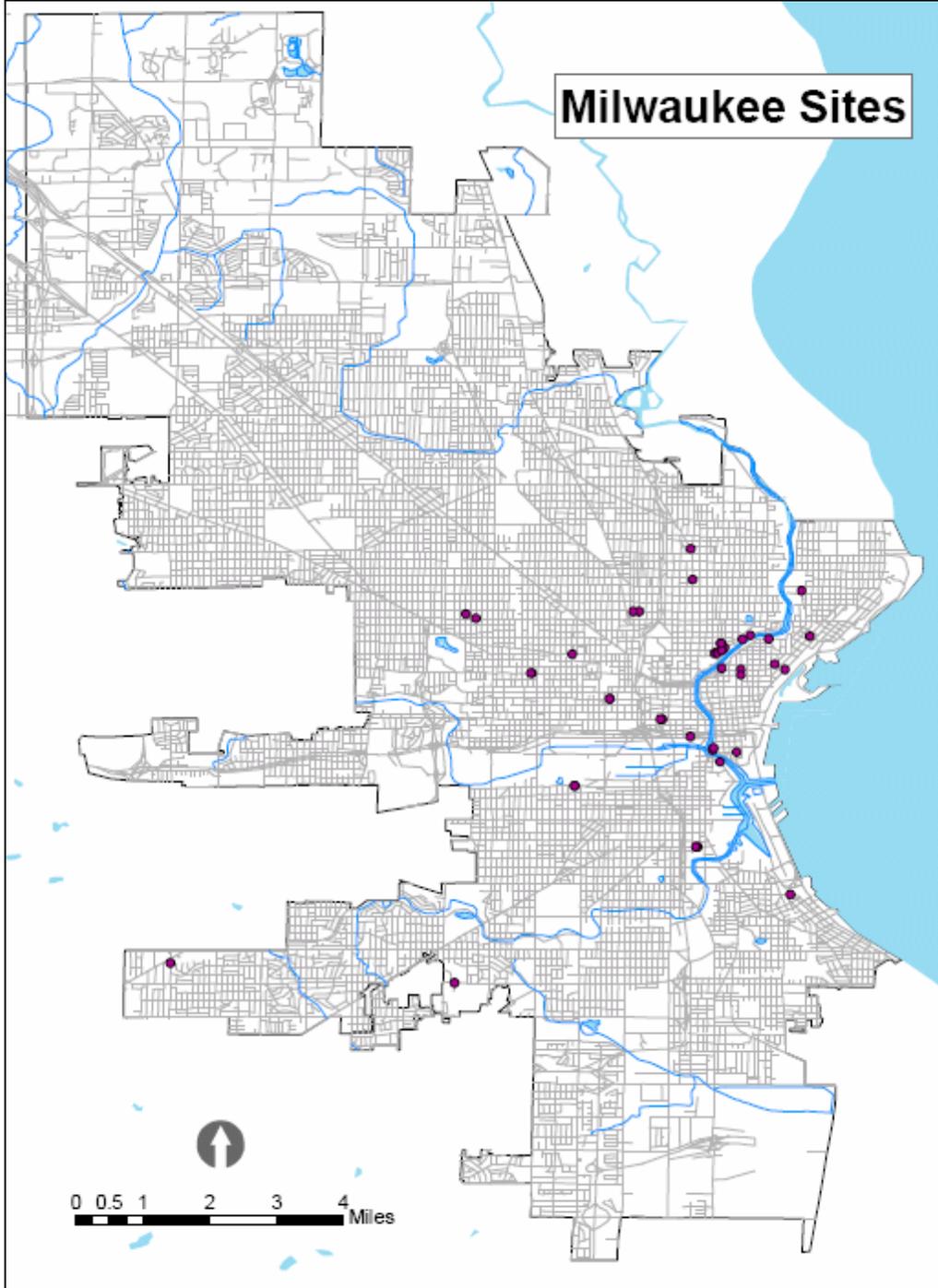


Figure 1: Residential Brownfields Projects, City of Milwaukee (1992-2004)

Projects have resulted in the development or planned development of 2,648 residential units, with a mean of 85 units per project and a median of 44 (see table 4). Over two-thirds of these units have already been fully developed (69%). On average, the private projects generate slightly more units per project, but there are twice as many publicly-assisted projects and units.

| | Total units | Units per project (mean) | Units per project (median) |
|----------------------------|-------------|--------------------------|----------------------------|
| Publicly Assisted Projects | 1,669 | 79 | 38 |
| Private Projects | 979 | 89 | 56 |
| All Projects | 2,648 | 85 | 44 |

Table 4: Residential brownfields units, City of Milwaukee

The vast majority of units overall (83%) are multi-story (3 floors and over) condominiums (for sale) and apartments (for rent)(see table 5). A higher proportion of private projects are multi-story projects (90% versus 79%), which is likely due to their downtown location, the need to recover cleanup costs, and the desire to maximize profitability. In terms of lower-density housing, the publicly-assisted projects are generating more low-density units than the private ones, particularly in terms of townhouse and single-family units.

| | Number of Units | Percent of PA units | Percent of All units |
|------------------------|-----------------|---------------------|----------------------|
| Publicly Assisted (PA) | | | |
| Condo Apartments | 573 | 34% | 22% |
| Apartment | 753 | 45% | 28% |
| Townhouse/Row | 171 | 10% | 6% |
| Duplex/Two Flat | 18 | 1% | 1% |
| Single Family | 154 | 9% | 6% |
| Total Public | 1,669 | 100% | 63% |
| Private Projects | | PP | |
| Condo Apartments | 442 | 45% | 17% |
| Apartment | 437 | 45% | 17% |
| Townhouse/Row | 100 | 10% | 4% |
| Duplex/Two Flat | 0 | 0% | 0% |
| Single Family | 0 | 0% | 0% |
| Total Private | 979 | 100% | 37% |
| All Projects | | | |
| Condo Apartments | 1,015 | | 38% |
| Apartment | 1,190 | | 45% |
| Townhouse/Row | 271 | | 10% |
| Duplex/two Flat | 18 | | 1% |
| Single Family | 154 | | 6% |
| Total Projects | 2,648 | | 100% |

Table 5: Residential brownfields units by type, Milwaukee

To get a general idea of the proportion of all residential development in Milwaukee that has been carried out on brownfields, the projects examined were cross-referenced with a list of developments maintained by the City of Milwaukee. Unfortunately, that list does not include single-family dwellings and is organized by project name, not address, so that not all projects could be matched. On the basis of the 20 projects (10 of 21 public and 10 of 11 private) that were matched, residential brownfields redevelopment represents 18% of the projects built in the city between 1991 and 2004 and accounts for 37% percent of the total units (1,926) constructed. In total, 2,476 units (not including single family and duplexes) have been constructed or are being proposed on brownfields examined here, while 1,926 were developed in the city between 1991 and 2004.

| | Number of units | Percent of PA units | Percent of All units |
|---------------------------------|-----------------|---------------------|----------------------|
| Publicly Assisted (PA) Projects | | | |
| New | 1609 | 96% | 61% |
| Rehab | 60 | 4% | 2% |
| Private Projects | | | |
| New | 538 | 55% | 20% |
| Rehab | 441 | 45% | 17% |
| All Projects | | | |
| New | 2,147 | | 81% |
| Rehab | 501 | | 19% |

Table 6: New versus rehabilitated units on brownfields, Milwaukee

The vast majority of publicly-funded projects involve new construction versus rehabilitation of exiting structures, while the private sector has been more involved in the conversion of industrial and warehouse properties into lofts.

| | Projects | Number of units | Percent of PA units | Percent of All units |
|----------------------------|----------|-----------------|---------------------|----------------------|
| Publicly Assisted Projects | | | PA | All |
| Sale | 11 | 830 | 50% | 31% |
| Rent | 8 | 839 | 50% | 32% |
| Mixed Sale/Rent | 2 | 606 | 36% | 23% |
| Private Projects | | | | |
| Sale | 9 | 542 | 55% | 20% |
| Rent | 1 | 437 | 45% | 17% |
| Mixed Sale/Rent | 1 | 428 | 44% | 16% |
| All Projects | | | | |
| Sale | 20 | 1,372 | | 52% |
| Rent | 9 | 1,276 | | 48% |
| Mixed Sale/Rent | 3 | 1,034 | | 39% |

Table 7: For sale versus for rent units, Milwaukee

While twice as many brownfields projects generated sale versus rental housing, the split in terms of units was almost equal overall, and similar for publicly-assisted and private projects. It should be noted, however, that a large share of the rental units are part of three mixed (sale and rental) mega-projects in Milwaukee. The vast majority of the residential units on brownfields in Milwaukee are market rate (87%) versus affordable (13%), and all but one of the eight affordable projects were carried out using public funding for brownfields related expenses. Interestingly, none of the projects combined market rate and affordable units as many projects in Chicago are seeking to do. As for the private projects, most are market rate except for those built by a company that specializes in rental housing for the affordable market. With regard to who the developers are, most are for profit, followed by a group of non-profit developers (6), one project that was carried collaboratively between and non-profit and a for-profit entity, and one listed here as “city-based”, given that the city was responsible for preparing land and making it ready for sale to individual property owners or builders (see City Homes case study).

| | Projects | Units | Percent PA | Percent All |
|----------------|----------|-------|---------------|----------------|
| Market Rate | 14 | 1417 | 85% | |
| Affordable | 7 | 252 | 15% | |
| Mixed | 0 | | 0% | |
| For Profit | 14 | 1417 | 85% | |
| Non Profit | 6 | 209 | 13% | |
| City | 1 | 43 | 3% | |
| | | | | |
| Market Rate | 10 | 879 | 53% | |
| Affordable | 1 | 100 | 6% | |
| Mixed | 0 | 0 | 0% | |
| For Profit | 10 | 551 | 33% | |
| Non Profit | 0 | 0 | 0% | |
| For/Non Profit | 1 | 428 | 26% | |
| | | | | |
| | | | | |
| Market Rate | 24 | 2296 | | 87% |
| Affordable | 8 | 352 | | 13% |
| Mixed | - | 0 | | 0% |
| For Profit | 24 | 1968 | | 74% |
| Non Profit | 6 | 209 | | 8% |
| For/Non Profit | 1 | 428 | | 16% |
| City | 1 | 43 | | 2% |

Table 8: Market rate versus affordable units, Milwaukee

COST INFORMATION

In total, the thirty-two residential brownfields redevelopment projects examined here are valued at almost \$500 million dollars, or \$15.6 million per project. The publicly-assisted

projects are worth approximately \$329 million (\$15.7 million per project) and private ones approximately \$170 million (\$15.5 million per project). Half of the projects range in value from \$5 million to \$25 million dollars, while 37.5% are valued at below \$5 million, and the remaining four are worth more than \$25 million. Based on the 2005 tax rate for Milwaukee County, the 32 projects will generate approximately \$13.5 million annually in gross taxes, with \$4.6 million of that going to the city.

| | |
|---------------------------------|----------------|
| Publicly Assisted Projects | 21 |
| Total Redevelopment dollars | \$ 329,580,000 |
| Total Redevelopment per project | \$ 15,694,286 |
| Private Projects | 11 |
| Total Redevelopment dollars | \$ 169,952,208 |
| Total Redevelopment per project | \$ 15,450,201 |
| All Projects | 32 |
| Total Redevelopment dollars | \$ 499,532,208 |
| Total Redevelopment per project | \$ 15,610,382 |

Table 9: Residential brownfields redevelopment dollars leveraged, Milwaukee

| | Public Projects | % | Private Projects | % | All Projects | % |
|-----------------------------------|-----------------|-------|------------------|-------|--------------|-------|
| Under \$5 million | 10 | 47.6% | 3 | 27.3% | 13 | 40.6% |
| From \$5 million to \$25 million | 9 | 42.9% | 6 | 54.5% | 15 | 46.9% |
| Over \$25 million to \$50 million | 1 | 4.8% | 1 | 9.1% | 2 | 6.3% |
| Over \$50 Million | 1 | 4.8% | 1 | 9.1% | 2 | 6.3% |
| | 21 | | 11 | | 32 | |

Table 10: Residential brownfields redevelopment dollars leveraged by range, Milwaukee

LAND INFORMATION

Information gathered on the former land use of the brownfield sites reveals that slightly over half of the publicly-assisted sites were vacant properties, many of which had been owned by the City of Milwaukee itself, which had acquired them because they were tax-delinquent or were to be used for transportation projects that never materialized. The other brownfield sites had been used for various industrial/warehouse, transportation, retail, and residential use activities. Eleven of the publicly-assisted sites had multiple uses prior to redevelopment. Private sites, on the other hand, were primarily transportation and industrial parcels, and the only vacant site happened to be a government owned parcel that was initially intended for highway construction.

| Former Land use | Industrial/Warehouse | Transport | Retail | Commercial | Residential | Vacant | Multiple |
|----------------------------|----------------------|-----------|--------|------------|-------------|--------|----------|
| Publicly Assisted projects | 5 | 6 | 5 | 1 | 2 | 15 | 11 |
| Average | 14% | 13% | 11% | 2% | 5% | 54% | 52% |
| Private projects | 5 | 5 | 4 | 1 | 2 | 1 | 6 |
| Average | 27% | 32% | 21% | 3% | 14% | 3% | 55% |
| All projects | 10 | 11 | 9 | 2 | 4 | 16 | 17 |
| Average | 19% | 20% | 15% | 3% | 8% | 36% | 53% |

Table 11: Former use of residential brownfields projects, Milwaukee

Data on the type of remediation activity undertaken at residential brownfields sites was obtained from the Wisconsin DNR's BRRTS database for twenty-five (15 public and 10 private) of the thirty-two projects. Many of the city sites without data were older files that had been "retired." The WDNR designates the types of remediation activity as follows (please see glossary for more detail): (1) leaking underground storage tank (LUST) sites; (2) environmental repair program (ERP) sites, where the source of contamination was caused by something other than a LUST; (3) sites contaminated by spills; (4) general property sites where environmental conditions apply to the whole property, rather than to a specific source of contamination; and (5) No Action Sites where there was or may have been a discharge to the environment, but, based on the known information, the DNR does not require the responsible party to undertake an investigation or cleanup. Half the sites had multiple remediation activity designations, typically consisting of the removal of a LUST in addition to another designation. Most sites had a LUST or ERP activity code. The two properties that had no further action designations also had other designations, but these were determined not to pose a problem after a site assessment was conducted. Most of the private sites (80%) had a single remedial activity identified, typically a LUST (6 sites), an ERP (4), or a Spill (3). Sixty percent of the publicly-assisted sites, on the other hand, had multiple activity designations, with a third of the sites having three or more activity records. Clearly, the more complex cleanup requirements likely necessitated the need for public involvement and funding for site assessment and remediation.

| Type of Remediation Activity | LUST | ERP | VPLE | Spills | General | No Action | Multiple |
|------------------------------|------|-----|------|--------|---------|-----------|----------|
| Publicly Assisted Projects | 9 | 10 | 2 | 1 | 5 | 1 | 9 |
| % of PA projects | 60% | 67% | 13% | 7% | 33% | 7% | 60% |
| Private Projects | 7 | 4 | 0 | 3 | 0 | 1 | 3 |
| % of PP projects | 64% | 36% | 0% | 27% | 0% | 9% | 27% |
| All Projects | 16 | 14 | 2 | 4 | 5 | 2 | 12 |
| % of All projects | 62% | 54% | 8% | 15% | 19% | 8% | 46% |

Table 12: Type remediation activity undertaken at residential brownfields, Milwaukee

PUBLIC INVESTMENT

As mentioned, public funding information retained for brownfield projects by the City of Milwaukee considers site assessment, remediation, demolition, and various related site preparation costs related to brownfields redevelopment. In entering this data, the city often rolls together funds with those from other levels of government. While it was possible to separate city funds from those provided by Milwaukee County, the state DNR, and the state Department of Commerce, federal funding could not be separated from the "amalgam". The city of Milwaukee draws on a range of financial support programs to support brownfields redevelopment. The most common source of funding for the residential brownfields redevelopment projects examined here was RACM (Redevelopment Authority) (71% of projects), which consolidates funds from a variety of sources to support brownfield projects (including federal block grants and capital funds, and money retained from the sale of city-owned property). Other primary sources of funding administered by the city (in order of application) are the following: TIF funds (24% of projects), Community Development Block Grant funds (through HUD)(14% of projects), BGP funds (10%), general public funds (10%), resources from the Milwaukee Economic Development Corporation (5%), and the Department of Public Works (5%). Money from upper levels of government was used for brownfields related activities at seven redevelopment projects, including the Department of Commerce Brownfields Grant (4 projects), DNR's Site Assessment Grant (2 projects), County funds (1 project) and Other (1 project).

In total, funding for brownfields management activities from public sources amounted to \$5.19 million dollars. Of this, 45% came from the city, 45% from Commerce, 7.7% from the County, 1.9% from the DNR, and 0.4% from other sources. City funds were used for all 21 "publicly-assisted" projects, while other government funds were targeted at seven of those projects. Overall, 1 public dollar of brownfields funding leveraged \$64 dollars in residential redevelopment (or 1.6% of total redevelopment leveraged), with 1 city dollar leveraging \$141 (or 0.7%). If one considers just the seven sites that received funding from multiple levels of government, then \$1 public dollar of brownfields funding leveraged \$79 in redevelopment. It should be noted that while those seven projects received 58% of public funds, they generated 70% of the redevelopment dollars leveraged and 65% of the units built or planned.

As mentioned, several of the projects here, including a few of those designated as private, received government funding for non-brownfields oriented costs such as the construction of affordable housing and, in a few cases, TIF funds that were employed in the upgrading of infrastructure (sidewalks, stairwells, streetlights, utilities, etc.). Many of the affordable housing projects received federal low-income housing tax credits, community development block grant funds, and low interest loans from the Wisconsin Housing and Economic Development Agency for housing construction. This funding occurs regardless of whether or not a project is constructed on a brownfield site. In terms of TIF funding for infrastructure, it is difficult to determine to what extent funding for infrastructure improvement, whether on or off site, directly affects a developer's willingness to develop a brownfield specifically. In fact, the projects where TIF was employed for infrastructure were large parcels owned by the government that had previously been cleared for transportation projects that never materialized and did not have severe brownfields issues.

City of Chicago

LOCATION & CHARACTERISTICS OF REDEVELOPMENT

As mentioned, residential brownfield projects in Chicago were identified using the Illinois EPA's No Further Remediation (NFR) database. 210 NFR letters were granted to 159 projects by the IEPA as of August 2004 for cleanup carried out to residential standards (some sites received multiple letters). Of those, 52 were determined to be residential on the basis of site visits. Unlike the Milwaukee case, funding data maintained by the city of Chicago includes all project costs for site acquisition, construction, soft costs, and developer's fees. Brownfield assessment and remediation expenditures were not separated out for the vast majority of projects.

Of the fifty-two projects identified, 25 received public assistance and 27 did not according to information obtained from relevant city departments and developers. Figure 2 on the following page reveals that projects in Chicago are scattered throughout the city. In total, residential redevelopment covered 133 acres of brownfields, with publicly-assisted sites taking up more (78 acres) than private ones (55 acres). The average brownfield redeveloped was 2.5 acres (1 median) in size, with publicly-assisted sites generally larger (3.1 acres mean, 1.5 median) than private ones (2 acres mean, 0.5 median). Almost half of the projects (46%) were less than one acre in size, while 44% were between one to 5 acres, and only 10% were over 5 acres. As in Milwaukee, the private sites are typically smaller than the publicly-assisted ones.

| | # of projects | # of PA projects |
|----------------------------|----------------------|-------------------------|
| Publicly Assisted projects | | |
| Less than 1 acre | 8 | 32% |
| 1 to 5 acres | 14 | 56% |
| Over 5 acres | 3 | 12% |
| Private projects | | |
| Less than 1 acres | 16 | 59% |
| 1 to 5 acres | 9 | 33% |
| Over 5 acres | 2 | 7% |
| All projects | | |
| Less than 1 acres | 24 | 46% |
| 1 to 5 acres | 23 | 44% |
| Over 5 acres | 5 | 10% |

Table 13: Residential brownfields projects categorized by land area, City of Chicago

Projects have resulted in the development or planned development of 7,362 residential units (based on 51 projects), with a mean of 144 units and a median of 82. Slightly less than

two-thirds of these units are part of projects that have been completed (57%). On average, the publicly-assisted projects generate more units per project than the private ones.

| | | Units |
|----------------------------|--------------|--------------|
| | Total | Mean |
| Publicly Assisted Projects | 4,853 | 194 |
| Private Projects | 2,509 | 105 |
| All Projects | 7,362 | 144 |

Table 14: Residential brownfields units, City of Chicago

The vast majority of units overall (83%) are multi-story condominiums (for sale 34%) and apartments (for rent 49%). A higher proportion of private projects are multi-story (93% versus 77%). In terms of lower density product, the publicly-assisted projects are generating more low-density units (14.2% of total) than the private ones (2% of total), particularly in terms of townhouse and single-family units.

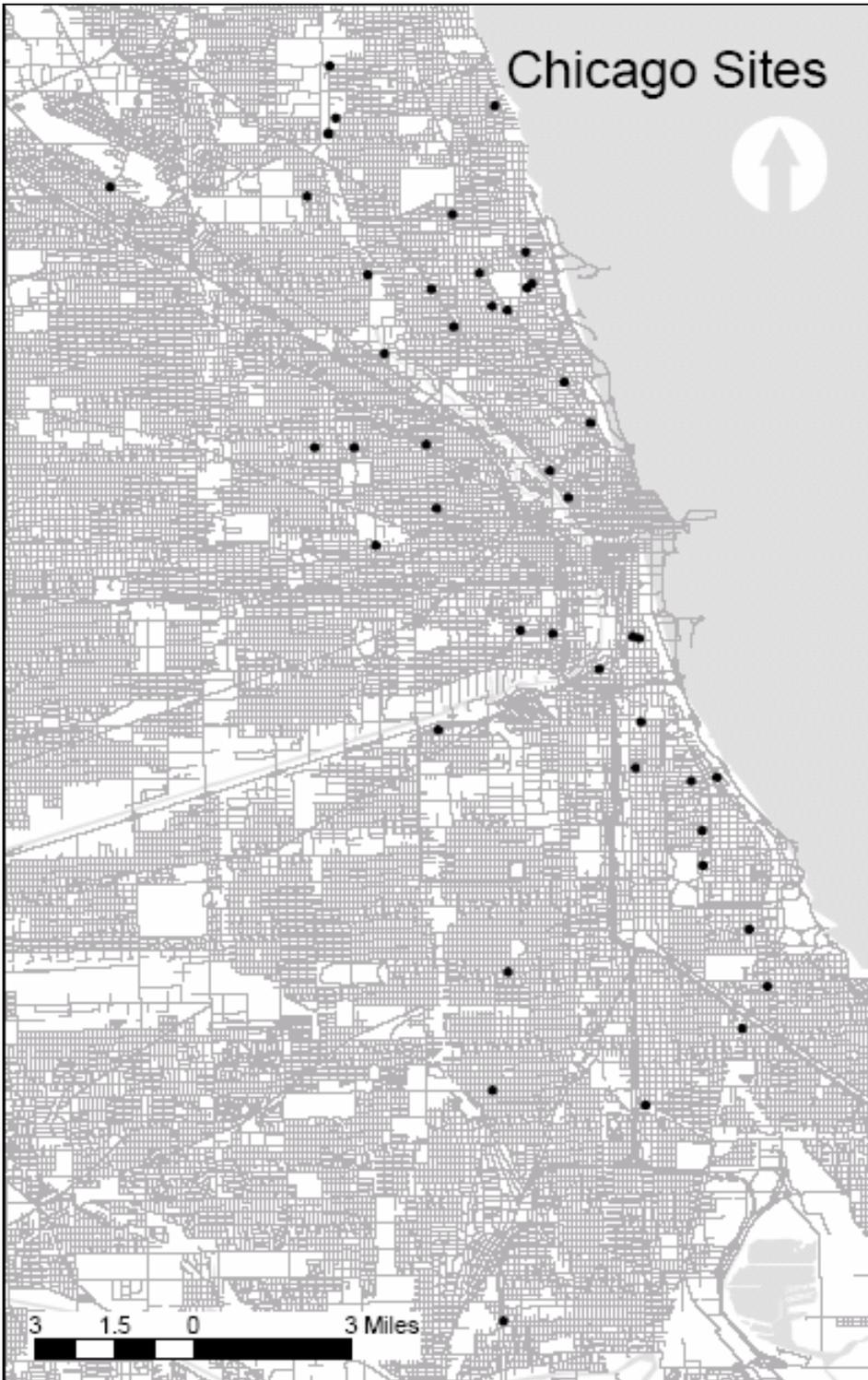


Figure 2: Residential Brownfields Projects, City of Chicago (1997-2004)

| Based on 49 projects | Number | Percent | Percent |
|----------------------------|--------|---------|---------|
| Publicly Assisted Projects | Units | PA | All |
| Condo Apartments | 1279 | 26.4% | 17.4% |
| Apartment | 2481 | 51.1% | 33.7% |
| Townhouse/Row | 603 | 12.4% | 8.2% |
| Duplex/Two Flat | 12 | 0.2% | 0.2% |
| Single Family | 478 | 9.8% | 6.5% |
| Total Public | 4,853 | 100.0% | 65.9% |
| | | | |
| Private Projects | | PP | |
| Condo Apartments | 1202 | 47.9% | 16.3% |
| Apartment | 1141 | 45.5% | 15.5% |
| Townhouse/Row | 34 | 1.4% | 0.5% |
| Duplex/Two Flat | 0 | 0.0% | 0.0% |
| Single Family | 132 | 5.3% | 1.8% |
| Total Private | 2,509 | 100.0% | 34.1% |
| | | | |
| All Projects | | | |
| Condo Apartments | 2,481 | 33.7% | 33.7% |
| Apartment | 3,622 | 49.2% | 49.2% |
| Townhouse/Row | 637 | 8.7% | 8.7% |
| Duplex/two Flat | 12 | 0.2% | 0.2% |
| Single Family | 610 | 8.3% | 8.3% |
| Total Projects | 7,362 | 100.0% | 100.0% |

Table 15: Residential brownfields units by type, Chicago

Unlike Milwaukee, the vast majority of publicly-assisted and private projects involve new construction versus rehabilitation of exiting structures, and the publicly-assisted projects are rehabilitating slightly more units than in private ones. In a few cases, the rehabilitation project did not involve the conversion of an industrial or warehouse property into “lofts”, but rather the sale and updating of existing residential buildings that triggered the need for an environmental action.

| | Units | Percent | Percent |
|----------------------------|-------|---------|---------|
| Publicly Assisted Projects | | PA/PP | All |
| New | 4,430 | 91% | 60% |
| Rehab | 423 | 9% | 6% |
| | | | |
| Private Projects | | | |
| New | 2,401 | 96% | 33% |
| Rehab | 108 | 4% | 1% |

| | Units | Percent | Percent |
|--------------|-------|---------|---------|
| All Projects | | | |
| New | 6,831 | 93% | 93% |
| Rehab | 531 | 7% | 7% |
| Total | 7,362 | | |

Table 16: New versus rehabilitated units, Chicago

Most of the residential units constructed on brownfields are rentals (53%) versus sale properties (47%). The majority of publicly-assisted projects are rentals, while slightly over half of the private units are sale (55%) versus rent (45%). Only three of the projects overall combine rent and sale units. These are rather large projects that represent 10% of the total units built on brownfields.

| | Projects | Units | Percent | Percent |
|----------------------------|----------|-------|---------|---------|
| Publicly Assisted Projects | | | PA/PP | All |
| Sale | 8 | 2098 | 43% | 26% |
| Rent | 15 | 2755 | 57% | 34% |
| Mixed Sale/Rent | 2 | 549 | 10% | 7% |
| NA | 0 | | | |
| Private Projects | | | | |
| Sale | 21 | 1368 | 55% | 17% |
| Rent | 4 | 1141 | 45% | 14% |
| Mixed Sale/Rent | 1 | 173 | 6% | 2% |
| NA | 1 | | | |
| All Projects | | | | |
| Sale | 29 | 3,466 | | 47% |
| Rent | 19 | 3,896 | | 53% |
| Mixed Sale/Rent | 3 | 722 | | 9% |
| NA | 1 | | | |

Table 17: For sale versus for rent units, Chicago

Overall, 2,653 “affordable” units were constructed on brownfields (or 36% of all units), which is significantly higher than in Milwaukee (13%). Although the specific affordability program is not always clearly outlined in the relevant reports or by the developers, it can be roughly estimated that units consist of 1,244 Chicago Housing Authority units, 833 Affordable units, and 576 affordable senior units. Of the 25 projects with assisted housing, 12 were solely-assisted units, while 13 were in projects that mixed market rate units with assisted ones. These mixed developments generated 1025 affordable units, which represented 31% of the 3,337 units those projects generated overall. Information was also more difficult to obtain with

regard to who the developers are given that a smaller percentage of Chicago developers were interviewed. Most are for profit (41 projects), followed by a group of non-profit developers (3 projects), one project that was carried collaboratively between and non-profit and a for-profit entity, and seven were not determined.

COST INFORMATION

In total, the 49 residential brownfields projects for which data was provided generated over \$2.17 billion in redevelopment. Private projects were worth slightly more than publicly-assisted ones, although the values were similar overall. While most projects were valued below fifty million dollars, the 10 mega-projects valued at over fifty million dollars accounted for 79% of the total redevelopment dollars generated by all projects, as well as 60% of the total units.

| | |
|----------------------------|-----------------|
| Public Projects | 24 |
| Total | \$1,043,047,733 |
| Total per project | \$43,460,322 |
| Less than \$10 million | 4 |
| \$10 mil to \$50 mil | 15 |
| Over \$50 mil | 5 |
| Private Projects | 25 |
| Total Redvt \$ | \$1,136,516,331 |
| Total Redvt \$ Per Project | \$45,460,653 |
| Less than \$10 million | 8 |
| \$10 mil to \$50 mil | 12 |
| Over \$50 mil | 5 |
| All Projects | 49 |
| Total Redvt dollars | \$2,179,564,065 |
| Total Redv't per project | \$44,480,899 |
| Less than \$10 million | 12 |
| \$10 mil to \$50 mil | 27 |
| Over \$50 mil | 10 |

Table 18: Residential brownfields redevelopment dollars leveraged, Chicago

LAND INFORMATION

Information gathered on the former land uses of the brownfield sites reveals that the majority of sites had previously been industrial or warehouse properties, followed by retail, residential, transportation, and commercial sites. Several had been vacant before redevelopment. As in Milwaukee, many of the publicly-assisted sites listed multiple previous

uses. Interestingly, several of the publicly-assisted sites were former public housing properties that had been torn down or transferred to another owner. These may have required remediation due to LUST spills, leaks from adjacent land, or historically-elevated levels of contamination that many developers claim affects the entire city and are tied to the Chicago fire of 1871 and historic filling practices. Indeed, a few developers mentioned that background levels maintained by the IEPA are cleaner than most of the residential soils in Chicago. Private sites showed a similar previous-use typology, although few had been residential and outlined multiple uses.

| History | Industrial/ Warehouse | Transportation | Retail | Commercial | Residential | Vacant | No Data | Multiple |
|---------|--------------------------|----------------|--------|------------|-------------|--------|---------|----------|
| Public | 12 | 5 | 4 | 2 | 6 | 3 | 0 | 6 |
| | 48% | 20% | 16% | 8% | 24% | 12% | 0% | 24% |
| Private | 11 | 3 | 7 | 4 | 3 | 3 | 1 | 2 |
| | 41% | 11% | 26% | 15% | 11% | 11% | 4% | 7% |
| All | 23 | 8 | 11 | 6 | 9 | 6 | 1 | 6 |
| | 44% | 15% | 21% | 12% | 17% | 12% | 2% | 12% |

Table 19: Former use of residential brownfields projects, Chicago

In Illinois, the IEPA is authorized to issue an NFR letter to those who have successfully demonstrated that conditions at their sites do not present a significant risk to human health or the environment. There are two types of letters that are issued: (1) a comprehensive letter, which is issued for the successful remediation of an entire site; and (2) a focused letter, which is issued for the release or threatened release of specific contaminants. An equal number of residential developments examined in the present study were issued focused and comprehensive NFR letters (26 each), although publicly-assisted projects were issued slightly more comprehensive letters (14 to 11) and private ones focused letters (15 to 12).

The IEPA also records whether projects involve the use of so-called institutional or engineering controls, an issue of interest to HUD in particular given its policy not to permit their use for multifamily projects. These typically reduce the cost of managing contaminated soils because, rather than treating or removing them, they allow certain contaminants to remain in place as long as they are capped or there are policies ensuring that residents cannot be exposed to them. Many sites in the present study (32) have an institutional control restricting the extraction of groundwater from the site. Slightly over half of the projects (27) also utilize an engineered barrier method to manage contaminants, and for 15 of those projects multiple barriers are listed by the IEPA. The most common barrier is asphalt (i.e., to cap contamination under a parking lot), followed by clean soil, concrete, building foundations, clay, geomembranes, and geotextiles. Slightly more publicly-assisted sites utilize these methods (15 public versus 12 private), which is likely due to the fact that they have more challenging financial and/or contamination issues that require more cost effective management.

| | |
|-------------------------|----|
| Public | |
| Focused | 11 |
| Comprehensive | 14 |
| Groundwater restriction | 16 |
| | |
| Private | |
| Focused | 15 |
| Comprehensive | 12 |
| Groundwater restriction | 16 |
| | |
| All | |
| Focused | 26 |
| Comprehensive | 26 |
| Groundwater restriction | 32 |

Table 20: Engineering and institutional controls, Chicago

| Barrier | Asphalt | Concrete | Clean soil | Geotextile | Geomembrane | Clay | Bldg. Foundation | Multiple |
|----------------------------|---------|----------|------------|------------|-------------|------|------------------|----------|
| Publicly Assisted projects | | | | | | | | 11 |
| 15 | 80% | 47% | 67% | 7% | 0% | 7% | 60% | 73% |
| Private projects | | | | | | | | 4 |
| 12 | 33% | 50% | 33% | 0% | 8% | 8% | 25% | 33% |
| All Projects | | | | | | | | 15 |
| 27 | 59% | 48% | 52% | 4% | 4% | 7% | 44% | 56% |

Table 21: Type remediation activity undertaken at residential brownfields, Chicago

PUBLIC INVESTMENT

Unlike the data for the city of Milwaukee, public funding information for residential brownfield projects was not maintained by the City of Chicago in a methodical fashion for all projects and it considered funding allocated for several components of projects (e.g., infrastructure, public housing, cleanup and assessment,), as opposed to brownfields related costs specifically. Information on funding was also retained by multiple departments, making it difficult to get a comprehensive picture of the amount of public subsidy provided. That said, data were obtained for 18 of the 25 projects that had received some form of public funding.

In total, the 18 projects with data received \$164 million dollars in TIFs, loans, bonds, grants and other forms of funding. Most of these projects (10 of 18) received support in the form Tax Increment Financing, which was also the primary source of public funding overall (\$104 million). Projects also received funding directly from the EPA Showcase program (3 for

\$13.2 thousand), Chicago's HOME program (2 for \$16 million), reduced land prices (2 for \$203 thousand), the Chicago Housing Authority (1 for \$1.7 million), and for infrastructure (1 for \$2 million). Tax Credits amounting to \$7.56 million were also provided by Chicago's Department of Housing (4 projects for \$1.95 million) and the State of Illinois (8 for \$5.6 million). Bond and loan programs were also employed, including City's HOME program (5 for \$21.3 million), Department of Environment (3 projects for \$5 million), Mortgage Revenue Bonds (1 for \$7.5 million), and Tax Exempt Bonds (3 for \$6.14 million). In total, the value of the 18 projects amounted to \$991 million dollars. TIF funded projects generating over \$913 million dollars, with \$1 TIF dollar generating \$8.76 in investment. It should be noted that those receiving TIF funds for residential redevelopment in Chicago must include at least 20% affordable units.

DEVELOPMENT SURVEY RESULTS

As mentioned, interviews were conducted with 27 developers involved in residential brownfields redevelopment. In Milwaukee, twelve of the nineteen developers responsible for the 32 projects examined agreed to an interview. Interviewees were not explicitly asked to respond to questions on the basis of whether or not they received public assistance. In Chicago, 15 interviews were carried out with developers. Only one of the developers interviewed operated in both Milwaukee and Chicago, although three Chicago developers claimed they were interested in the Milwaukee market. The questions sought to obtain information on the characteristics of the companies undertaking residential brownfields redevelopment, on issues related to project redevelopment, and on ways to increase residential redevelopment on brownfields.

City of Milwaukee

DEVELOPER CHARACTERISTICS

An important question for government officials seeking to attract brownfields redevelopment is what sort of development companies are willing to take on the challenge of such redevelopment. In Milwaukee, the developers interviewed have been involved for an average of 17 years (13 years median) and all have been involved in more than one brownfields project. The interviewees stated that they are involved on average in three brownfields projects in a given year (2 median), averaging to about nine projects (5 median) since 1995. Only two of the interviewees are involved in more greenfield than brownfield projects.

Most of the developers interviewed specialize in the construction of multi-story apartments and condominiums (10 of 12), while slightly under half (5 of 12) stated that they also build single-family and townhome products. Only one interviewee was engaged in the construction of duplex homes. Those involved in greenfields stated that that product typically consisted of lower density units (4 single family, versus 2 townhouses and 2 apartment/condos out of the 12). All but two developers are involved in new construction versus rehabilitation (4) and only two of the developers stated that they are involved in both. Many of the developers first attempted brownfields, and rehabilitation projects, for the "challenge" and the desire to expand their portfolio.

Half of the Milwaukee developers were constructing affordable housing, (with half of those concentrating on it exclusively). All but two engage in other forms of redevelopment (commercial retail or office), largely as adjuncts to residential projects. When asked generally what they felt about the condition of the brownfields market in Milwaukee, all stated that the market for brownfields redevelopment was good or very good, particularly for those experienced with brownfields. As one interviewee put it, “brownfields continue to be a great niche market for a handful of developers because it still tends to help scare away the competition.”

PROJECT DEVELOPMENT

When asked to list and rank the factors/features that attracted them to a particular brownfield site, the most common response was the property's proximity to the downtown core, followed by access to services, good neighborhoods, proximity to natural amenities, the low price of land, and attractive views (see table below for additional factors). Most of the factors related to location, but several also related to attributes associated typically with brownfields (i.e., the low price of land, the availability of an area-wide development plan, subsidy provisions, large lot sizes, availability of buildings for reuse, and constructions that qualify for historical designation), or to the desire to address typical urban problems (i.e., redevelopment as a good catalyst for renewal, for stabilizing neighborhoods, for providing affordable housing).

| | Milwaukee |
|---|------------------|
| | Frequency |
| Proximity to Downtown | 5 |
| Access to Services | 4 |
| Good Neighborhood | 4 |
| Proximity to Natural Amenities | 3 |
| Low Price of Land | 3 |
| Attractive Views | 3 |
| Strong Property Market (feasibility) | 2 |
| Proximity to Public Transit | 2 |
| Guidance of a Development Plan | 2 |
| Qualify for Subsidy | 2 |
| Proximity to Roadway/Highway | 2 |
| Large Lot Size | 2 |
| No Adverse uses Close by | 2 |
| Good Catalyst for Renewal | 2 |
| Stabilize Neighborhood | 1 |
| Provide Affordable Housing | 1 |
| Buildings Available for Reuse | 1 |
| Building Qualifies for Historical Designation | 1 |

Table 22: Benefits of residential brownfields redevelopment, Milwaukee

In terms of barriers to residential redevelopment, the most common response was the cost (or amount) of cleanup required, with two or more respondents also mentioning liability

risks, longer project duration, and “unknown” or “surprise” costs. Various additional barriers were mentioned by single respondents.

| | Milwaukee |
|---|-----------|
| | Frequency |
| Amount /Cost of Cleanup Required | 7 |
| Liability Risks | 3 |
| Added Project Duration | 3 |
| Unknown Costs | 2 |
| Amount of Responsibility for Cleanup | 1 |
| Need to Disclose Cleanup | 1 |
| Upfront Site Investigation Costs | 1 |
| Liability Costs | 1 |
| Project Costs | 1 |
| Land Costs | 1 |
| Land Acquisition Issues | 1 |
| Regulation (State Environmental Agency) | 1 |
| Regulation (City) | 1 |
| Zoning Issues | 1 |
| Barriers are Minimal | 1 |
| Difficulty Obtaining Financing | 1 |

Table 23: Barriers to residential brownfields redevelopment, Milwaukee

In an effort to get a more detailed understanding of the barriers, interviewees were then asked to compare the difficulty of developing brownfields versus greenfields (or clean sites) in relation to specific stages of the development process, ranking the relative difficulty on a scale of 1 to 5 (with 1 = much less difficult, 2 = somewhat less difficult, 3 = same level of difficulty, 4 = somewhat more difficult, and 5 = much more difficult). In terms of land acquisition, the average ranking was 3.4 (mode 5) suggesting that there was slightly more difficulty associated with acquiring brownfields. However, there was a high degree of variability in the responses, with several interviewees claiming that it was more difficult to acquire a brownfield site because of the time required to study it prior to acquisition, and others suggesting that it was easier to acquire a brownfield site if it were owned by the city. The respondents did agree, however, that it was much more difficult to prepare a brownfield site for redevelopment (4.5 mean, 5 mode) given, as one interviewee put it, the “five troubles of preparing a brownfield: assembly, assessment, cleanup, demolition, and staging.” And, most noted the hassle involved in obtaining approval for all of these from the city and other regulatory agencies.

The respondents felt that it was only slightly more difficult (3.6 mean, 3.0 mode) to obtain financing for a brownfield. As one interviewee aptly put it, “Banks still get a bit nervous about environmental issues;” however, many mentioned that the banks were becoming more willing to provide support, particularly to developers that had a good track record, even if that track-record was based on greenfield projects. In terms of planning, most indicated that it was the same on average (3.1 mean, 3.0 mode), with some stating that it was slightly less difficult because the city helped cut through the bureaucratic red tape. Some stated that it still took additional time to plan and that the city was still “too picky” over design issues. The only

component of the development process in which the respondents considered brownfields slightly less difficult than greenfields related to PR and marketing issues (2.6 mean, 3 mode), because of the current popularity of many downtown locations. In terms of stakeholder involvement, it was perceived to be slightly more difficult to redevelop brownfields (3.6 mean, 4.0 mode) because of the greater number of players and the need interact with them more closely. Lastly, and perhaps most importantly, was profitability. The average score suggests a similar level of difficulty (3.4 average, 3 mode), with only slightly more difficulty being perceived in making a profit on a brownfield project. There was quite a bit of variability in this regard, with most (45%) feeling that they were equal, some (36%) feeling that it was more difficult to garner a profit because of unknown costs and increased contingency, and some (18%) feeling that brownfields were more profitable because of the good real estate market and the potential to acquire brownfield land at a discounted price.

INCREASING RESIDENTIAL REDEVELOPMENT ON BROWNFIELDS

Most of the public sector interventions perceived as necessary for increasing residential development on brownfields in Milwaukee related directly to improving the bottom-line of these projects, whether through some form of direct funding to help cover costs, relaxing regulatory requirements to minimize cleanup and/or time-related costs, or reducing land acquisition costs. Other suggestions included: assembling and remediating properties prior to redevelopment (by the city), relaxing design guidelines, facilitating funding application procedures, and enhancing infrastructure.

| | Milwaukee |
|---|------------------|
| | Frequency |
| Additional Funding | 6 |
| Funding for Site Cleanup | 3 |
| Funding for Residential Reuse (state and federal) | 3 |
| Tax Credits | 3 |
| Tax Increment Financing | 3 |
| City Assembles and Cleans Sites | 3 |
| Reduction of Land Costs | 3 |
| Loosen Design Guidelines | 2 |
| Streamline Regulatory Procedures | 2 |
| Loosen State Cleanup Standards for Urban Sites | 2 |
| Funding for Site Investigations | 1 |
| Facilitate Funding Application Procedures | 1 |
| Advertise Government Funding Opportunities | 1 |
| Municipal Sharing of Land Holding Costs | 1 |
| Infrastructure Enhancement | 1 |

Table 24: Public initiatives and interventions for encouraging brownfields redevelopment, Milwaukee

The respondents revealed a similar outlook when they were asked to rank on a scale of 1 (not effective) to 5 (very effective) individual tools for facilitating redevelopment. Overall, respondents in Milwaukee felt that all but the creation of a brownfields inventory would be moderately effective (3 and over). All of the financial instruments were looked upon very favorably, with liability protection and site acquisition facilitation ranking in the top five.

| | Milwaukee |
|---|-----------|
| | Score |
| Tax increment financing | 4.9 |
| Community Development Block Grants | 4.8 |
| Government facilitates site acquisition | 4.8 |
| Loan guarantees | 4.8 |
| Protection from 3rd party liability | 4.8 |
| Protection from future liability | 4.7 |
| Site remediation and demolition grants | 4.7 |
| Government financing low interest loans | 4.6 |
| Federal/State tax credits | 4.6 |
| Government performs assessment and cleanup | 4.5 |
| Empowerment Zone loans | 4.4 |
| Permitting the use of institutional/engineering controls | 4.4 |
| Public insurance (cost cap/future liability) | 4.3 |
| Coordination of project implementation & funding at the local level | 4.3 |
| Site assessment and remediation loans | 4.3 |
| Property tax abatement | 4.2 |
| State housing finance assistance | 4.2 |
| Fast tracking of approvals | 4.2 |
| Rezoning property to residential use | 4.1 |
| Site assessment grants | 4.1 |
| Public-Private joint venture opportunities | 3.9 |
| Density bonusing | 3.9 |
| Coordination of project implementation & funding at the state level | 3.8 |
| Government organizes public consultation | 3.7 |
| Technical guidance manuals | 3.4 |
| Brownfields inventory | 2.9 |

Table 25: Ranking of government incentives for residential brownfields redevelopment, Milwaukee

City of Chicago

DEVELOPER CHARACTERISTICS

The developers interviewed in Chicago represent established companies that have been involved in development for an average of 23 years (13 year median). As in Milwaukee, many developers established a Limited Liability Corporation (LLC) or partnership to undertake brownfields projects. The interviewees are involved in 2 residential brownfields projects per

year on average (2 median), versus 3 greenfield (or clean site projects) (2 median), with most having been involved in 8 brownfields projects since 1995 (4 median) and 11 greenfields (4 median).

Most of the developers interviewed specialize in the construction of multi-story apartments and condominiums (80%), while 60% stated that they also build townhouses/row houses, 40% single-family dwellings, and 10% duplex/tow-flat homes. Many of those that developed suburban greenfields or clean sites also stated that they constructed multi-story projects on those sites, in addition to lower density products. As in Milwaukee, all but two developers are involved in new construction versus rehabilitation (6) and three of the developers stated that they are involved in both. Ten of the fifteen respondents are involved to some degree in the construction of affordable housing, with three concentrating on it exclusively. Eight of the interviewees stated that they undertake other forms of redevelopment (particularly commercial retail or office), although most do it as an adjunct to their residential projects.

PROJECT DEVELOPMENT

When asked to list and rank the factors/features that attract them to a particular brownfields from a residential perspective, the most common response was the property's proximity to public transit and the strength of the area's property market. Three or more interviewees also mentioned proximity to roadways and highways, good neighborhoods, and gentrifying/"yuppifying" neighborhoods. As in Milwaukee, most of the factors related to location and surrounding amenities, and a few related to attributes associated with brownfields (i.e., the low price of land, large lot size, availability of buildings for reuse), or to socio-economic factors (affordable housing, stabilizing neighborhoods, etc.). All in all, most interviewees in Chicago were largely interested in brownfields located close to transit, possessing natural/cultural amenities, and having services that were in neighborhoods that were perceived to be on the cusp of renewal.

| | Chicago |
|--------------------------------------|------------------|
| | Frequency |
| Strong Property Market (feasibility) | 6 |
| Proximity to Public Transit | 6 |
| Proximity to Roadway/Highway | 5 |
| Good Neighborhood | 4 |
| Gentrifying/Yuppifying Area | 3 |
| Proximity to Downtown | 2 |
| Proximity to Natural Amenities | 2 |
| Minimal Cleanup | 2 |
| Access to Services | 1 |
| Low Price of Land | 1 |
| Stabilize Neighborhood | 1 |
| Provide Affordable Housing | 1 |
| Proximity to Cultural Amenities | 1 |
| Project Visibility | 1 |
| Low Crime (or Perception of) | 1 |

| | Chicago |
|-------------------------------|------------------|
| | Frequency |
| Buildings Available for Reuse | 1 |
| Large Lot Size | 1 |

Table 26: Benefits of residential brownfields redevelopment, Chicago

As in Milwaukee, the main barrier to redevelopment was identified as being the cost (or amount) of cleanup. Many interviewees also emphasized regulatory hurdles that added to project duration, at both the state and city government levels. Other barriers related to unknown costs, the difficulty in obtaining financing, weak markets, and a lack of public funding. A couple of interviewees stated that the barriers to brownfields redevelopment were minimal nevertheless and, interestingly, no one mentioned liability risks. Access to brownfield sites and to city support was perceived as critical. In the case of the latter, there is a perception among several developers that there are three types of developers in Chicago: (1) those favored by the city, (2) those working towards being favored, and (3) those that did not see themselves as favored. While some claimed that being favored involved political connections and donations, others felt that it involved a willingness to do what the city asked in terms of affordability, green space, and delivering other public benefits. As one interviewee put it, “working with the city will get you a speedier review and first dibs on future brownfields.”

| | Chicago |
|---|------------------|
| | Frequency |
| Amount /Cost of Cleanup Required | 8 |
| Regulation (State Environmental Agency) | 4 |
| Negative Site Perception | 4 |
| Added Project Duration | 3 |
| Unknown Costs | 3 |
| Regulation (general) | 3 |
| Regulation (City) | 2 |
| Barriers are Minimal | 2 |
| Difficulty Obtaining Financing | 2 |
| Weak Market | 2 |
| Lack of Public Funding | 2 |
| Project Costs | 1 |
| Land Costs | 1 |
| Zoning Issues | 1 |
| Determining Appropriate Product | 1 |

Table 27: Barriers to residential brownfields redevelopment, Chicago

Overall, most of those surveyed in Chicago found all aspects of brownfields redevelopment to be as difficult or more difficult than greenfield or clean site development. Site acquisition was considered slightly more difficult (3.6 mean, 3.0 mode) due to a need to assemble multiple parcels or study the site in greater detail prior to obtaining it. Site

preparation was considered much more difficult (4.4 mean, 5.0 mode) because of the additional time required for assessment, cleanup, and review. In regards to financing, many interviewees still found it slightly more difficult to obtain (3.9 mean, 3 mode).

Planning and development, marketing, and stakeholder involvement were considered only moderately more challenging (3.5 mean, 3 mode). While profitability was considered virtually the same (3.1 mean, 3.0 mode), there was general agreement that project duration was more difficult (4.1 mean, 4.0 mode) due to the need to obtain multiple approvals from regulatory agencies.

INCREASING RESIDENTIAL REDEVELOPMENT ON BROWNFIELDS

When asked to point out measures for increasing residential development on brownfields, just over half of those interviewed pointed out the need to streamline regulatory procedures in order to make them less time-consuming and onerous. Indeed, two of the interviewees pointed out that no more public involvement is required because, as they put it, “their involvement only complicates matters.” Most other suggestions related to relevant costs (i.e., additional funding, TIF financing, funding for residential use specifically, and reducing land costs), while the remainder related to regulation (i.e., loosening cleanup standards, leveling the playing field in terms of access to brownfields, and developing a comprehensive brownfields plan).

| | Chicago |
|---|------------------|
| | Frequency |
| Streamline Regulatory Procedures | 8 |
| Additional Funding | 5 |
| Tax Increment Financing | 4 |
| Funding for Residential Reuse (state and federal) | 3 |
| Reduction of Land Costs | 2 |
| Loosen State Cleanup Standards for Urban Sites | 2 |
| None, Government Interference Only Complicates | 2 |
| Level Developer Playing Field | 1 |
| Develop a Comprehensive Brownfields Plan | 1 |

Table 28: Public initiatives and interventions for encouraging brownfields redevelopment, Chicago

When asked to rank specific tools, the interviewees emphasized the need to implement “fast-track” approvals as the most important ones. Like the Milwaukee developers, most ranked financial tools highly. The lowest ranked was government facilitation of public consultation, given that many felt it would take too long.

| | Chicago |
|---|-----------|
| | Frequency |
| Fast tracking of approvals | 4.8 |
| Tax increment financing | 4.7 |
| Site remediation and demolition grants | 4.6 |
| Federal/State tax credits | 4.5 |
| Site assessment and remediation loans | 4.5 |
| Property tax abatement | 4.4 |
| Community Development Block Grants | 4.3 |
| Site assessment grants | 4.3 |
| Density bonusing | 4.2 |
| Protection from 3rd party liability | 4.1 |
| Protection from future liability | 4.1 |
| State housing finance assistance | 4.1 |
| Rezoning property to residential use | 4.1 |
| Government financing low interest loans | 4.1 |
| Public insurance (cost cap/future liability) | 4.1 |
| Coordination of project implementation & funding at the state level | 4.0 |
| Empowerment Zone loans | 3.9 |
| Permitting the use of institutional controls | 3.9 |
| Loan guarantees | 3.8 |
| Coordination of project implementation & funding at the local level | 3.7 |
| Government performs assessment and cleanup | 3.6 |
| Public-Private joint venture opportunities | 3.4 |
| Government facilitates site acquisition | 3.2 |
| Brownfields inventory | 3.2 |
| Technical guidance manuals | 3.1 |
| Government organizes public consultation | 2.3 |

Table 29: Ranking of government incentives for residential brownfields redevelopment, Chicago

DISCUSSION OF RESULTS

The results that have emerged from both the redevelopment data and the interviews reveal, above all else, that despite the limited attention paid to residential brownfields reuse, “business is booming,” so to speak, and more can and should be done to tap the potential of residential reuse. Developers are acquiring, planning, and building on brownfields, because, more importantly, consumers are buying and renting their products. Redevelopment activity is particularly strong in what seem to be the best locations in the city; namely, sites that are in close proximity to the downtown core with access to services, natural features and various social amenities. But development has clearly gone beyond what real estate professionals refer to as “cherry picking” the best properties in the best locales, given that many projects are distributed throughout the city, and governments are successfully luring development to those parts of the city that few would have ventured to go into in the recent past. In terms of location, both the Milwaukee and Chicago cases reveal that government acquisition,

assessment, planning, and funding can play a very important role in guiding the location of redevelopment.

Overall, it is clear that residential brownfields redevelopment is generating a significant number of units in both cities and accounts for a considerable share of residential redevelopment activity. The types of dwellings being constructed in both cities are primarily multi-unit, which corroborates observations in the relevant literature. However, both cities are involved in lower density residential projects that are being rapidly snatched up by consumers. Thus far, however, many of the lower density developments examined here still tend to require public-assistance support to cover environmental costs.

One of the primary concerns about residential development is that developers will build mainly mid- to high-end product to cover costs and maximize profits and, thus, contribute to the gentrification of neighborhoods. The data reveal that there is indeed some truth to this assumption, particularly in those areas close to the downtown core. However, in compensation, numerous affordable housing units are also being constructed, and in Chicago, efforts to mix affordable and market housing point to a more inclusive strategy overall.

Another area of concern is that residential development will take up the city's remaining industrial properties, scaring away industry. The data reveal, however, that these projects are taking place on all kinds of sites that range extensively in size, and many of which have lain vacant for decades. Furthermore, both Chicago and Milwaukee have made efforts to clearly define which industrial districts will remain "industrial" and which will not. Perhaps the attributes identified by developers in the present study might help city governments better decide which industrial brownfields districts have the best potential for residential reuse and which do not.

Unlike industrial and commercial reuse, the data also reveal that many developers are willing to undertake residential projects on contaminated sites without government intervention and funding, which are often perceived to involve only bureaucratic delays and entanglements. The amount of contamination they are willing to cleanup is largely dependent on the strength of the market, although properties with more complex conditions still tend to require more government support from multiple sources. Governments, however, should not take this as an argument to continue to provide few resources to residential brownfields redevelopment. Indeed, large-scale projects that involve public-private partnerships generate an extensive number of units and redevelopment dollars, and, as a byproduct more tax dollars, in addition to erasing blight. Therefore, greater financial support from government will not likely result in developers holding out their hands for projects they would have carried out anyway, but rather get them to take on more challenging brownfields properties.

One policy mechanism that interviewees in both cities did not seem interested in was the preparation of brownfields inventories. However, the project data and interviews clearly revealed that developers are interested in developing city-owned brownfields, particularly if they have already been assembled, assessed, and planned to some degree. There is indeed a tendency for a brownfields inventory to be perceived as a "negative" catalogue of dirty sites. What might be useful, however, would be a portfolio of potential redevelopment sites, with information on the property, the local real estate market, neighborhood characteristics,

potential contamination issues, and possible government incentives. This portfolio can be site-specific, or combined with an area-wide plan (as in Milwaukee's Beerline B project).

One noticeable difference between the Chicago and Milwaukee cases was the frustration of developers with government regulation and involvement. The difference in perception seems to be largely due to the more streamlined approach to managing brownfields taken in Milwaukee, where the Department of City Development oversees brownfield issues related to cleanup, planning, development, and funding. In Chicago, however, developers must consult with the Department of Environment regarding cleanup, the Department of Planning regarding zoning, approvals, and funding, and the Department of Housing regarding affordability. At the state level, the Wisconsin DNR and Department of Commerce have also worked closely together in developing ways to facilitate regulatory and funding procedures, and to work with the city. This "one-stop-shop" approach has been recommended by many brownfields studies, but is particularly relevant to residential projects given the willingness of developers to undertake them on their own, as long as regulatory structures are nominal.

The literature on brownfields has also raised concern regarding difficulties involved in acquiring financing for residential brownfields projects due to the lenders' aversion to risk and to policies developed by HUD and the FHA that demand stringent cleanup standards. The development data and the interviews reveal that these concerns do not seem to be inhibiting redevelopment, but that stakeholders try to work through these constraints in order to realize the project. Indeed, the market and private lenders also seem to be willing to accept the use of both engineering and institutional controls as a way of managing contamination at residential projects. It is important therefore for HUD to consider revising its policy. Indeed, one could argue that HUD should target brownfields specifically because of their location in many communities that require affordable housing, as well as to address the negative social and environmental problems associated with brownfields. It should also be noted, however, that both the public and private sectors must maintain more detailed and geographically accurate information on the location of these sites and what was arranged so that it is not lost over time.

In terms of incentives for generating affordable housing, which is a challenge for both cities, most developers believe that more funding is the best option. The data reveal that deciding when to "push" the affordability issue can be tricky. In Milwaukee, many for-profit developers feel that they are already generating public benefits by remediating and redeveloping derelict and contaminated brownfields and that there is enough affordable housing in the city. Therefore, it is proving quite difficult for government to convince builders to include affordability in their projects. The Chicago case reveals, however, that in a strong market, city-based programs and incentives, and even access to brownfield sites for redevelopment can get developers to incorporate affordability, even in "higher-end" projects.

CONCLUDING REMARKS

The present study reveals that despite limited attention devoted to the issue, residential redevelopment on brownfields has been rather extensive over the past decade and will likely continue to increase as more developers enter the urban market and become more comfortable managing the costs and risks. While the patterns of redevelopment activity differ slightly in both cities, it would seem that Milwaukee is following a similar path to that of Chicago, but is at

an earlier stage along that path. Thus far, brownfields redevelopment in Milwaukee consists largely of mid- to high-end, high-density, market rate housing built by for-profit developers clustered in neighborhoods near the downtown core, while lower density and affordable units are constructed in other parts of the city mainly by non-profits or the municipal government with the hope of sparking interest in renewal. In Chicago, market rate and affordable projects are scattered throughout the city, although proximity to the downtown core continues to attract much of the private development interest. The research also reveals that developers are utilizing brownfields of many different types and sizes, which highlights the potential of residential redevelopment from a brownfields and an urban infill perspective. While private dollars seem to be going mainly to projects that involve minimal contamination and maximum location-oriented amenities, public dollars and support still play a key role in both attracting and situating new development in both cities.

While developing on brownfields is indeed perceived as slightly more costly and risky than greenfields, views regarding costs and risk are strongly tied to the experience of developers in managing them. The more experienced developers consider brownfields management as just another aspect of development, while those with less tend to react more cautiously, but are willing to "do it again." Projects, therefore, are occurring at an increasing rate driven by a small group of "veteran" urban developers, many of whom now concentrate on larger-scale mega-projects, and a cadre of new developers trying out the brownfields market on smaller properties. In both cities, the vast majority of developers feel that greater financial assistance is the key to increasing residential redevelopment. However, many are still willing to go about profitable projects on their own, particularly if it helps avoid bureaucratic entanglement and delays.

Government intervention is important for residential brownfields redevelopment on several counts. In areas with extensive cleanup problems, public funding is very important for managing costs. There are, in fact, many different tools that have been applied successfully to facilitate redevelopment. In areas with fewer cleanup challenges, the efficiency of government intervention is perceived as essential for managing time-related costs and attenuating developer frustration. Government intervention is also important for shaping the scale, character, and location of residential redevelopment. The needs of both government and developers can be satisfied as far as the market allows it, even to the point of mixing affordable with market rate housing.

It is important at this stage for governments to take a closer look at the potential of residential redevelopment to help manage the brownfields problem and to harness its potential in a more strategic way. Cities must take a more comprehensive look at their brownfields inventories, develop portfolios of city and privately owned brownfields, and then devise site-specific or area-wide strategies for renewal based on public and private interests. The market for residential redevelopment is strengthening in many cities across the US, and those with a better environment for developers to work in, in terms of procedures and incentives, will be best able to "ride" that market. Clearly, residential reuse is an important piece of the brownfields puzzle that should no longer take a back seat to other uses.

RECOMMENDATIONS

Results from the analysis of redevelopment data, the surveys, and the case studies outlined in the appendix of the present study, help answer the fourth question related to mapping out a strategy for future brownfields redevelopment issues in the cities of Milwaukee and Chicago specifically and in other cities more generally. These are outlined below as key recommendations, and organized on by level of government:

Housing and Urban Development:

- HUD should permit the use of risk-based methods for residential brownfields redevelopment, including the use of engineering and institutional controls, particularly given that the market and consumers have accepted them based on the activities witnessed in these two cities.
- HUD should focus more directly on promoting residential development on brownfields for both affordable and market rate housing given the location of many of these sites in communities in need of affordable housing, the potential of residential development generally, and to bring about the socio-economic and environmental benefits associated with redeveloping these sites.

Environmental Protection Agency:

- The EPA should work closely with state governments to develop and implement policies for regulating residential brownfields redevelopment in order to promote certainty and consistency for developers.
- The EPA should develop funding programs that promote residential brownfields redevelopment, particularly given the public return on investment that they can offer and the higher remediation standards these projects are typically required to meet.

State Governments:

- State governments in Illinois and Wisconsin, as well as in other parts of the country, should provide more funding opportunities for residential brownfields redevelopment, particularly given that such projects are relatively under funded, but generate significant benefits.
- State governments in Illinois and Wisconsin, as well as in other parts of the country, must examine ways in which to speed up the review process in their voluntary cleanup programs.
- State voluntary cleanup programs must retain better records of the remediation activities carried out at brownfields redevelopment projects and make better use of geographic information systems to map the location of engineered barriers and other controls to ensure long-term management.

Local Government:

- Local governments must implement a “one-stop-shop” to both facilitate and regulate brownfields redevelopment in their communities, preferably within a department that

can integrate economic, environmental, and community-based aspects of redevelopment.

- Local governments must come up with both area-wide and site-specific strategies for redevelopment, preferably in consultation with the development community, to maximize the potential of infill development and to support large scale projects.
- Local government must devise strategies for both market rate and affordable housing in conjunction with private developers and non-profits.
- Local governments must better track their involvement in brownfields redevelopment so as to better understand redevelopment outcomes related to both housing and economic variables, but also sustainability oriented ones.

CASE STUDIES

Trostel Square, Milwaukee

Developer

Mandel Group, Inc.

Date completed

2004

Site area

4.5 acres

Number and type of units

126 residential units, 27 condos and 99 apartments

Floor area

Apartments - from 772 to 1,346 square feet

Condos - from 1,100 to 2,500 square feet

Pre-development usage

Tannery

Condo sale price

\$260,000 to \$480,000

Rental price

From \$1,040 to \$1,680

Trostel Square is a residential community located on the banks of the Milwaukee River in close proximity to the downtown core and popular neighborhoods. Valued at approximately \$20 million, this 126-unit residential community consists of 99 apartments located in two three-story buildings along North Commerce Street, and 27 condominiums located in three clusters along the river. The development has added to the public Riverwalk and also generated some open space for the neighborhood. It also includes a private clubhouse and boat slips for residents. It is one of several residential redevelopment projects constructed within the City's Beerline "B" Master Plan area. This area was a former industrial corridor dating back to the early 1800s with a railroad route that served various industrial facilities including the Schlitz and the Pabst breweries, ergo the beer line.



Figure 3: Trostel Square, Milwaukee, Wisconsin (2005)

The project was carried out by Mandel Group, Inc., a large residential multi-family developer operating primarily in the greater Milwaukee area. The Mandel Group is an integrated real estate services firm with operations in development, construction, and property management. Since its formation in 1991, it has developed and constructed over \$200 million in residential and retail developments, and has financed, acquired and/or sold approximately \$300 million dollars in developed units. Communities developed by the Mandel Group have received several awards for design excellence, including the prestigious Urban Land Institute 1999 Award for excellence for the East Pointe redevelopment project, and the National Association of Home Builders 2000 Award for Best Mid-Rise Apartment Community in the United States. The company and its portfolio are regarded as one of the finest in metropolitan Milwaukee.

Trostel Square was built on land that housed the former Trostel Tannery, which was vacated in February 2000 when US Leather closed the Pfister & Vogel complex and other Milwaukee operations putting 525 employees out of work. The site was contaminated with heavy metals, volatile organic compounds, and sulfides that required cleanup to meet residential standards. Furthermore, the site's closure was dependent on all soils being managed on site. Site engineering included preparation of the site, grading and utility plans, and exhibits for the Department of Natural Resources. To build on the unstable soils, buildings had to be constructed on pilings sunk down as far as 50 feet into glacial till. Developers also had to construct a new dock wall for the RiverWalk, at a cost of as much as \$1,500 a linear foot.



Figure 4: Former Trostel Tannery (from Misky 2005)

Funding to manage contamination at the former tannery came from several sources, including the Wisconsin Department of Commerce Brownfields Grant (\$700,000), Tax Increment Financing, Remediation Tax Credits, and other city sources. Environmental remediation was overseen by the Wisconsin Department of Natural Resources. Mandel Group has agreed to pay over \$3.4 million for the property, which is higher than the original assessed value of the tannery's main building (\$262,600) and land (\$948,700). The Trostel Square project produced a closure strategy that was cost effective and sensitive to development options. Condominiums sold quickly without environmental encumbrances, while apartments were financed with reasonable encumbrances. The developer financed all other development-oriented costs.

From a marketing perspective, Trostel Square's apartments and condominiums are luxurious residential units. According to the developer, residents are drawn to its convenient location that offers easy access to the downtown core, the interstate, and numerous other amenities and services. The project has also contributed to the community's renewal boom. Indeed, Milwaukee's Beerline "B" area has become a center of residential construction with more than \$120 million worth of private investment, including many of the brownfields projects examined in this study. Condominium prices range from the low \$200,000s to \$500,000 and up. While many factors have contributed to the area's remarkable turnaround, developers and other key players attribute the boom to a combination of far-sighted planning and location: 20 riverfront acres that include bluffs with panoramic views, all within minutes of the downtown core. Developers especially liked the predictability offered by the plan for the corridor, which many stated was a "huge" incentive in their long-range investment planning.

In 1999, in cooperation with residents, businesses, and stakeholders, the City completed the Beerline "B" Planning Study, which provided a blueprint for the area's redevelopment as a high quality residential and commercial neighborhood. In addition to guidelines for private

development, the Beerline “B” Plan includes strategies for improving public infrastructure, enhancing recreational space, increasing public access to the river, and connecting the area to the adjacent Brewer’s Hill neighborhood.



Figure 5: The Beerline “B” (Misky 2005)

Guided by the Plan, which many developers noted created a predictable setting for investment in the community, development in the area has occurred at a rapid pace and has received little negative reaction from the public. Some residents of nearby Brewers Hill and Riverwest communities have been concerned about the loss of green space and about a growing gentrification problem. However, city officials note that usable parkland in the area has actually increased, while developers argue that the surrounding neighborhoods are among the primary beneficiaries from the removal of blight that traditionally plagued the area. Another community concern relates the high density of several new projects and the fear that some developers are placing too many units along the river.



Figure 6: Trostel Square, 2005

In sum, Trostel Square is an example of a mid- to upper-range housing project that has successfully converted a vacant and unused tannery complex into what has become one of Milwaukee's most desirable urban neighborhoods. This brownfield site required some environmental remediation and government support to get off the ground, but its locational attributes and planned vision helped turn it into a taxable asset for the municipal government and a thriving neighborhood for Milwaukee.

Milwaukee's City Homes Project

Developer

City of Milwaukee, Department of City Development & Independent Builders

Date completed

Residential brownfields project completed in 1995, although the CityHomes program is ongoing

Site area

Project: 6.6 acres

Number and type of units

43 single-family dwellings

Pre-development usage

Vacant land

Sale Price

\$100,000 - \$150,000

CityHomes is a public-private partnership coordinated by the City of Milwaukee's Department of City Development aimed at revitalizing urban neighborhoods in decline. The original CityHomes project was initiated in the early 1990s on an area of highly concentrated vacant lots, many of which the city acquired because they were tax delinquent. The first CityHomes project consisted of 43 parcels that were prepared for development by the City and sold to prospective homebuyers and small builders for the construction of single-family dwellings. CityHomes is a new urbanist style development reminiscent of early 20th century homes that blend in with the surrounding neighborhood. While the neighborhood is located just two miles from downtown Milwaukee and has good access to public transportation and the interstate, it had suffered from decades of disinvestment that made it unattractive to private development. The success of the first phase of the program has led to its expansion in the area, which includes new development, as well as city assistance for the rehabilitation of existing homes.

The original CityHomes project was constructed on cleared underutilized land. The property was designated by the Wisconsin DNR as an Environmental Repair Program site, but environmental assessment and management costs were relatively minor at just over \$72,000. Indeed, the main problem at the site, which had been primarily residential decades earlier, was the need to remove many old basements that had been buried.



Figure 7: Cityhomes Milwaukee, 2005

To fund the costs of assessment, cleanup, and site preparation, the city established a Tax Incremental Financing District. Sites were graded and lots were sold to prospective homebuyers for \$1. In addition, homebuyers were offered \$10,000 in the form of a forgivable second mortgage from the City of Milwaukee, an amount that was later paid off within a six-year period through property taxes. Fortunately, market interest rates were low at the time, which also helped foster the development of the project.

Marketing of the project was aimed initially to those residing in the immediate area, but soon spread via lenders, buyers, and builders as they became aware of the initiative. Homes that were initially valued at \$70,000, in a community where the average house was valued between \$10,000 to \$15,000, now lie in the \$100,000 to \$150,000 range. The project has been a catalyst for sparking renewal in the surrounding neighborhoods, particularly Lindsey Heights. Lindsay Heights is a 40 square block area that has also suffered from disinvestment. The City of Milwaukee, along with area partners (i.e., the Wisconsin WHEDA, NIDC, and the YMCA Community Development Corporation) are actively promoting its restoration by employing similar tactics to those described above, as well as a host of home improvement loans and educational programs. Residents of the adjacent Walnut Way neighborhood are also in the process of reviewing various issues aimed at promoting rehabilitation. Furthermore, the Wisconsin Housing and Economic Development Authority recently awarded \$1.1 million to a developer for the expansion and renovation of 115 units for low-income renters, a rehabilitation that will be part of a larger effort to improve and redevelop the area in conjunction with the City Homes and Lindsay Heights efforts.



Figure 8: Cityhomes Milwaukee, 2005

The residential project has been very well received locally because it has played a central role in breathing new life into the community. New families are interested in moving into the neighborhood, and existing residents feel more secure in investing and improving their properties. Private investment is also entering the neighborhood in the form of new residential and retail development. The positive response has been a good thing for the city given its initial concern about whether anyone would buy the parcels that they had readied for housing. However, the lots turned out to be needed and in high demand due to several factors, including; their attractive location, proximity to downtown, buyer's perception of investment in the community, the desire by many buyers who grew up in the neighborhood for new housing, and a sufficient concentration of land that could contribute to the formation of a new "neighborhood."

City Homes is an example of a housing project that has converted a highly concentrated, vacant, city-owned brownfield into a thriving community. Despite the uncertainty regarding interest in the project and the low value of property in the area, the project turned into a significant success that exceeded expectations. The model was soon replicated in the neighboring Lindsay Heights community and the city intends to replicate its success in other parts of the city on other underused brownfields properties.

New Covenant Housing, Parkwest Development, Phase I & II, Milwaukee

Developer

New Covenant Housing Corporation

Date completed

Phase I -1994; Phase II-1999

Site area

2.31 Acres

Number and type of units

72 residential (apartments and townhouses)

Pre-development usage

Vacant land

Rent

Affordable rental properties

New Covenant Housing Corporation (NCHC) is a faith-based non-profit development affiliate of New Covenant Missionary Baptist Church in Milwaukee. Its first project, Parkwest, was developed in two phases. The first phase completed in 1994 includes 16 apartment units in 4 buildings and 22 townhomes all for affordable rentals. The second phase completed in 1999 consists of 34 townhouse units. The developer constructed these homes to address the lack of affordable "family-sized" housing in this central Milwaukee neighborhood and to rebuild neighborhood confidence after decades of economic disinvestment. Rents for the mix of townhouses and apartments are affordable and targeted to low- and middle-income families. Project buildings are designed to complement the surrounding architecture and each unit has an attached garage. Many of the units have additional amenities such as partially finished basements, in-unit laundry facilities, and 1.5 bathrooms. Green space, play areas, a community building and an on-site office are also part of the development.

The mission of NCHC is to provide residential, commercial and economic redevelopment opportunities to low-income and minority residents. Since 1989, NCHC has played an important role in the revitalization and stabilization of one of Milwaukee's most disadvantaged areas, bounded by North 35th Street to North 43rd Street and West Center Street to West Brown Street. Within these boundaries, there are 6,146 people, 91% are African-American, with 94.2% of the population making less than 50% of the area median income. NCHC is guided under the premise that an individual's well being is inextricably linked to the well being of the community, and that people are personally responsible, self-reliant citizens and not helpless victims.



Figure 9: New Covenant Housing, Milwaukee 2005

The Parkwest project was developed on land that had been cleared in the 1960s for a freeway that was never constructed. Although the freeway project was ultimately abandoned, numerous properties were knocked down in the process, leaving a vacant blight in the community that accelerated disinvestment. Fortunately, the area cleared was primarily residential and contamination issues were minimal, (under \$20,000) consisting of site assessment and the removal of a leaking underground storage tank. Assessment and cleanup costs were covered by Milwaukee's redevelopment authority and community development block grant funds.

NCHC sponsored the \$8 million development and is currently responsible for its management. The Wisconsin Partnership for Housing Development, a nonprofit corporation that forms partnerships for affordable housing in Wisconsin, acted as a development consultant to help with project planning, feasibility analysis, and the coordination of the two-phase development plan. The Partnership also assembled the financing for both phases, which included federal Low Income Housing Tax Credits, public and private grant funds, and debt financing. A tax incremental financing district formed for the North Avenue district by the city also brought public improvements to the site.



Figure 10: New Covenant Housing, Milwaukee 2005

Milwaukee's Department of City Development has targeted North Avenue with a tax incremental financing district between N. 31st St. and N. Sherman Blvd. The \$1.5 million district provides slightly over \$1 million for streetlights, wider sidewalks, and an improved city-owned parking lot. The district also includes a \$400,000 business development fund, which provides building facade grants and seed capital for new businesses. The higher property tax revenue generated by new development in the area will recover the funds invested. It has become a mantra among central city boosters in Milwaukee that the heavy population density in this part of the city creates a total purchasing power that is much higher on a per-square-mile basis than most suburbs, which are more affluent, but less densely populated. That means that clothing stores, shoe stores, hardware stores, supermarkets, auto supply stores, restaurants and other retailers should be interested in the neighborhood.

The project has been extremely successful overall. The majority of neighborhood groups and community economic development leaders praise the new rental housing stock, although a few fear that the availability of new rental space may discourage investment in home ownership. Some would like to see the city expand its single-family housing plan and CityHomes into the area to encourage more home ownership. The project's success is reflected in the redevelopment it has sparked in the local community. In fact, Phase 3 of the Parkwest project could not move forward because a grocery chain snapped up the land to build a 57,000-square-foot supermarket and drugstore on the site. Seeing this as a positive sign for the community, NCHC is moving the area's revitalization ahead by developing several new projects. The Gateway I and II projects will convert two vacant buildings into 24 rental housing units and 10,500 square feet of commercial space. In addition, NCHC is undertaking a \$6 million mixed-use development that will convert a former library into 14 rental units and 25,000 sq. ft. of retail. For-profit developers are also entering the market with plans of building residential and

commercial space. Both the non-profit and private-sector efforts are receiving support from the city of Milwaukee, the Milwaukee Economic Development Corporation, several Milwaukee banks, local foundations, and other non-profit groups such as LISC (Local Initiatives Support Corporation, the nation's largest community development support organization).



Figure 11: Renewed buildings along North Avenue, Milwaukee 2005

New Covenant's Parkwest project provides an example of how a faith-based non-profit with no redevelopment experience, but high expectations, turned a vacant brownfield into a catalyst for inner city renewal. The development not only provided needed housing for families in the community, but also caught the attention of public and private investors willing to be a part of an up-and-coming neighborhood. It has also encouraged other faith-based institutions to consider residential redevelopment of brownfields in their communities as a means of sparking renewal.

Columbia Pointe, Chicago

Development Team

Woodlawn Preservation and Investment Council, The Woodlawn Community Development Corporation, the Chicago Center for Community Development Enterprise, and the Neighborhood Rejuvenation Partners

Date completed

Phase 1 ongoing, Phases 2 and 3 currently under funding and planning

Site area

Phase 1 5.5 acres

Number and type of units

Phase I - 51 homes, Phase II and Phase III initially planned for 89, however 209 additional units now under consideration

Pre-development usage

Vacant commercial property

Price range

\$200,000 - \$400,000, with 20% affordable

The Columbia Pointe Housing project is the result of four neighborhood organizations-the Woodlawn Preservation and Investment Council, The Woodlawn Community Development Corporation, the Chicago Center for Community Development Enterprise, and the Neighborhood Rejuvenation Partners-coming together to build a place to live for community residents in need of housing. The first phase of the project resulted in 51 single-family homes. Initially, plans were to construct 89 additional homes, but recent changes have raised the figure to 209 additional units, of which 90% will be single-family units and 20% will be affordable. The Woodlawn community is located eight miles from Chicago's central business district near the University of Chicago campus. The community has lost almost half of its population since the 1960s and its racial makeup has changed little, remaining about 95 percent African American. It is historically a rental community, although owner-occupied housing is up slightly (to 18%) due to the construction of new condominiums and single-family homes. Although poverty levels have decreased, 39% of residents continue to live below the poverty line and 16% receive some form of public assistance, while only 28% of households have annual incomes of more than \$35,000.



Figure 12: Columbia Pointe (Phase 1), Chicago 2005

As mentioned, the project is being developed via a collaboration of four key partners. The Woodlawn Preservation and Investment Corporation (WPIC) is the lead agency for the New Communities Program, which in alliance with LISC (Local Initiatives Support Corporation), supports community development in 16 Chicago neighborhoods, including Woodlawn. The five-year program seeks to catalyze redevelopment and revitalization in Woodlawn and to build housing “that poor people can live in, not poor people’s housing.” WPIC is committed to increasing residential housing opportunities and supportive commercial uses to achieve an economically and racially integrated population in Woodlawn. The Woodlawn Community Development Corporation (WCDC) was founded in 1972 to serve as the umbrella for The Woodlawn Organization’s real estate development and management activities. The Woodlawn Organization is a not-for-profit community-based organization founded in 1960 that consists of an alliance of block clubs, churches, tenant councils and other civic and institutional entities organized to build a viable and healthy Woodlawn community. The WCDC has developed more than 1,659 units of single family and senior housing in fourteen different developments and is experienced in creating site, phasing and financial plans, determining unit mixes and working extensively with government subsidy programs. The Chicago Center for Community Development Enterprise, operated through Citibank, provides financing packages to help bring community development projects to fruition. The program offers for-profit and non-profit developers and businesses financing packages for projects in low and moderate-income areas in cities across the United States. Lastly, the Neighborhood Rejuvenation Partners is a for-profit group LLC.

The Columbia Point site had previously been home to various commercial establishments, including a laundromat, hardware store, and a public library. The property was contaminated and had become a visual blight for the community consisting of abandoned

buildings and vacant lots. Initial investigation indicated that the surface of the site consisted of fill material to depths ranging from three to nine feet containing polynuclear aromatic hydrocarbon compounds (PNAs), bis(2-*chloroethyl*)ether, and lead at concentrations exceeding the Illinois Environmental Protection Agency's Tier 1 Soil Remediation Objectives for residential property. Benzo(*a*)pyrene and lead were also present at a level exceeding the objectives for construction worker exposure. In total, approximately 245 tons of lead-impacted soil, 2,000 tons of PNA-impacted soil, and a 1500-gallon underground heating oil tank were removed from the property prior to development. Assessment and remediation were performed in accordance with the Illinois Environmental Protection Agency's (IEPA) Site Remediation Program and a 'No Further Remediation' letter was obtained for the property.

The City of Chicago invested nearly \$480,000 to research and ultimately remedy the environmental damage at the site (for phase 1) via the Department of Environment. The Citibank Center for Community Economic Development (CCDE) provided two financing vehicles for the Columbia Pointe project: (1) a \$5 million revolving line-of-credit from Citibank to be used by the Woodlawn Park, LLC to redevelop the site; and (2) special "first-time" mortgages for qualified buyers. Similarly, the University of Chicago increased its involvement in the Woodlawn neighborhood with a \$399,999 grant awarded to the Office of Community Affairs by the U.S. Department of Housing and Urban Development through its Community Outreach Partnership Center. For phases two and three, LISC will be acting as the main equity member for the \$70 million dollar project. This is the first time LISC, the nation's largest community development support organization, has acted in this capacity for a residential project, and the reason for the recent increase in the number of residential units planned.



Figure 13: Columbia Pointe Phase 1, Chicago 2005

In terms of marketing, phase 1 of Columbia Pointe sold out within two weeks of opening to the public, and therefore, not much was required beyond advertising in small local and larger regional newspapers. The features and prices were attractive enough to potential buyers that essentially 'word of mouth' was sufficient to fill the housing quickly. The proximity of Columbia Pointe to Lake Michigan, the Loop, Hyde Park, and convenient transit (Metra), all in a project that provided relatively ample lot sizes, supplied all the marketing necessary. Though no specific communities or groups were specifically targeted for sales, the intent of the development was to draw from a range of potential buyers. Within this goal of creating a diverse community, buyers came from a variety of racial and ethnic backgrounds including Asian, African American, Caucasian and others. The design, attributes and marketing of Columbia Pointe all converged to help enhance an already vibrant neighborhood, and to foster future success through diversity in housing and community growth in general.

Located within the community of Woodlawn, Columbia Pointe is a part of the overall Quality of Life Plan completed in May of 2005. This plan was devised under the leadership of the Woodlawn Preservation and Investment Corporation (WPIC), combining the views of more than 300 neighborhood residents, business owners, institutional leaders and community youth. Working in conjunction with The Woodlawn Organization and with technical guidance from the University of Chicago, the WPIC has provided a framework for pursuing eight strategies that can assist in the prosperity of the Woodlawn Community. The strategies focus on community-wide issues and concerns, including the expansion of new housing to provide for a mix of incomes and improve existing housing stock. Additional strategies seek to develop a mix of retail and business, while promoting economic opportunity for the community and its residents. Additionally, the plan seeks to help Woodlawn schools excel, expand activities and programs for youth, enhance recreational activities for all ages and support health and social service agencies within the neighborhood. Ultimately, the plan hopes to accomplish this by improving communication among organizations, residents and institutions.

In response to local investments, many residents have joined together to create a more visually stimulating community. Along the streets are bike trails, alleys are well-lit and paved, and where there were once vacant lots, neighborhood gardens now provide residents with fresh fruits and vegetables. The private housing market is also returning with rehabilitated rental and condominium units. The Woodlawn neighborhood still faces numerous challenges however, after a long period of economic decline and population loss. Some of the key issues of concern for residents include the need for more affordable housing, better youth programs, enhanced retail options, activities for seniors, and the general sense that too many condominiums are replacing subsidized rental housing, which is pricing residents out of their own neighborhood. Fortunately, many of these issues are being addressed in a concrete way by through the efforts of the community-based stakeholders involved in the process.

In sum, Columbia Pointe is an emerging success that is the result of joint efforts made by several neighborhood organizations. Once a decaying, neglected commercial property, long vacant and an eyesore, Columbia Pointe has blossomed into a community with new single-family and duplex homes, approximately 20% of which are designated as affordable housing.

University Village, Chicago

Developer

South Campus Development Team

Date completed

Ongoing

Site area

86 acre project, 25 acres of residential development

Number and type of units

930 units - 284 townhomes, 234 walkup condominiums, 226 condominiums, 186 lofts.
Constructed in three phases

Pre-development usage

Railroad, industrial, and retail

Price range

\$165,900-\$1,299,900

University Village is part of a larger University of Illinois at Chicago's (UIC) South Campus redevelopment project that commenced in 1997 and is being carried out by the so-called South Campus Development Team. When completed, the \$650 million dollar project will include more than 900 privately developed condominiums, townhomes and lofts, in addition to student housing, academic buildings, parks, and a mixture of retail shops, restaurants, and increased parking. The private residential component of the project is valued at \$300 million and is being constructed in three phases on 25 acres of land located in the south end of campus. When completed, it will consist of 646 condominiums and lofts, 210 townhomes, and 31 single family dwellings, with 185 affordable units. Over 75 percent of all homes in the project overlook a park or open space and homes connect and ultimately lead to university athletic fields, which are also open to the public. Stores and restaurants have been located mainly in the middle of South Campus along Halsted and the historic Maxwell streets. The Metra station is located a block south of University Village, and it is a short drive to major expressways. Student apartments and other university related components of the project are located in the northern part of the site. The new residences of University Village are constructed in a new-urbanist style. Preservationists fought to save the look of historic Maxwell Street, once a mixture of immigrant culture, as well as Chicago's theater of commerce and enterprise, with partial success. The facades of 21 old buildings have been incorporated into the new development, while 13 facades of vintage buildings in the area were deemed architecturally interesting and will be attached to the front of the new parking facility to be built on both sides of Maxwell Street.



Figure 14: Conceptual Plan of University Village, Chicago

The South Campus Development Team is a consortium of three development organizations in Chicago- Mesirow Stein Real Estate, Inc., The New Frontier Companies, and The Harlem Irving Companies-each with long histories of residential, retail, commercial and institutional development in Chicago. Mesirow Stein, the real estate arm of Miserow financial, is one of the Midwest's largest development firms and carries out real estate development and consulting activities for the public sector, private corporations, and individuals. The New Frontiers Companies is a group of 11 firms with expertise in new construction, real estate development and retail/residential management. The Harlem Irving Companies are involved in retail development, leasing and management. Together, the consortium is responsible for developing the private housing component of the site and is the program manager for UIC's part of the development.



Figure 15: University Village, Chicago

The developers and the university have worked extensively with the city to realize the project. A special Roosevelt-Union Tax Increment Financing District, covering one of the largest underutilized areas southwest of city, was established to help drive the project. The \$75 million dollar TIF was allocated by the city to the university to help acquire land, develop infrastructure, and conduct environmental assessment and remediation activities. Historically, commercial and light industrial businesses occupied the property, including a gas station, auto repair facility, junkyard, warehouses, and a railroad trestle embankment. The remediation portion of the project proceeded in phases during the construction of University Village. The developers worked closely with the Illinois EPA and requested NFR letters for each parcel as the construction work was completed and prior to the sale of individual units. An extensive remedial investigation identified the target areas of contamination at each parcel and cleanup included underground storage tank removals, contaminated soil removal, and railroad embankment removal. The developer described site assessment and remediation activities as being fairly straightforward overall.

In terms of marketing the project, the initial push was to get faculty and staff from UIC to move in as part of a pre-construction program. Indeed, about a third of the 150 units initially offered were sold to UIC buyers. The developers have since implemented a more traditional marketing plan for the site, selling it as a master planned community, as opposed to an infill project. The developers attribute the high demand for the property to the project's innovative floor plans, great location, and the demand for the high-tech, energy-efficient new construction. In addition to attracting faculty and staff from the University, the development has also drawn homebuyers that work at nearby hospitals, city employees and suburbanites moving back to the city. As mentioned, an agreement with the city resulting from the provision of TIF funds calls for 21% of the units to be in the "affordable" range, meaning they are priced

for buyers who make 80 to 120 percent of the median income for the metro area. Median income for a two-person household in Chicago, for example, is \$56,400 and for a four-person household, \$70,500. The affordable units are priced between \$143,000 and \$228,000.



Figure 16: University Village, Chicago

University Village is part of the University's largest expansion since 1982. In 2000, several city coalitions, including the Coalition to Protect Public Housing, the Maxwell Street Historic Preservation Coalition and the St. Francis of Assisi Preservation Committee, boycotted the project in an effort to get the developers to address issues related to affordable housing for the very poor and displaced residents, to give existing businesses an opportunity to remain in the area, and to preserve 60 historic buildings on Maxwell Street. Although few, if any, residents were physically displaced by the project, hundreds of vendors who had operated in the well-known "Maxwell Street Market" were displaced. Locals also fear that new residents will alter the fabric of surrounding neighborhoods and cause exclusionary displacement of residents and businesses. At the same time, many feel that this planned community has exceeded expectations, making it one of Chicago's most well-known and popular residential developments. Indeed, the project was awarded the City Development of the Year in 2001 by the Chicago Sun-Times and the redeveloped Maxwell Street Historic District won unanimous approval by the Illinois Historic Sites Advisory Council to go on the National Register for Historic Places.



Figure 16: Historic Maxwell Street, University Village, Chicago

University Village is located within the Chicago's Central Area Plan. This document establishes three themes in helping to facilitate future development and to act as a framework for making decisions. Theme 1 (Development Framework) seeks to create a dynamic Central Area with high-density, mixed-use corridors that extend beyond the Loop and link various neighborhoods through existing transit. In addition, the development framework aims to preserve the architectural and cultural heritage in downtown, while strengthening industrial corridors and the educational/cultural assets of Chicago. The second theme focuses on transportation, aiming to make transit the first choice for people coming to the Central Area. In concert with this, the plan aims to improve the quality of the pedestrian environment, manage traffic circulation and parking while simultaneously encouraging alternative modes of transit. An increase in the capacity of the CTA and Metra would contribute to this overall vision. The expansion and connection of waterfronts and open spaces is the last theme in the framework for planning of this area. This plan strives to strengthen the lakefront and develop the Chicago River as not only a premier public space, but also as a continuous open space system. In order to support the growing population, the plan calls for new urban and neighborhood parks. The final element in this theme involves the expansion of landscaped streets and boulevards.

In sum, University Village is a large-scale project that has taken a large blighted property and generated a highly diversified mixed-use neighborhood. Currently undergoing its third phase, after an extremely successful Phase I and Phase II, this \$700 million development project will add over 900 units to the community. Built in a historic area adjacent to the University of Illinois at Chicago, the project has caused some controversy, which for the most part was settled through the partial historic preservation of the site.

Lakeshore East, Chicago

Developer

Magellan Development Group and Near North Properties Residential & Development

Date completed

Expected 2020

Site area

28 acres

Number and type of units

5000+ condominiums and apartments

Pre-development usage

Vacant shipyard/rail facility and an interim use golf course

Price range

Sale: low \$200's-\$3.5 million

Lease: \$1,000-\$2,300

It should be noted that the data for this residential brownfields project is not included in the results section above because the project was in the Site Remediation Program and had not yet received a No Further Remediation letter when the study commenced. Project information however, was provided by the developer as an example of a for-profit, large-scale, residential brownfields project that did not receive public funding related to brownfields management.

Lakeshore East spans 28 acres in the heart of downtown Chicago and is believed to be the largest parcel of downtown land under development in any major US city. The project is expected to take 12 to 15 years to complete, house an estimated 10,000 to 12,500 people, and cost of \$2.5 billion. The mixed-use project will produce an entirely new urban neighborhood, which will include approximately 4,950 residences, 2.2 million gross square feet of commercial space, 1,500 hotel rooms, a six-acre public park and a public school. Neighborhoods are organized in a manner that is pedestrian friendly and transit oriented, with retail areas located along streets. The \$12 million School is designed for approximately 400 students on the first two floors, while the top floor will house Park District offices, a gymnasium and a rooftop garden.

Two large companies, Magellan Development Group and Near North Properties (NNP) Residential & Development, have joined forces to create Lakeshore East. Magellan Development has built a number of significant residential high-rises since 1990 in the River North, Gold Coast, and West Loop areas, making it one of the city's most prolific development firms. NNP Residential & Development is a diversified real estate company responsible for many notable residential projects in Chicago, including several constructed on brownfields.

After the Great Chicago Fire of 1871, the property was filled with charred detritus from the conflagration. Added later were canal and harbor-mouth dredging from the expansion of the area east of Michigan Avenue. In the 1960s, urban planners decided it would serve as the site of a mega-development called Illinois Center, but the economic downturn of the 1970s caused the eastern half of the retail-and-office complex to be scaled down. Briefly considered as the location of a new Chicago Bears stadium in the 1980s, the site was later reborn as a nine-hole downtown golf course. The old docks and boat slips of the harbor, which were buried under the fill, presented some concerns during early work. The site's problematic history was revealed further when early testing showed traces of thorium, which is a radioactive element. Between landfill operations and the construction of locks to reverse the river's flow at the beginning of the 20th Century, some of that thorium made its way into the ground. Thorium at the site was excavated as far down as 13 feet into the ground, and excavation throughout the site was done in 18 inch lifts so that the material could be scanned in an ongoing manner. The contaminated materials were transported to a facility near Moab, Utah for management. The \$4 million dollar assessment and cleanup costs were borne by the developers and the only public assistance provided for this project was in the form of a public improvement bond for sewer and water infrastructure.

The developers of Lakeshore East have recently refinanced the massive mixed-use project with a loan from an AFL-CIO pension fund. The transaction gives the Chicago-based developers fresh working capital for new buildings. The \$70 million loan underscores the rise in the value of downtown development sites amid the continued condominium building boom and the refinancing is considered a remarkable turn for the huge project, whose prospects seemed dicey just seven years ago according to the Chicago Tribune (2005). Indeed, Magellan-NNP agreed to buy the site in 1998, but couldn't close on the purchase for four years, as the venture steered the massive project through zoning approval and financing. In 2002 financing was so difficult to obtain that Magellan-NNP had to borrow nearly \$24 million from the seller to buy the \$81 million site. The land cost was reduced by \$25.8 million when the developers sold part of the site to the city for streets and a park, though they contributed about \$11 million toward the six-acre park, which opened in 2005.

Lakeshore East is being marketed in a traditional manner. It consists of both sale and rental units. Prices range considerably, with rentals starting at \$1,000 for a studio and some penthouses slated to be sold as high as several million dollars. For buyers, this location enjoys some of the best lake, park and skyline views in the city, and the commute times to offices in the Loop are minimal. The city's best cultural institutions and one of the nation's most prestigious retail districts, The Magnificent Mile, lie within walking distance.

As with University Village described above, Lakeshore East is located within the Chicago's Central Area Plan. This document establishes three themes in helping to facilitate future development and to act as a framework for making decisions. Theme 1 (Development Framework) seeks to create a dynamic Central Area with high-density, mixed-use corridors that extend beyond the Loop and link various neighborhoods through existing transit. In addition, the development framework aims to preserve the architectural and cultural heritage in downtown, while strengthening industrial corridors and the educational/cultural assets of Chicago. The second theme focuses on transportation, aiming to make transit the first choice for people coming to the Central Area. In concert with this, the plan aims to improve the quality of the pedestrian environment, manage traffic circulation and parking while

simultaneously encouraging alternative modes of transit. An increase in the capacity of the CTA and Metra would contribute to this overall vision. The expansion and connection of waterfronts and open spaces is the last theme in the framework for planning of this area. This plan strives to strengthen the lakefront and develop the Chicago River as not only a premier public space, but also as a continuous open space system. In order to support the growing population, the plan calls for new urban and neighborhood parks. The final element in this theme involves the expansion of landscaped streets and boulevards.

The company took an integrated approach to planning this massive development, ensuring that new buildings in Lakeshore East came together with the area's existing properties to form a complete community. NNP Residential & Development achieved this vision by dedicating more than two years of time working with community associations, city officials, neighborhood organizations, condominium boards and other groups interested in the well-being of the neighborhood. Before mapping out any plans for the 28-acre parcel, NNP Residential & Development and its co-developers participating in more than 400 public meetings in the community to discuss the Lakeshore East project. In addition, instead of a forest of skyscrapers, Lakeshore East's plans call for an exact mix of mid-rises, high-rises and low-rise Parkhomes, a modern twist on the traditional Chicago townhome. Additionally, the planning mandates 45 percent of open space to be preserved in one of the nation's most dense areas. With the 6 acre park serving as the focal point of the neighborhood, NNP Residential & Development provided public space to serve as a catalyst for the community. According to many Lakeshore East proponents, the largest remaining vacant site in Downtown Chicago has been developed with sensitivity to views from existing towers and reducing building height towards the lakefront. However, according to others, Lakeshore East architecture is still lacking in character.

In sum, Lakeshore East has been converted what used to be considered one of the largest vacant lots in the downtown of any major US city into one of Chicago's most prestigious mixed-use neighborhoods. The 28-acre luxury neighborhood responds to a high demand for residential and retail space. By 2010, the development is expected to complete 4,950 residences, 2.2 million gross square feet of commercial space, 1,500 hotel rooms, a six-acre public park and a public school.

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GLOSSARY

Abandoned Container. An abandoned container is a container with potentially hazardous contents recovered from a site. No discharge to the environment occurs. If the container releases a hazardous substance, a spill would be associated with the site. (See spills).

Closed Site. Closed sites are those that have completed all cleanup requirements and have received a case closure letter from DNR are called "closed".

ERP (Environmental Repair Program). ERP sites are sites other than a LUSTs that have contaminated soil and/or groundwater.

General Property. General property refers to environmental actions that apply to a property as a whole, rather than a specific source of contamination, such as a LUST or environmental repair site. Examples include off-site letters, municipal liability clarification letters, lease letters, voluntary party liability exemption actions, and general liability clarification letters.

LUST. (Leaking Underground Storage Tank). A site that has contaminated soil and/or groundwater with petroleum is termed a LUST. Some LUST cleanups are reviewed by DNR; others are reviewed by the Department of Commerce.

No Action Required. This term designates a site where there was or may have been a discharge to the environment and, based on the known information, it has been determined by DNR that the responsible party does not need to undertake an investigation or cleanup.

Open Site. Open sites are contaminated sites in need of cleanup or sites on which cleanup is still underway are called "open." The activity status of a site has been a required field only since 1996. Some sites prior to 1996 may be closed, but inaccurately display an open status. Sites dated from 1996 to the present should be reasonably accurately designated.

Priority. This term refers to the general risk to the environment and to human health at the time that contamination was first evaluated.

- **High priority** means that contamination exceeds one or more groundwater enforcement standards in NR 140, Wis. Admin. Code. High priority sites also include emergency situations (e.g. explosive vapors, contaminated water supply wells, or high risk associated with exposed contaminants).

- **Medium priority** means that contamination exceeds one or more preventive action limits in NR 140, Wis. Admin. Code.
- **Low priority** means that contamination did not exceed any of the preventive action limits in NR 140, Wis. Admin. Code.

Spills. A spill is a discharge of hazardous substances that may adversely impact, or threaten to adversely impact, public health, welfare or the environment. Spills are usually cleaned up quickly.

Superfund. Superfund is a federal program created by Congress in 1980 to finance cleanup of the nation's worst hazardous waste sites. Thirty-nine of these sites may presently threaten human health and/or the environment in Wisconsin.

Tax Increment Financing (TIF). Tax increment financing is created through the assessment of property values. Special assessments are made on properties that are expected to gain particular benefits from a general improvement or from an environmental activity (such as a cleanup). The incremental difference in tax revenues between the original assessment rate and the new, higher assessed rate is then used to finance the improvement activity.

VPLE (Voluntary Property Liability Exemptions). These are exceptions that apply to sites in which a property owner conducts an environmental investigation and cleanup of an entire property, and then receives limits on their future liability.

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