URBAN MARKETS INITIATIVE FROM THE METROPOLITAN POLICY PROGRAM AT BROOKINGS

Data and Decisions: Parcel-Level Information Changing the Way Business Gets Done

G. Thomas Kingsley and Kathryn L.S. Pettit[1]

Abstract

The accelerated development of electronic land information systems in our cities creates opportunities for important improvements in land management and community development. However, "decision support tools" are needed to assure that new data are effectively acted on. These tools transform raw data into accessible information displays designed to inform specific actions by private, nonprofit and government actors, and may range from simple web tables to more complex analytic processes. This paper reviews early experiences in developing such tools in five cities (as part of a Brookings Urban Markets Initiative pilot project) and concludes that they have great promise. The choice of tools will depend on local market conditions, but in all areas, they can help in: (1) assessing trends and need for intervention; (2) deciding on the appropriate interventions for individual properties; and (3) program monitoring and coordination. Ideas are offered as to how local leaders can create an environment conducive to capitalizing on the potential of these tools and avoiding risks that could hinder their effective use.

I. Introduction and Summary

In many American cities, civic groups and university institutes are developing the capacity to assemble diverse data on neighborhood conditions and encourage its application in local policymaking. In late 2004, the Urban Institute (UI) and five of these "local data intermediaries" began work on a pilot project on innovative uses of information. The Brookings Institution's Urban Markets Initiative with support from other national and local funders sponsored this work.[2] The intermediaries in Baltimore, Indianapolis, Milwaukee, Providence, and Washington, D.C. are all institutional partners in the National Neighborhood Indicators Partnership (NNIP).[3] For this project, each of them developed one or more new *decision support tools to enhance local capacity to guide and manage urban land markets.*

This paper documents and interprets the results of this project at the end of its first year. It is primarily for local officials and nonprofit groups involved in the community development process, but it should be of interest to private developers as well. Section 1 explains the project concepts and summarizes findings and recommendations. Section 2 provides more detailed accounts of what occurred in each of the five sites. Section 3 draws conclusions and considers how best to take advantage of the potential experiences.

Project Concept

The project was based on two hypotheses. The first was that recent improvements in the ability to access data on land parcels in American cities creates an important opportunity to improve decisionmaking by public, private, nonprofit, and for-profit investors in urban real estate. Local government agencies are automating their administrative records and a growing number of cities are integrating data across agencies, making selected information at the parcel-level available to the public, sometimes via the web (for example, on property sales transactions, code violations, parcel ownership, assessed values, tax arrears, and vacancies and abandonments).

The second hypothesis, however, was that the payoff from this opportunity was likely to require the development of new decision support tools. Simply having more data does not mean it will be used effectively, if at all. Support for systems development is likely to erode unless there are clear indications that the new data are actually being applied in a way that results in outcomes people care about. This project envisioned the need for new tools to manipulate and present data in direct support of real decisionmaking processes by market actors; i.e., so that *information becomes actionable*.[4]

Urban land markets function primarily through the decisions of large numbers of private actors. However, the actions of governments and other civic actors also affect land market outcomes. As we saw it, the development of information tools that will help these nonprivate actors play their role in land markets more effectively was a priority.

Although at the writing of this paper the work was not complete, the experience of this project to date supports these hypotheses. In all five sites:

- The underlying information systems appear to be solidly institutionalized—contents and accessibility are being expanded rather than cut back; and
- Workable tools have been built or are under construction with serious ongoing engagement by real decisionmakers.

Data Systems Development

As noted, the decision support tools that are the focus of this project depend on the existence of advanced parcel-level data systems. Our first findings relate to the progress of such systems in our study sites. Indeed, systems development has proceeded quite far in all five. All seem to have gone through similar stages in the development process.[5]

The first stage is when the automated administrative records of the Assessor (parcel-level tax records) and other departments are brought together and regularly updated to create one integrated system. One of the cities in this project, Milwaukee, probably had the first such system of any major U.S. city—the Master Property File (MPROP) initially implemented in 1975.

The next critical advance was when the integrated system was moved from a mainframe computer to an internal network within city government (or on to the Internet with access limited to city staff) so a wide range of city employees could access it from their desktop. Local teams talk of this as perhaps the most important step in enhancing usability. Technology has only made this possible over the past few years (Milwaukee's MPROP, for example, first became web enabled in 1998). Once the systems had this capability, it was easier to make further improvements. This includes expanding the types of data in the system beyond those required for operational purposes. For example, several of the cities have added data on vacant and abandoned properties obtained through special surveys.

A final stage of development (again, achieved by all five of our cities) is when, at the least, the most important parts of the parcel-level data in the system are made available to the public via the web. In most cases they allow users to look up information about individual parcels (e.g., finding out who owns a specific property, its assessed value, and whether it is up to date on tax payments), although they generally do not allow them to add up or manipulate data about groups of parcels. Maps showing property characteristics at the parcel level, however, can now be accessed on the Milwaukee and Providence websites and that capacity is being planned in Baltimore and Indianapolis.

The Tools and How They Work

As cities proceed through the stages of system development outlined above, the practical uses of data by an expanding range of market actors is more likely, but not assured. The experiences of the five local teams in this project suggest that additional analytic work and new tools are required.

The sites recognized, of course, that simply making parcel-level data available over the web will stimulate applications. Sophisticated users (probably more often found in private firms than public agencies or community groups) will find ways to apply it.[6] Individual private developers, for example, can use the data to make better decisions about where to make investments and about the specifics of site assembly. But more information and the tools to analyze that information is likely to be needed to help government agencies, Community Development Corporations (CDCs), and other community groups improve their decisionmaking.

One approach to serving these users is the development of "neighborhood typologies." These typologies attempt to classify a city's neighborhoods according to significant variations in real estate market conditions. If the typologies do a good job of characterizing neighborhood market environments, they can suggest how both public agencies and private investors should vary their approaches in different types of neighborhoods. Knowing, for example, how particular neighborhoods sit on a spectrum from declining to gentrifying could help market actors establish priorities for different types of investments and preventive or development actions.[7] However, while these typologies offer elucidation, they do not allow decisionmakers to act directly on the information provided. They do not offer guidance on how actions should vary for different properties within a given neighborhood.

This recognition stimulated the sites to develop tools that would further guide their decisions about individual properties. At the most basic level, these tools work in the same way. They sort and categorize individual properties in relation to public and private actions based on comparative analysis of characteristics of the properties and their neighborhood markets. Table 1 identifies the users and explains tool functionality. What follows is a summary for the five cities.

The ***Baltimore*** tool is designed to provide a web-based set of screens that identify properties available for sale and provide a considerable amount of descriptive data about them and their surrounding neighborhoods. Available properties are grouped into categories (e.g., by type/size/price) expected to match the interests of different types of investors, such as would-be homeowners at different income levels versus large commercial real estate firms. When fully implemented, the investors will be able to pull down screens (tables and maps) with detailed characteristics of properties and surrounding neighborhoods important to investment decisions. They will be able to sort properties by selected characteristics to facilitate comparison and choice.

Table 1. Purposes, Functionality, and Users: Decision Support Tools in Five Cities

City	Strategic Theme/Purpose	Functionality	Users
Baltimore	*Stimulate reinvestment* Position vacant properties for effective resale to investors	Web display identifies properties for sale—map and linked tables show characteristics of property and neighborhood	(1) Potential investors (2) City/CDC planners
Indianapolis	*Mix of approaches* Provide fact-based approach for awarding/monitoring Community Development Block Grant (CDBG) grants	Standard fact sheets for proposals; Management reports	(1) City development office (2) CDC strategy group
Milwaukee	*Stimulate reinvestment* (1) Assess when neighborhood ripe for reinvestment; (2) coordinate CDC and city reinvestment activity	(1) Charts/maps show trends in sales/development; (2) Maps/tables show properties planned for reinvestment	(1) CDC strategy group (2) City development office
Providence	*Slow disinvestment* Identify problem buildings and assess possible treatments	Tables of data on individual properties; Lists of properties meeting criteria regarding action types; Sort lists by specified indicators to create priority sequences	(1) City officials (2) CDCs, neighborhood groups
Washington	*Preserve affordable housing* Preserve Section 8 properties	Tables show number of Section 8 properties facing contract expiration (with status); Separate tables, detailed data on each	(1) City housing office (2) Technical assistance providers and nonprofit advocacy groups

Indianapolis is developing a number of displays to assist in managing its Community Development Block Grant (CDBG) grant process. First, proposals for grants will now be required to attach data sheets drawn down from the central system on the properties they propose for development (in the past, CDCs and other developers could provide their own data, but doing so was time consuming and not verifiable or standard across applications). The city has established a neighborhood typology that suggests which revitalization actions are likely to be the best fit for the market circumstances of the different types of neighborhoods. These materials are being translated into quantifiable criteria that will allow the computer to do preliminary sorts of the proposals in the review process. After the grants have been made, key indicators drawn from the integrated database will be regularly monitored and reports on progress will be reviewed and discussed by all participants.

The first of the ***Milwaukee*** tools features tables, charts, and maps showing trends pertaining to thresholds when sub-neighborhoods may become ripe for reinvestment (based on analysis of recent trends). This tool has already shown how prospects have improved in one sub-neighborhood in ways local CDCs had not suspected. For the second tool, CDCs and other groups have shared data on the characteristics and development schedules of all of their current projects so that, by seeing each other's work in progress, they and city officials can implement overall revitalization in a more coordinated manner. The software supports queries and displays project information and schedule milestones in a "case management" framework that facilitates relating status to needs for various types of corrective actions.

Providence's new web-based tool allows users to create listings of properties according to any criteria they choose (for example, characteristics that might identify good candidates for rehabilitation, demolition, or some other intervention) and then to sort the listings any way they want (for example, by number of code violations or recent change in assessed value) to create priority sequences for different programmatic responses. They can then pull down screens showing detailed data (including photographs) for individual properties. Two new features are associated with this tool: (a) a comments box to enable users to write in their own observations about the property and (b) a "surrounding properties display" showing a map and characteristics of properties surrounding the one selected.

Developments in ***Washington, D.C.,*** include an automated quarterly report on changing neighborhood-level trends in housing affordability, featuring the status of Section 8 projects facing contract expiration. The data on individual Section 8 properties and their circumstances are being used as a basis for designing property-specific preservation strategies. Information about the nonprofits now working to assist tenants prepare for change in these properties is being used to eliminate gaps and overlaps in assignments.

Recommendations

While pilot project participants recognize that a period of trial and error lies ahead, they have been generally optimistic about the future development and productive application of tools similar to those outlined in this paper. Cross-site consideration led to suggestions in three areas about how best to take advantage of the potential:

- Efforts should be made locally to create an environment conducive to further tool development, including the following: (1) identifying champions and establishing or strengthening local data intermediaries to support the process; (2) taking advantage of using the data and tools to broaden collaboration in community development; (3) establishing a process so that the development of each tool leads naturally to the development of others.
- The range of topics to be addressed should vary depending on the type of local market at hand. Those that focus on slowing disinvestment and stimulating reinvestment will be critical in weak markets, whereas expanding the overall housing supply and preserving affordable housing will be the priorities in strong markets. In each area, tools will be needed to help in the following: (1) assessing trends and the timing of the need for intervention; (2) deciding on the appropriate types of interventions for specific properties; and (3) supporting program monitoring and coordination.
- Efforts are also warranted to avoid three risks to future development: (1) poor data quality; (2) unreasonable expectations about automated decisionmaking; and (3) temptations to charge for access to data.

II. Tool Building Experiences in Five Cities

Baltimore: Positioning Vacant Properties for Resale to Investors

The Data System. In the last several years, the city of Baltimore has made significant progress in applying geographic information and technology to support service delivery and managerial challenges. Former Baltimore Mayor O'Malley gave the work impetus with his focus on the development of the *CityStat* program and the establishment of the Mayor's Office of Information Technology, but activity has been underway in many other city departments as well. A general enterprise data warehouse has been developed to centralize critical city data for geographic integration, including property assessor's information, complaint data, housing violation data, and permit data. A web-based capacity has been developed (called "Housing View") that delivers easy-to-read parcel-level maps showing such information and offering the ability to look up tabular data on individual parcels (available to city staff only at this point). Another website, "Baltimore City I-Map," is being made available to the general public. It maps cultural features (such as landmarks and monuments), public facilities, and road classifications, along with parcel boundaries and building footprints citywide. The city has also recently developed a market-oriented typology of neighborhoods (the idea noted in Section 1).

Decision Context: Ambitious Land Banking in the Public Interest. The city of Baltimore has been involved in an ambitious plan to restore thousands of abandoned units to livable and marketable condition. The plan, also spearheaded by Mayor O'Malley, is known as "Project 5000" and set the stage for this project. The city has already stepped up its process for acquiring vacant properties and has assembled detailed information about them. The UI and NNIP project has focused on helping officials conduct more effective land marketing and disposition.

A decision support tool is being built to provide more focused information to potential investors and to help the city sort and package the properties for resale to ensure good matches between supply and demand. Research on how different investors are likely to value various characteristics of properties in this inventory has been conducted and has influenced tool design at several points along the way. The city's housing and planning agencies, along with the local NNIP partner (the Baltimore Neighborhood Indicators Alliance), are playing lead roles in this process, working in concert with the Live Baltimore Marketing Center, a nonprofit organization devoted to marketing Baltimore city neighborhoods.

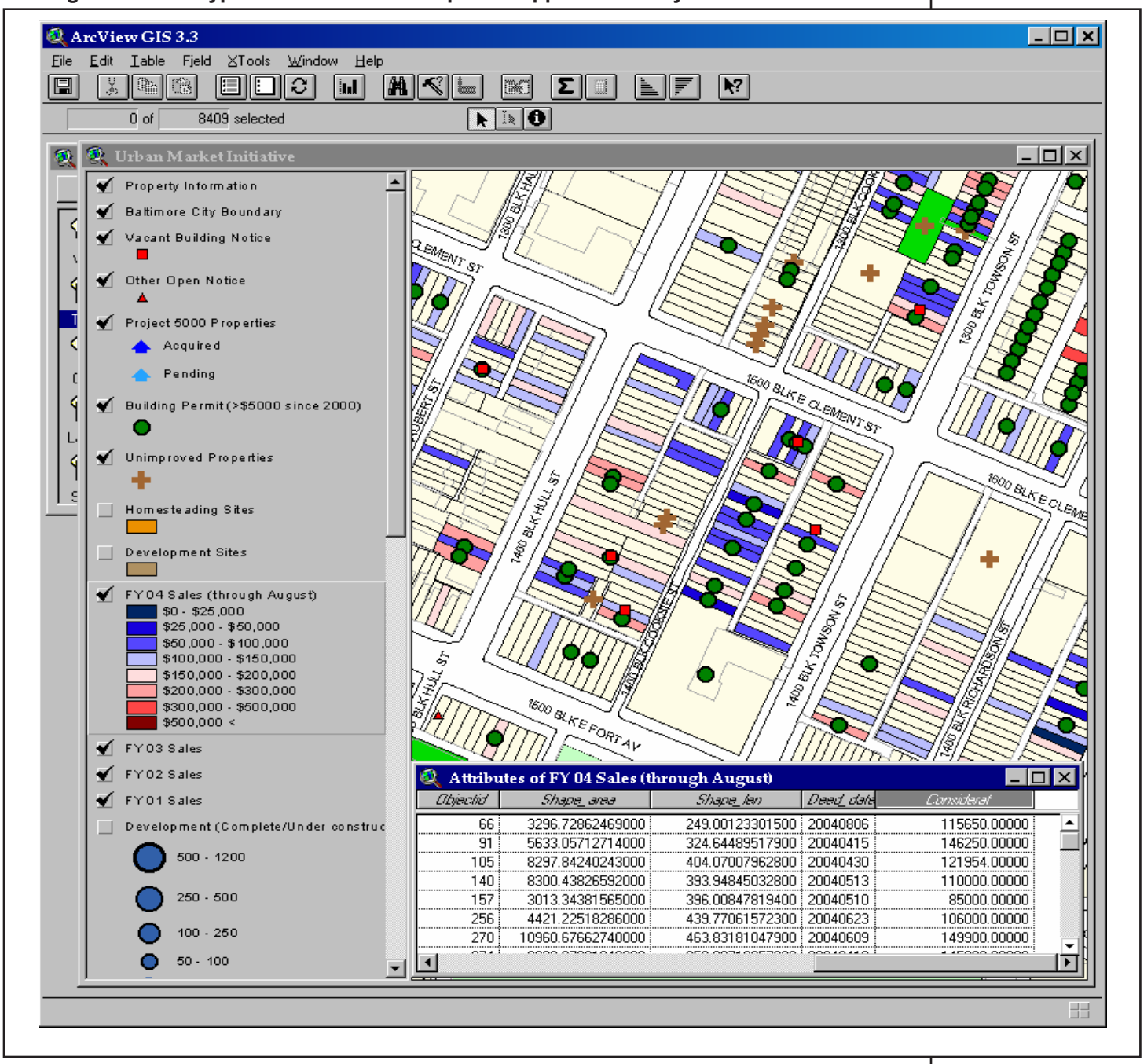
Developing the Tool: Positioning Vacant Properties for Resale to Investors. In the first few months of the project, the team held several meetings to investigate possible data-sharing arrangements with community partners and solicited their initial input as to content and format of the prototype tools. It was decided to develop a customized web presentation of available data likely to be useful to potential investors in their search for properties to acquire.

The site will present a variety of information, similar to the style of the city's existing internal "Housing View" site, but it will emphasize information that experience in the property disposition program has shown to be of interest to purchasers. The housing department evaluated sources, geographic levels, and types of sale data to guide its choices regarding the structure and display of the site and related presentations. The first major task under this project was the building of a disposition database on all the properties acquired through Project 5000. This database will feed information to the new website.

The prototype site (still under construction when this was written) will feature maps and listings of properties available for sale, grouped into categories (for example, by type, size, or price) as expected to match the interests of different types of investors (see Figure 1).

Categories differentiate between parcels to be marketed on an individual basis and those to be marketed individually or in clusters for large-scale development. Among the former, subcategories include the following: (a) parcels to be marketed to prospective homeowners directly; (b) those to be marketed through realtors; and (c) those that are city-owned but are to be made available for sale at a later time.

Figure 1. Prototype of Baltimore Development Opportunities System

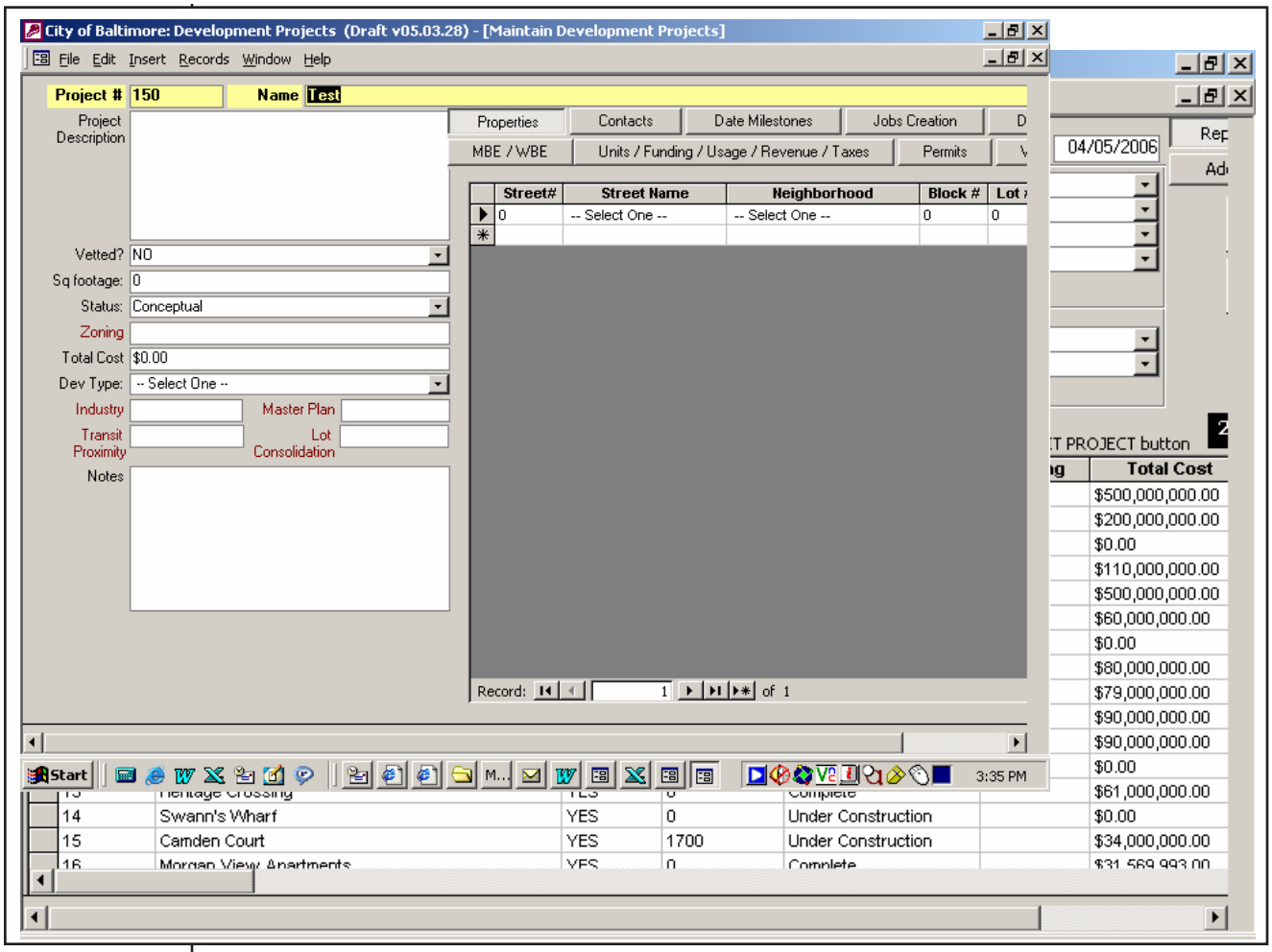


Users will be able to select screens (tables and maps) with detailed characteristics of individual properties in the above categories and for information about surrounding neighborhoods important to investment decisions. Would-be investors can then sort properties by selected characteristics to facilitate comparison and choice. The data on surrounding neighborhoods will include a considerable amount of parcel-level information from the Housing View system not previously released to the public—for example, code enforcement status, building permits, typology designations, and building vacancy.

An important addition will be the release of data on the city's general and specific development plans for neighborhoods, including information on specific investments (both past and in planning) by both private developers and public agencies. This opportunity has spurred the creation of a Development Tracking Database for use by internal management staff (see Figure 2 for prototype). This will allow agencies to uniformly track a developments' status, funding sources, unit types, and other relevant information as it moves through the various phases from concept to completed development. Arcview shapefiles are being created (over 150 projects so far) so that the development information can be represented through GIS. (Only selected status information from this system will be presented on the public site).

After the prototype is completed, user testing will be conducted in conjunction with a program of interviews and focus groups. The interviews and focus groups will be designed to learn more about how different types of potential investors make their investment decisions, as well as about what data on property and neighborhood characteristics, and what forms

Figure 2. Prototype of Baltimore Development Tracking Database



of data presentation, are most valuable for them in the process. This information, along with user-test results, will be the basis for further improvements to the initial tool and for the development of additional tools (structured application category) to help sort and package properties for further marketing.

Next Steps and Broader Applications. As the team designed the prototype for the property disposition site, they began to recognize that it offers broader potential. The information in the current design was selected to help prospective investors decide which sites to purchase—it includes basic conditions and trends, and now development plans, at both the neighborhood and parcel levels. Neighborhood development planners in CDCs, other nonprofits and neighborhood associations, and city planning departments have always wanted to have this type of information to make their own work more effective.

The neighborhood summary information should be helpful in particular for strategic planning. However, the data at the parcel level should permit much more clarity and effectiveness in targeting assistance and coordinating implementation across organizations than has been possible before. Having this information in an easy-to-access and user-friendly form should also help to engage neighborhood residents in the processes of planning and monitoring progress. The team is now considering how to take advantage of these opportunities in the next stages of its work.

Indianapolis: Providing a Basis for Making and Monitoring Community Development Grants

The Data System*:* In 1986, major institutions in Indianapolis and Marion County (including public agencies, utility companies, NNIP's partner The Polis Center at Indiana University, and others) came together to form the public-private Indianapolis Mapping and Geographic Infrastructure GIS consortium, called IMAGIS. This group led the development of the first digital parcel-base layer, which was then turned over to the Department of Metropolitan Development for maintenance. In the 1990s, the assessors of the city's nine component townships, who maintain separate versions of the parcel layer for their operations, began to collaborate with IMAGIS to ensure consistency across the files. Although the parcel map is maintained in a system separate from related data files, users can link property attributes, foreclosures, boardings, tax sales, and other information through the parcel ID or address. Government operations files—such as assessors' data, inspections, and permits—are routinely shared across agencies. Public access for residential property data is currently limited to a fee-based website where users can look up property information and permits by property address or owner name. The Polis Center is working closely with the city in developing a "My Neighborhood" component of the city's website that will combine the parcel-level data from the city with neighborhood-level data from Polis' own indicator system and provide access to the public via web services free of charge.

Decision Context: Under the leadership of Mayor Peterson, the Indianapolis city government took several steps to be more strategic about community development. Although the stakeholders were tackling different problems, they recognized the importance of developing comprehensive place-based approaches and defining and measuring success. As one example, the Mayor launched the Abandoned Housing Initiative in Spring 2003, which sought to take action on vacant or illegally occupied properties. As part of this initiative, the city developed for the first time a comprehensive inventory of vacant houses. Since then, the city has implemented policy changes to speed up the process of moving abandoned houses towards redevelopment.

As part of an effort directed by the Community Development Strategy Group (a diverse group of civic leaders), the Mayor and the Indianapolis Coalition for Neighborhood Development co-hosted a Community Development summit in October 2004. Over 400 residents

and community leaders came together to initiate a plan for strengthening Indianapolis neighborhoods. The group has hosted several open forums since in individual neighborhoods.

To have a better understanding of local market conditions to guide actions, the Department of Metropolitan Development created a four-category housing typology (shown in Figure 3) based on cluster analysis of vacancy rates, assessed housing value, and owner occupancy. Identifying appropriate policies for different kinds of neighborhoods also is a feature of the Great Indy Neighborhoods Initiative, a demonstration project designed to showcase the benefits of comprehensive community development and strengthen and improve local neighborhoods. The Community Development Strategy Group estimates that the Greater Indianapolis Neighborhoods Initiative will impact between six to twelve neighborhoods at a cost between $2 million and $4 million over a three-year period.

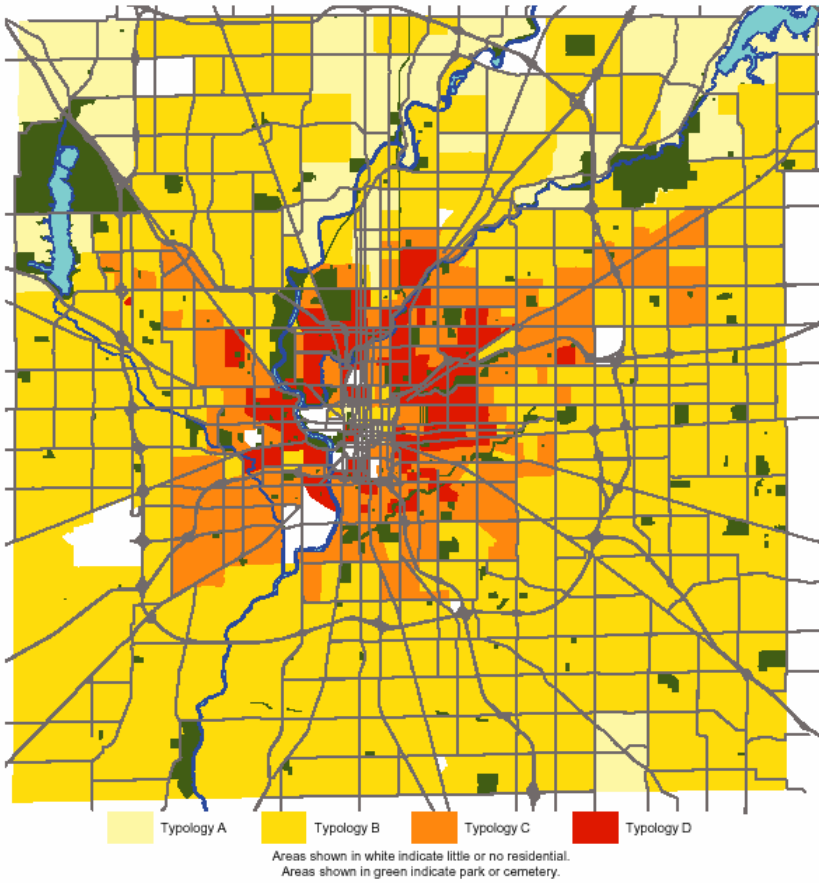
Figure 3. Indianapolis Housing Typology

Typology A - Attractive, high-end residential with high property values, high owner occupancy, and very low vacancy rates.

Typology B - Healthy areas with above average property values, high owner occupancy, and very low vacancy rates.

Typology C - Visible signs of decline but not highly concentrated. These communities have below average property values, below average owner occupancy rates, and above average vacancy rates.

Typology D - Significant deterioration of housing stock with dense concentrations of vacant buildings. These communities have low property values, low owner occupancy rates, and high vacancy rates.



The Community Development Strategy Group has also been meeting around the Healthy Communities Network Pilot, an internet-based community quality of life management system called the Healthy Communities Network. The members selected indicators to track in nine taxonomy areas: arts and recreation; economy; education; government; health; natural environment; public safety; social environment; and transportation.

Developing the Tool: Adding a Data-Driven Component to the Evaluation of CDBG Grants. The original intent of the tool proposed by The Polis Center was focused on early warning of, and treatments for, vacant properties in the Abandoned Housing Initiative described above. By early 2005, however, with a job change by the coordinator of that initiative and a resorting of policy concerns, that project no longer commanded priority. Accordingly, the staffs from the Polis Center, the Community Development program, the Unsafe

Building program, and the Indianapolis Coalition for Neighborhood Development (the CDC coalition) met to identify an alternative tool.

Together they decided to work on improving the process for evaluating Community Development Block Grant (CDBG) applications. In the past, CDCs and other neighborhood groups had submitted over 400 applications, with no consistent information on the needs and conditions of the individual property or of the surrounding area. Now all parties agree in principle that CDCs applying for city funds will be required to use a standard analysis based on the Social Assets and Vulnerabilities Indicators (SAVI) property and neighborhood information to support their proposals. Once the new system is in place, city officials can judge the relative merits of the proposals based on more than just the project characteristics. Officials will also have a greater understanding of how the project goals fit with the parcel and surrounding neighborhood conditions.

The idea seems sensible, but given the many stakeholders in the grant process, any change to the system requires careful consensus building among city officials and the CDCs. The Polis Center as a neutral party has been providing conceptual and technical know-how along the way. The Indianapolis Local Initiatives Support Corporation (LISC) is also a strong proponent of data driven decision-making and has acted as a champion of the revised CDBG process.

Before selecting indicators, the city representatives realized that the first step had to be clarifying its goals for the program. For the first time, a written list of goals describing the desired outcomes for families and neighborhoods was developed. The list drew on items from the Comprehensive Plan, Blueprint to End Homelessness, and other city documents. With those in place, The Polis Center paired the policy goals with the required project-level information and available neighborhood-level indicators. The software will automatically code which typology category the parcel falls into, helping city officials understand whether or not the proposals are appropriate for the market condition of the area. Users can also analyze how the funding is distributed across different market types.

The team has been reviewing the indicators proposed for the report. Once there is agreement, The Polis Center plans to run the applications from prior years through the proposed reporting tool. By reviewing reports for projects that were successfully funded in past years, the team expects to uncover intuitive elements not captured in the concrete data elements and determine if there are any indicators that will improve the reports. Once this is done, the report format will be finalized.

Next Steps and Broader Applications. While the testing of the indicators is being completed, The Polis Center will develop the user interface for the tool. Applicants will type in the codes for the parcel or multiple parcels they are proposing to develop, and the system will return a report listing the Polis-based indicators relevant to the policy goals the project addresses. The applicant will next fill in the project level information required. A printed version will be submitted with their application, and the report contents will be saved to the system to form a master file for the evaluators. In this way, city officials can sort applications by program goal and scan to see, for example, which projects supporting homeownership are in the lowest ownership areas.

In the standard sequence, the city will disseminate information about the application process and new evaluation criteria in the spring and issue the formal call for proposals in June 2005. Next steps for the team will be to adapt the evaluation system to help monitor the grants that were awarded. For indicators that can be updated annually or more often, both the city and CDC staff can see how the indicators are progressing in relation to the program goals.

There will likely be some adjustments in content, format, and procedure as the system is implemented. The process has already forced the city to be more transparent about the list of objectives it wants to accomplish, but to date there has not been much in the way of setting and ranking of priorities among goals on the list. For example, how much of the funding should go to revitalizing vulnerable neighborhoods versus maintaining stable ones? Or what share should be devoted to human service projects compared to bricks-and-mortar projects? It is unclear if the city will take this opportunity to outline such concrete targets, or leave these questions to the discretion of the evaluators. As the process moves forward over the next few months, it will provide a testing ground to see if the city and its nonprofit partners can achieve their ambition of being more strategic about community development.

Milwaukee: Testing Several Tools in One Neighborhood

The Data System. Milwaukee's Master Property File (MPROP) is the oldest and most fully developed system across the five cities in this project. Established in 1975, it now contains more than 90 elements of data describing each of the approximately 160,000 parcels in the city, integrating source data from the administrative files of numerous city agencies. Since MPROP was implemented, the data have become invaluable and are currently used by nearly every city department for a variety of purposes. The system is now maintained by the City Department of Administration's Information and Technology Management Division.

MPROP first became accessible to the public via CD-ROMs in 1994. The data were first made available over the web in 2000. MPROP is now housed in an Oracle system that periodically pulls data from the various departmental data sets. In 1982, maps created by draftsmen were digitized as computer-aided design (CAD) based files so that parcel-level data could be displayed as symbols on a map. However, a polygon-based parcel file for the entire city was not created until 1998.

Decision Context: A Convergence of Improvement Efforts in Washington Park. For this pilot project, the effort focused on applying a mix of information tools in one neighborhood: Washington Park. This west-side neighborhood is also the focus of an Annie E. Casey Foundation Making Connections initiative. The Milwaukee city government, LISC, and the local NNIP partner (the Nonprofit Center of Milwaukee) are all involved in making this a reality. LISC was the catalyst for forming what is now the key development entity: Washington Park Partners (WPP), a coalition of CDCs and other nonprofits focused on revitalizing the area.

In 2004, LISC involved the WPP, residents, and other stakeholders in preparing a "Quality of Life" plan designed to improve the neighborhood with a focus on housing, commercial, and service development. The planning process involved more than 150 people that live and work in the area and made considerable use of the database provided by the city and the Nonprofit Center. The plan has seven strategic themes: promote neighborhood identity; focus neighborhood redevelopment in strategic locations; develop a comprehensive housing program; create a safer neighborhood; improve the well-being of the residents; improve job skills and employment opportunities; and improve recreation and open space facilities.

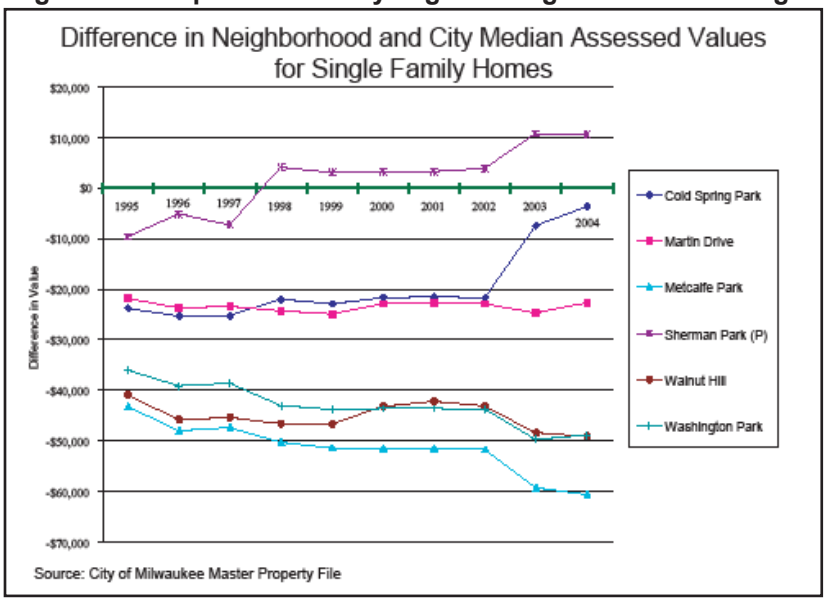
An important emphasis in the plan's implementation has been the housing program component, which is the focus of this project's local tool building effort. A special housing committee was formed to think through the challenges brought about by recent trends in housing market circumstances. Washington Park is made up of a number of sub-neighborhoods, almost all of which have been severely distressed for some time, but there are now initial signs of reinvestment and even gentrification in a few sections of them.

Developing the Tools: Testing a Set of Tools for Land Management in One Neighborhood. The team has worked on several tools, utilizing data to improve the effectiveness of

revitalization efforts in Washington Park. The broader strategy is to provide data and tools that can be used in a variety of ways to support individual actors in performing their own work more effectively while simultaneously providing additional tools to help everyone work together to achieve the comprehensive goals of the Quality of Life plan.

Two tools have been developed to date. The first is an analytic routine that attempts to show when sub-neighborhoods cross thresholds that make them ripe for development. It features tables, charts, and maps showing trends for a number of housing indicators (see Figures 4 and 5 for examples). The initial analysis showed that, in spite of the overall image of the area as one of distress, some sub-neighborhoods were performing much better than others in terms of housing reinvestment.

Figure 4. Sample Chart Analyzing Washington Park Sub-Neighborhoods



The mapping component of the tool was first applied to the St. Martin de Porres sub-neighborhood. Year-by-year map sequences on sales prices showed activity to be sluggish in the early 1990s. Then, after one developer purchased a set of properties there in 1995, sales volumes began to increase generally around the initial set. Study of that sequence served as a guide to preparing for change in another sub-neighborhood, Metcalf Park. Metcalf Park has been one of the most troubled neighborhoods in the city, yet the data are showing conditions not unlike those in St. Martin de Porres when reinvestment there began to accelerate. Housing committee work with the tool has been the basis for a plan to begin strategic reinvestment in Metcalf Park in the hopes of creating a similar response to that in St. Martin de Porres.

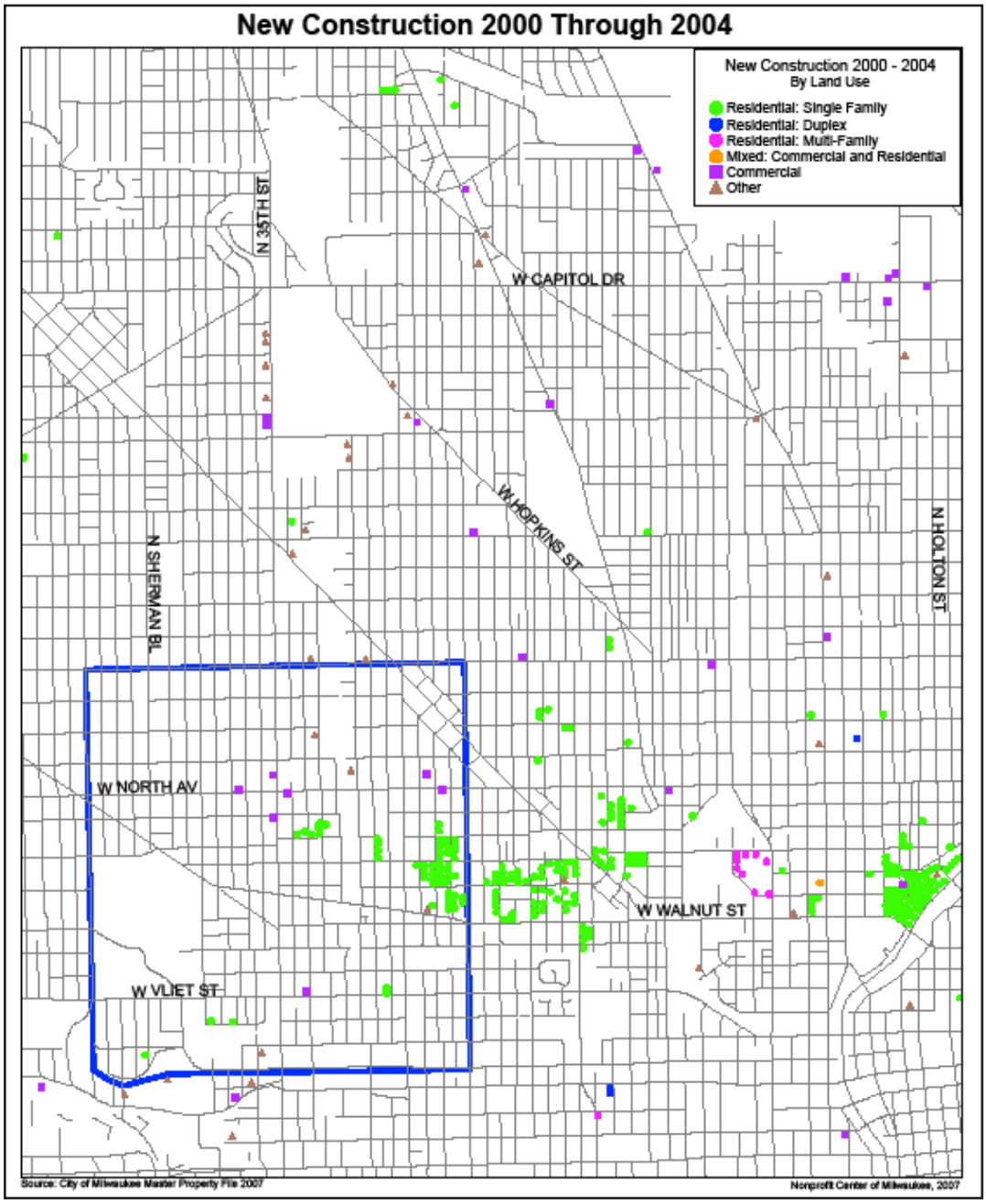
For the second tool, CDCs and other groups have shared data on the characteristics and development schedules of their current projects so that, by seeing each other's work in progress, they and city officials can implement overall revitalization in a more coordinated manner. The tool is an adapted use of a software application designed to support social service "case management" for vulnerable families: the internet-based Efforts to Outcomes (ETO). This software application supports queries and displays project information and schedule milestones on tables and maps. It does so in a case management framework that relates status to needs for various types of corrective actions. It is also being used to monitor social service activity in a local Annie E. Casey Foundation initiative. Having both types of data in the same system should work to further coordination.

One purpose of the application is to link a project to the CDC production pipeline that is designed to help low-income families in the neighborhood become homeowners. This project offers counseling and other support to help interested families take action to improve their credit scores. At the moment, the CDCs have no means to give preference to neighborhood residents over outsiders as their ownership units become available for purchase. The linking of data through the ETO system should support a reasonable approach for doing so.

Next Steps and Broader Applications. Another tool in process is the development of a Microsoft Access database that will allow community housing groups that are a part of WPP to link their rich on-the-ground knowledge of individual parcels to information derived from the extensive city administrative records. The benefit will be the capacity to manipulate both sets of information together in Access. It is also expected that additional property specific data will be added from city records on rehabilitation loans and grants.

A further opportunity will be the analysis of data from the system to better understand how properties slide in and out of "problem building" status. Surveys that collect data related to this status have been conducted in Milwaukee's troubled neighborhoods for many years. Up until just a few years ago, each year's survey showed increases in the number of buildings boarded up and in the number of previously boarded-up properties that had moved into the vacant lot category. In the past few years, however, that pattern has been reversed, as evidenced by increased improvements to problem buildings. The data from

Figure 5. Sample Map Analyzing Washington Park Construction



these surveys over the years should offer a rich resource for analysis on the determinants of change at the building level as neighborhood prospects change directions.

Providence: Helping Market Actors Form Strategies for Properties and Neighborhoods

The Data System. The Providence story is unique in that the local NNIP partner (the Providence Plan) played a sizeable role in helping the city develop its first integrated parcel-level system—the Providence Land Information System (PROLIS)—in 1997. Starting with assessors records as a base, PROLIS now includes regularly updated information from 10 agencies on the city's 42,000 parcels. Since 2004, improvements in data integration and other enhancements have been implemented as the PROLIS system is transitioning to become the broader "Govern" system. The first release of data on the web actually occurred via the "Neighborhood Mapper" feature on the Providence Plan's website in 2002—a development funded by a U.S. Department of Commerce Technology Opportunities Program (TOP) grant. Neighborhood Mapper offered several map layer options and allowed users to pull down fixed tables of characteristics for individual parcels by clicking on the parcel's location on the map.

Decision Context: Information Support to Address Opportunities in a Mixed Market. In spring 2003, the Rhode Island Governor's Growth Planning Council turned its attention to the issue of abandoned properties in Providence. Their report detailed the social and economic detriments of property blight and called for a response from local government, community organizations, and the private sector. The primary response has been the Urban Land Reform Initiative (URLI), operated jointly by the Providence Plan and the city's Department of Planning and Development (work also supported by the state Health Department, the Rhode Island Foundation, and the local Fannie Mae Partnership Office). The initiative seeks to develop an urban land reform strategy for the city, and its plan relies heavily on making better use of the parcel-level information system.

The administration of Mayor David Cicilline has emphasized the theme of enhanced information in its efforts to bring more transparency and efficiency to city governance. The theme is exemplified by "ProvStat," which uses data intensively in recurrent reviews of the demands on and performance of city departments. ProvStat, which is modeled after Baltimore's CityStat system, was launched in January 2002 with technical assistance from the Providence Plan.

An early step to prepare for the URLI was the Providence Plan's survey of vacant and abandoned structures in the city, which was funded by the Fannie Mae Foundation. The survey provided staff with the opportunity to better assess the factors that bring about property decline and problem buildings status and to build those lessons into subsequent tool development. In the survey, nonutilization and physical neglect were identified in over 1,500 properties and the data about them were added into the central system.

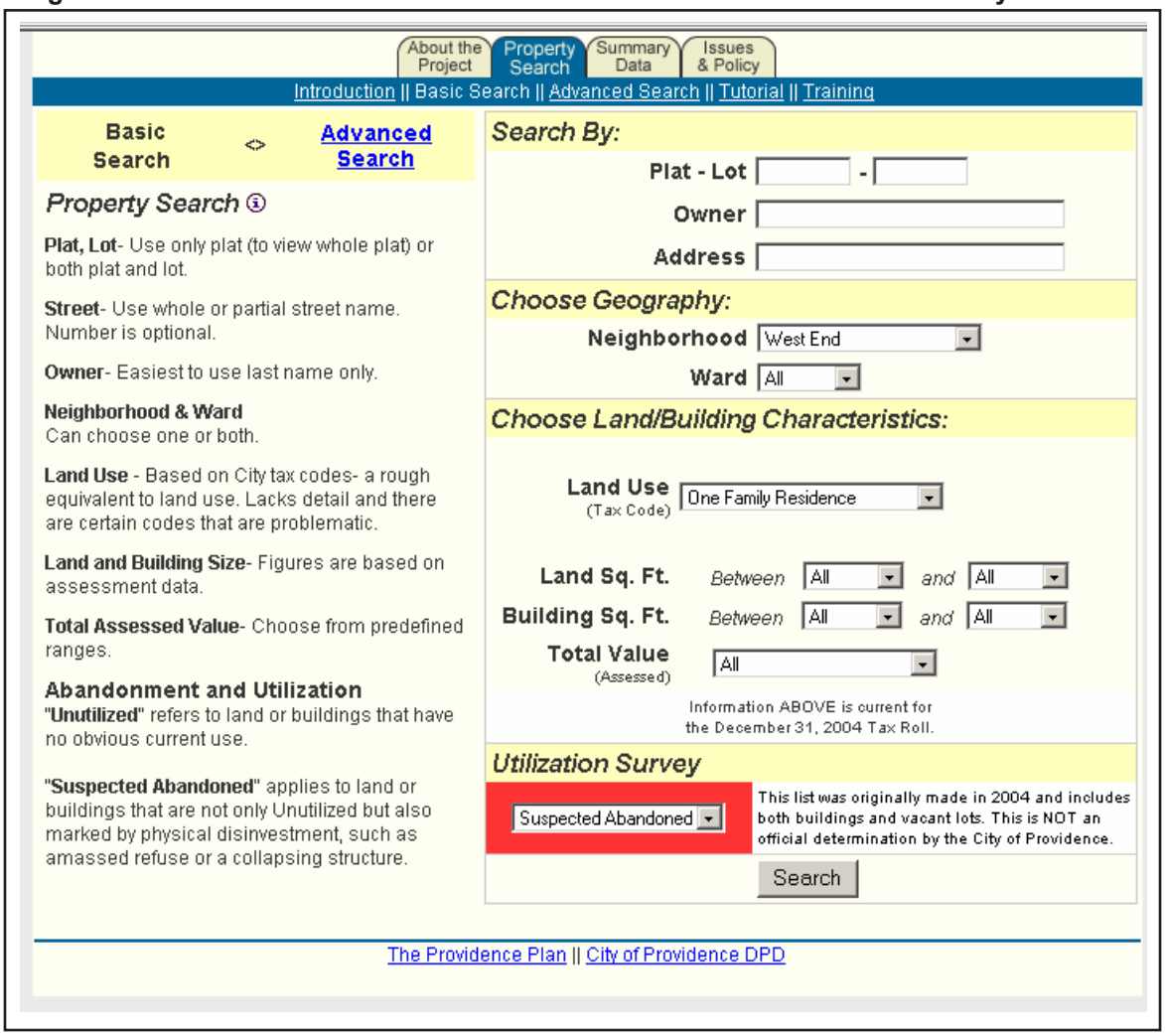
The mission of URLI, initially focused solely on the problems of abandonment and neighborhood decline, has shifted as Providence has experienced considerable expansion in property values and real estate market activity. This creates a more positive environment for turning around previously abandoned buildings, but it also brings new pressures associated with gentrification and loss of affordable housing in some areas. The shift, however, adds complexity, resulting in local recognition of the need for better information about real estate in a more usable form so that effective strategies can be developed. This further reinforces the need for the type of information tool under development as part of the original URLI plan.

Developing the Tool: Quick Data Retrieval and Analysis of Problem and Opportunity Properties. The tool developed by the Providence Plan under the UMI project—the Urban

Land Reform Property Information Tool—moves well beyond the capacity of the previous Neighborhood Mapper. A first step was to add information to the database and to organize it better in order to identify "problem building" status. Research followed by discussions with potential users led to the selection of five key indicators: tax lien advertisements and sales; housing code violation notices (NOVs); public works (DPW) environmental tickets; structure fires; and foreclosures. Data are provided on each indicator individually and an unweighted index score is also calculated. Other newly developed parcel-specific data—for example, data from the vacancy survey and data on types of ownership—were also added to the files.

The tool itself is web based. As illustrated in Figure 6, the first new feature is the *search form* that permits a user to specify a series of characteristics in the database. The system then generates a *results page* (Figure 7), a table listing of all properties that meet the specified criteria along with key information about those properties. For example, a user could select a neighborhood and then select, within that neighborhood, all properties that have had NOVs and DPW tickets since January 1994—properties which are likely to demand attention and could well be candidates for rehabilitation in the current market environment.

Figure 6. Search Screen: Providence Urban Land Reform Land Information System



The next new feature is a *sort capacity*. After generating the *results page*, users can re-sort the property listings by any system variable they choose. In the example above, the user might want to sort by the total number of NOV and DPW ticket incidents, which might be

Figure 7. Results Screen: Providence Urban Land Reform Land Information System

You are here: Search> Results

Providence Urban Land Reform Land Information System

Search Results (Click Plat/Lot for Detail) Search Again

Records 1 to 3 of 3 Sort by Plat/Lot

Plat/Lot	Address*	Land Use	Owner (12/31/03)	Lot Sf.	Bld Sf.	Recent Incidents
030-0031-0000	29 Sprague St	One Family Residence		3,877	1,778	1
030-0292-0000	106 Wilson St	One Family Residence		3,790	1,464	0
036-0266-0000	15 Lytherland Pl	One Family Residence		2,134	698	0

Search Again

* Address shown may not be sole address for property (particularly for commercial or industrial).

The Providence Plan || City of Providence DPD

one way to define problem severity status or determine priority properties for intervention. Users can then quickly try out alternative criteria on the *search form* using the sort feature and compare results.

After this process is complete, users are likely to want to learn more about the characteristics of individual properties on their lists. The new ULRI tool allows them to select individual parcels from the table or, as was previously possible, a map. The results of the selection are presented as a page (Figure 8) showing a photo of the property along with a considerable amount of descriptive information. Two new features are associated with this page: (a) a comments box to enable users to write in their own observations about the property; and (b) a "surrounding properties display" showing a map of properties surrounding the one selected, thus enabling the user to find descriptive information about all of the displayed properties.

So far, the tool has been made available on the web only to ULRI project partners, including a number of CDCs and city agencies. The uses have varied. CDCs have mainly used it to more efficiently identify and prioritize properties that would be good candidates for development and obtain data needed for the development process (e.g., identifying and locating current owners). City departments have recognized the potential value of the tool for neighborhood planning, although the city administration does not have a comprehensive program along those lines at present. The departments have commented on its value for many day-to-day operational uses. Some examples include identifying owners with multiple addresses, verifying addresses before sending out violation notices, and identifying properties with recent changes in ownership.

The comments box has proved useful. Comments have led to discovering errors in city records and new building-specific problems in need of attention that would not have been spotted per normal city operations.

Next Steps and Broader Applications. In addition to the property and neighborhood specific uses discussed above, the Providence Plan and its partners have used their data more broadly in several instances, most importantly in relation to the tax sale process. In the late 1990s, data from the system showed that large scale slumlords were acquiring an undue number of properties in the tax sale pipeline, which led to a legal change to curtail that abuse. More recently, another Providence Plan analysis of the data convinced lawmakers to enact further change, a critical component of which allows public agencies to intervene directly and assist when low-income owners of properties in the pipeline are at risk of losing

Figure 8. Property Detail Screen: Providence Urban Land Reform Land Information System

You are here: Search > Results > Detail

Providence Urban Land Reform — Land Information System

Property Detail — < Back to Results List

Plat-Lot-Unit: 030-0031-0000 — Map this Property

Property Address	29 Sprague St
Neighborhood	West End
Ward	11
Owner (12/31/04)	
	29 Sprague
	Providence RI 02907-2525
Tax Code	One Family Residence
Zoning	
Year Built (Primary)	1930
Land Value	$16,800
Building Value	$109,100
Total Value	$125,900
Lot Area (sf)	3,877
Building Area (sf)	1,778
Residential Units	1
Owner-Occupied	Yes
Nonutilization Tax	No
	As of December 31, 2004

Picture date unknown. Taken during 2001 revaluation.

DISCLAIMER: The material contained in this website is offered as a public service and for informational purposes only. The information herein is subject to change without notice and should be confirmed with primary sources for accuracy and currency. In no event will the City of Providence or The Providence Plan be liable for any errors or omissions, regardless of cause, or any damages arising from the use of information provided on this website or through links to any other websites. No communications to the City of Providence via this website shall constitute legal or official notice to the City, its officers, employees, or agents for any purpose.

Property Distress

Warning Signs

Property Tax Lien

Times Advertised Since 1999	1
Times Advertised in Past 2 Years	1
Most Recent Advert	8/18/2005
Times Sold Since 1999	0
Times Sold in Past 2 Years	0
Most Recent Sale	-
Was most recent sale redeemed?	-
	As of September 9, 2005

Notice of Code Violation

Notices Since 2004	0
Notices in Past 12 Months	0
Most Recent Notice	6/6/2003
	As of June 13, 2005

Environmental Ticket ($250+)

Tickets Since 2004	0
Tickets in Past 12 Months	0
Most Recent Ticket	-
	As of September 30, 2005

Structure Fire

Fire Runs Since 2004	0
Fire Runs in Past 12 Months	0
Most Recent Fire Run	-
	As of February 28, 2005

Warning Sign Summary

For Individual Property

Recent Incidents	1
Most Recent Incident	8/18/2005
Most Recent Sale	-
Incidents Since Last Sale	1

Within Vicinity of Property

BLOCK GROUP: 1200 3

Recent Incidents	13
Foreclosure Sales in Past 12 Months	1
Tax Liens Advertised in Past 2 Years	11
Tax Liens Sold in Past 2 Years	0
Code Violation Notices in Past 12 Months	0
Environmental Tickets in Past 12 Months	0
Runs for Structure Fires in Past 12 Months	1

The term "Recent" refers to the past 2 years for tax lien advertisements and sales and to the past 12 months for code violations, environmental tickets, structure fires, and foreclosure sales. Property Vicinity is defined by Census Block Group.

Foreclosure History — *As of October 28, 2005*

No Foreclosures

Source: Providence Journal Legal Notices (2004 forward). Represents advertised date of foreclosure sale, not confirmation of sale.

Status: *Suspected Abandoned* — *As of August 2004*

Status is NOT an official City determination. Unutilized properties were visually deemed to have no obvious current use. Suspected abandoned properties were both unutilized and with serious signs of physical neglect.

Property Sales — *As of May 31, 2005*

Date	Buyer	Seller	Price	Book	Page
No sales reported					

Sources: City of Providence and Warren Information Group (1997 forward). Sale transactions may involve buyers, sellers, and book-pages in addition to those reported. Be aware that sales price may be affected by other properties or conditions that were part of the transaction.

Comments on Property — (Post a Comment)

No Comments yet...

The Providence Plan || City of Providence DPD

them. This change in the law is likely to spur another wave of applications for the tool to identify and design appropriate assistance packages for at-risk owners.

Providence Plan staff feel that increasing awareness of the availability of good data in the system, in itself, is motivating new demand for applications. For example, based on presentations of recent system enhancements, the city asked the Providence Plan to provide analysis in support of a much improved method for its comprehensive property tax assessment.

All of this work has caused the team to give heightened priority to data quality. They decided not to release data received from city agencies where they have found quality problems. This recognition has given rise to the concept of a system that has a "front page" (the high-quality data) and a "back page" (lower-quality data that can only be accessed by selected in-house users). The idea is that it is better to incorporate the back-page data into the system's framework, because doing so may encourage quality improvement more rapidly than if it was left out of the system altogether.

Washington, D.C.: Managing the Preservation of Affordable Housing

The Data System. The Office of the Chief Technology Officer (OCTO) developed and operates the Computer Assisted Mass Appraisal database (CAMA), an integrated parcel-level database in Washington, D.C. CAMA is based mainly on property information maintained by the Office of Tax and Revenue (OTR).[8] The system was first fully in place at OCTO in 2003 and selected data were made available to the public via the web in 2005. Substantial portions of the source data, however, have been shared regularly with Washington's NNIP partner, *NeighborhoodInfo DC*, since 2004. *NeighborhoodInfo DC* is operated as a joint venture of the Urban Institute and the DC LISC. It regularly shares data in its files (tract and zip-code level information from a variety of other national and local sources) with OCTO.

Decision Context: A Hot Market and the Loss of Affordable Housing. The housing market in Washington, D.C., has been much stronger than those in the other four pilot cities, therefore preserving affordable housing is a high priority. Between 1995 and 1999 sales prices of owner housing units (adjusting for inflation) actually went down slightly (-0.2 percent per year), but between 1999 and 2004 they went up at an unprecedented rate (+15.8 percent per year).[9] A mix of both neighborhood and parcel-level indicators are needed to assess pressures on the affordable stock, especially gentrification. To this end, a "Neighborhood Assessment System" (NAS) was proposed in 2003 to help city staff, advocates, and residents track and act on community changes. This project received its primary support from the Fannie Mae Foundation. The Urban Institute in the context of *NeighborhoodInfo DC* is designing and implementing the project.

In late 2004, the local pilot project team met to discuss plans with the DC Office of Planning, the Mayor's office, DC LISC, OCTO, and the Fannie Mae Foundation, focusing on issues of gentrification and affordable housing. U.S. Department of Housing and Urban Development (HUD) staff responsible for data on Section 8 Expiring Use was also interviewed and HUD Section 8 Expiring Use data files were made available.

The first stages of the work entailed three parts: (1) acquiring new parcel data; (2) using it and other data in *NeighborhoodInfo DC* 's existing data warehouse to create a website for dissemination; and (3) conducting a base analysis to support tool building. The new data were obtained by the end of the year, and the refurbished and enhanced website, www.NeighborhoodInfoDC.org was completed and made public in February 2005.

Recent trends in property sales, mortgage lending, and other indicators were then analyzed in terms of their threat to affordable housing. Neighborhoods that recently gentrified were studied more intensively. Citywide neighborhood change was subjected to multivariate analysis to better understand how different indicators interact over time and the effects on housing affordability.[10]

Developing the Tool: Section 8 Expiring Use Monitoring Report. Meetings with stakeholders about available data and the analysis noted above led to the realization that although the loss of affordable housing was regarded as an emerging crisis, no one was really monitoring the issue, i.e., showing how many and what types of losses were occurring in what neighborhoods and how these patterns were changing over time. Accordingly, the team decided that the initial NAS tool should be a quarterly report on this topic.

The initial version of the report incorporated data on such citywide and neighborhood background conditions as housing price changes and focused on tracking changes in the inventory of Section 8 projects reaching contract expiration (derived from the HUD file). This focus was a natural starting place since research has shown that city efforts to preserve the federal subsidy stream for such properties can be extremely cost effective.[11] Often, a comparatively small investment of local resources can stave off what can amount to a very painful loss.

Figure 9 shows the tool's summary table, including the following: (a) the number of Section 8 projects, including housing units, that reached their scheduled expiration dates over the past year (by quarter) and what happened to them—actually expired, extended, or sold to nonprofit; and (b) the number of projects and units with contracts scheduled to expire over the coming year (also by quarter). Supporting tables depicted the same information by ward and neighborhood. The report also included separate exhibits, such as the one in Figure 10, with detailed information on characteristics of each individual property, actions planned, groups assigned to preserve it, factors related to the probability of landlord opt-out, and other neighborhood conditions and trends.

The DC Department of Housing and Community Development (DHCD) provides grants to several CDCs and other housing advocacy nonprofits in the city to help tenants prepare for potential transfers of ownership of affordable rental properties, such as Section 8 projects. In some cases the grants allow tenants to purchase the properties themselves. In other cases tenants can work with the city and others to find an alternative solution that will preserve the affordable status of the property. UI staff obtained information from each of the groups involved on the specific properties they were working with. This turned out to be an important feature of the new report. By combining the lists and relating them to the expiring use schedule, it was possible to identify potential conflicts and gaps in assignments.

Participants who met to review the first report included representatives of DHCD, its grantees, and a number of other community intermediaries working on the housing affordability issue in the city. DHCD asked its grantees and others to use the report as a basis for planning their future work in relation to the Section 8 pipeline.

Next Steps and Broader Applications. DHCD plans to use updates of the NAS report as a basis for coordinating its preservation efforts more broadly in the future. Quarterly meetings reviewing the Section 8 portions of the report are expected to result in reassessments of priorities and adjustments to technical assistance assignments to eliminate gaps and overlaps. In addition to managing the provision of technical assistance to tenants, DHCD staff envision the possibility of using the data to identify and prioritize needs for direct city intervention. For example, this might involve title transfers or city assistance with rehabilitation and other ongoing operations.

The participants' most urgent request was for *NeighborhoodInfo DC* to expand coverage to include information on the status of other rental properties at risk of being lost to the affordable housing stock. This could include obtaining early notice when landlords report to the city their intent to rehabilitate or sell buildings that now rent at reasonable levels. It would also involve a merger of another HUD data set with city records to identify Low Income Housing Tax Credit (LIHTC) properties.

The current tool yields paper reports, but KnowledgePlex, Inc., formerly housed at the Fannie Mae Foundation, is now co-branding its *DataPlace* site for NeighborhoodInfo DC. This entails web-enabling the full quarterly report so that users will be able to access citywide screens and click on a map or listing to bring up the relevant data for individual neighborhoods. It will also be possible to generate maps for variables in the system as point locations of specific properties or key indicators at the census tract level.

Additionally, for those neighborhoods identified as having a high risk of affordable housing loss, the team is considering the development of additional tools. The tools will identify and prioritize properties and families facing different types of risk, and assist in the planning and monitoring of programs to address these risks. For example, the tool will:

- Identify: (1) sub-neighborhoods with high levels of subprime lending and foreclosure notices, or (2) individual owner-occupied properties with serious tax arrearage.
- Identify properties that are attractive candidates for acquisition in a program of strategic land assembly, thereby enabling the public sector to get ahead of the curve in neighborhoods in the early stages of gentrification.

Figure 9. Washington, D.C. Section 8 City Summary Report

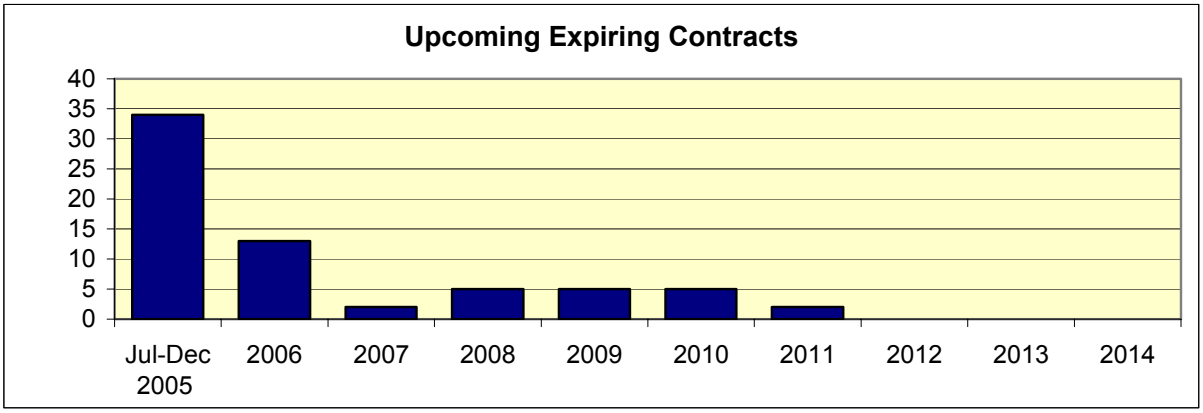
Section 8 Multifamily Report: City Summary
July 2005

Washington, D.C.

		Contracts	Assisted Units
Current Active	*Total*	100	10,353

		Contracts		Assisted Units	
		Renewals	Expirations	Renewals	Expirations
Renewals/Expirations	*Total*	63	11	6,377	1,408
(past four quarters)	*Apr-Jun 2005*	15	0	1,394	0
	Jan-Mar 2005	24	7	2,647	1,046
	Oct-Dec 2004	11	1	1,200	50
	Jul-Sep 2004	13	3	1,136	312

		Contracts	Assisted Units
Upcoming Expiring	*Total*	40	4,005
(next four quarters)	*Jul-Sep 2005*	27	2,157
	Oct-Dec 2005	7	1,387
	Jan-Mar 2006	4	321
	Apr-Jun 2006	2	140



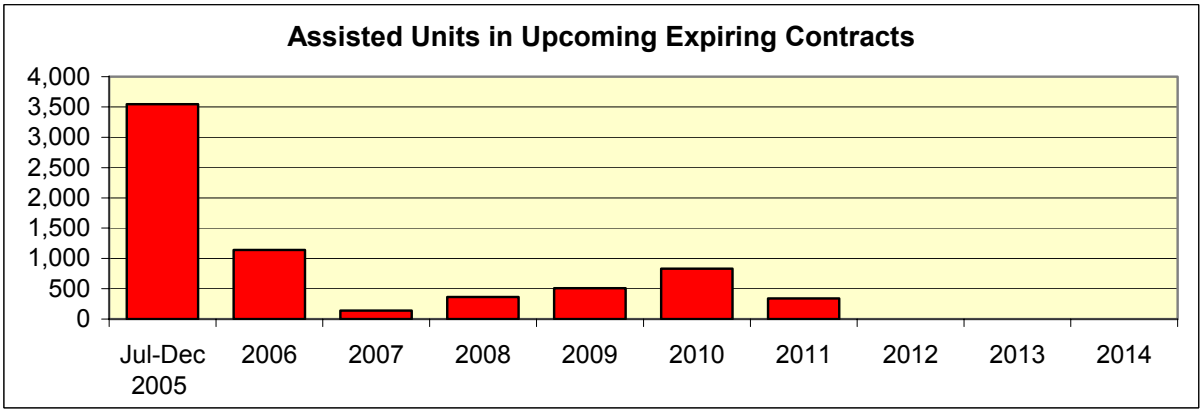


Figure 10. Washington, D.C. Section 8 City Detail Report

Section 8 Pipeline Report: Detail for Upcoming Expiring Contracts (next four quarters)
July 2005
Washington, D.C.

Expiring July - September 2005

1301 7TH ST NW, Washington, DC 20001 / Contract no.: DC39M000033
Name: GIBSON PLAZA
Ward 2 | Cluster 7 (Shaw, Logan Circle)
ANC 2C | PSA 308 | Tract 48.02
Expires: 07/31/2005 {expiration risk?}
Program: LMSA
Num. assisted / total units: 122 / 217 [56%]
Affordability: Below 80% FMR
Owner:
Tenants being assisted by: Manna CDC (current)

1523 VERMONT AVE NW, Washington, DC 20005 / Contract no.: DC398023015
Name: PHYLLIS GIESELER
Ward 2 | Cluster 7 (Shaw, Logan Circle)
ANC 2F | PSA 307 | Tract 50
Expires: 07/31/2005 {expiration risk?}
Program: Sec 8 SR
Num. assisted / total units: 2 / 3 [67%]
Affordability: Between 80% & 100% FMR
Owner:
Tenants being assisted by:

1730 7TH ST NW, Washington, DC 20001 / Contract no.: DC39M000035
Name: LINCOLN WESTMORELAND I
Ward 2 | Cluster 7 (Shaw, Logan Circle)
ANC 2C | PSA 308 | Tract 49.01
Expires: 07/31/2005 {expiration risk?}
Program: LMSA
Num. assisted / total units: 82 / 108 [76%]
Affordability: Between 80% & 100% FMR
Owner:
Tenants being assisted by: Manna CDC (current)

III. Taking Advantage of the Potential

How should those involved in crafting these new tools and analytic methods move beyond these initial experiences? When representatives of each of the five site teams and UMI and Brookings staff met during the course of this project to review progress, they discussed this broader question. The following are conclusions of the authors, but they are drawn in part from these discussions.

Creating an Environment to Further Tool Development

As noted in the overview of the case studies in Section 2, all of the cities are either working on, or at least thinking about, developing additional tools. This seems to have occurred naturally. As a team is working on one tool, opportunities to develop other tools in related areas are likely to suggest themselves. However, for the most valuable payoff to occur, each city should develop an environment that encourages expanded applications of their much improved data sets to impact real decisionmaking.

While the local stakeholders cannot tackle every issue at once, the process should be structured so that over time each city builds up a suite of computer-assisted tools to guide and direct (and subsequently monitor) different types of initiatives to strengthen its local real estate market. The five pilot projects suggest that creating the right kind of environment is likely to require three things.

First, there must be at least a few champions and technical support professionals who understand both the substance of the decision problem at hand and the potential of the data and technology. Such individuals existed in each of our five sites. In all cases, the leading champion was a government official or community leader, but they were prompted to move ahead only after being sold on the possibilities by one or more of the technical professionals on the team. The champions were able to get the other relevant decision-makers to the table by describing how the tool would work in a way that convinced them it was likely to lead to more effective decisions and simplify the decision-making process.

The second requirement is that tool development go hand in hand with the building and strengthening of relationships among critical stakeholders. The issues that were the subject of tool development in all five cities, as with most issues in public policy concerning urban land markets, are the kind that ultimately require a range of players (public and private) to reach at least a general consensus about what to do. We think a good case can be made that environments rich in data and decision support tools can make an important difference in both motivating and helping to sustain productive coalition building.

The third requirement is that ongoing development of decision support tools be carried out so that implementing one tool leads to developing others. For the applications developed in these sites, the data in and of itself, including analysis by the champion or technical staff, was insufficient to get the decisionmakers (the key stakeholders) to pay attention. What did get their attention was the tool that brought together the data they needed in a form that was easy to work with and easy to understand. As the work proceeded, it naturally led them to think about related issues that would affect their success. The champions and technical professionals were able to conceptualize other tools and uses of data that would help them in these other tasks.

If the environment evolves in this way, we think there is a good chance that it could change the way business gets done in urban community development and land management. The experience of this project suggests that the application of parcel-level information to improve decisionmaking by a broad range of actors in urban land markets is now poised for rapid acceleration. With improvements in technology over the past few years, underlying data systems can be expanded and made accessible for many new uses at dramatically

reduced costs and tools can be developed and operated economically. It is not hard to envision this new environment motivating fundamental changes in the processes by which local governments conduct land management. The data and the tools raise expectations about performance in an atmosphere of transparency and, as a result, create incentives that should encourage more effective performance from all participants.

Topical Framework

What kinds of tools should be developed? We cannot specify all of the opportunities at this point, but the work done in the five cities entertains the possibilities. Tools are likely to be developed in all of the policy categories pertaining to the different market environments noted in Table 2. The initial differentiation is between "weak" and "strong" market environments. Originally, we thought these terms would apply to cities as a whole, but the project showed us that they are more relevant at the neighborhood level. All five of the cities have some neighborhoods of both types, although the proportions vary.

Table 2 Strategic Approaches by Type of Market Context

Weak Market Context	Strong Market Context
Slow disinvestment	*Preserve affordable housing*
Identify problem buildings by type	Identify properties at risk of loss
Match properties to action types	Match preservation actions to properties
Stimulate reinvestment	*Expand housing supply and assistance*
Analyze neighborhood trends	Track housing price changes
Identify properties for reinvestment	Have mixed income developments
Coordinate actions across programs	Have inclusionary zoning

In weak markets, there are two imperatives: slowing disinvestment in existing stock and stimulating new investment. In the former category, one important need may be for a tool that identifies properties at high risk of abandonment and links those properties to strategies that would prevent that outcome. This was the initial idea behind the tool development in Providence, however as work was underway the team recognized an opportunity for a broader set of "problem building" categories. This new set of categories can be related to a wider range of public response options, and tool development was expanded to follow suit.

Baltimore has focused on a specific need in the "stimulate reinvestment" category: building a tool that helps the city more effectively market distressed properties it has acquired to new investors. As that tool was being designed, the team has also uncovered opportunities to reorient design to support a broader range of community development decisionmaking. Milwaukee's efforts are also in the same general category. That city's team developed two tools. The first offers trend analysis that helps CDCs identify the optimal time to begin reinvesting in a distressed neighborhood that displays nascent indications of the potential for improvement. The second assembles data on the CDC projects underway in several neighborhoods to support more effective coordination and management of the pipeline. As a result of these efforts, there are plans for further, related tool development.

As we move from weaker to stronger urban land markets, priorities shift. In Washington, the highest priority was for a tool to help prevent losses of Section 8 project subsidies as contracts expire. The work is now being expanded to identify a wider range of affordable

housing threatened by gentrification, and to strategically link those properties to actions (neighborhoodwide or parcel specific) that might prevent the loss. The team is also involved in a related effort to track and report on housing price changes by neighborhood on a quarterly basis. Interestingly, since this project was started, housing price inflation has accelerated in parts of Providence. The team there is now interested in adapting Washington's approach in addition to the continued use of its tools, which are applicable to more distressed neighborhoods.

Indianapolis is working on a tool that could theoretically guide decisions along the whole spectrum of market conditions, from weak to strong. It is a tool that brings data and explicit criteria to bear in the process of allocating Community Development Block Grants (CDBG) funds to individual projects. It also builds in reports to facilitate performance monitoring.

Within each of these categories, we envision a need for three types of tools—those that facilitate:

1. Assessment of trends,
2. Allocating program activity to specific properties, and
3. Program monitoring and coordination.

Consider the first category on Table 1: slowing disinvestment. This involves a host of program activities that deal with problem buildings—activities that are often not well coordinated. In this area, tools in the "assessment of trends" group would include analytically-based "early warning devices" that might show when properties reach a high risk of abandonment.

The tools that allocate program activity would work like the tools developed in Providence. Queries would allow a user to select all buildings with characteristics that make them appear well suited for a particular type of program action (e.g., demolition, boarding up, or rehabilitation). The tool would then rank the properties that are listed according to indicators that suggest what their comparative priority for action should be.

Once decisions are made about actions, additional tools can be developed to support program monitoring and coordination. These tools would be designed to track progress against defined schedules of activity in a manner that prompts further decisions about corrective actions that may be required during implementation. A major contribution to program coordination in itself could be a tool that simply provides parcel-level specificity information on the action plans of the various public and private actors working in a neighborhood.

Addressing Risks to Tool Development

Even though the potential for these types of tools is strong, the viability of these approaches could be undermined by several risks. Data intermediaries and others promoting these approaches need to be vigilant so as to avert risks that could threaten them. The experience of this project suggests that the following three are the most prominent.

Data quality remains critical; to improve the data, start to use them. This conclusion has come out most strongly in Providence, but the issue arises in all cities. The Providence team discovered that some of the data they thought important for their work was of much lower quality than they expected. Their government counterparts cautioned strongly against making it available to most users because bad data, even in one area, might destroy the credibility of the overall initiative. The conclusion of the team, however, was not to drop the weak data from the system altogether. Rather, while the higher quality data can be placed on the "front page," it is useful to maintain a "back page" for weaker data accessible to only a few internal users. The underlying rationale is that moving the weak data

inside the system and having a few professionals outside of the source agency analyzing it would more likely lead to its improvement than simply leaving it behind.

Don't take away all of the discretion. Although there is strong interest in decision support tools in all cities, remarks by decisionmakers suggest that they do not want the tools to make the decisions *for* them. Neighborhood typologies, for example, can be helpful in suggesting the types of policies and programs appropriate for different types of neighborhoods, but the advice we are getting is to "not take them too seriously." In other words, it should be expected that decisionmakers will not always follow such advice exactly. They may well know things about the neighborhoods that are critical to strategy but which quantitative data alone will never adequately convey. The same thing is true of other decision support tools. If the model presents a ranking of properties most attractive for some programmatic action, it should not be expected that that ranking will be followed precisely. The tools and the data behind them can move all the players toward more effective courses of action, but given the many intangibles involved, the final decisions cannot be delegated to the computer.

Don't charge much, if anything, for access to the data. As parcel-level databases have been automated over the past two decades, a number of local governments (some facing serious budget pressures) have seen an opportunity to make money out of them. A number of commercial firms are willing to pay for exclusive rights to sell such data to the public, often for quite hefty fees. None of the five cities in this project have adopted this practice, but members of the site teams registered concerns about the selling of data as a barrier in other cities and places they knew about. Milwaukee County, for example, sells its data in this manner, with the result that it is not feasible to construct a freely available integrated system on property data for the metropolitan area. Our teams in the five sites see this practice as seriously shortsighted for the jurisdictions that follow it, as do the bulk of the nation's GIS professionals.[12] It can be argued that taxpayers have already paid for the creation of the data and should not have to pay for access to them again. It can also be argued that the use of the data by real estate professionals and other practitioners, along with the further application of decision support tools as discussed in this report, create enormous benefits to localities. This is accomplished through more efficient workings of the land market, and in reality, these benefits far outweigh the quite limited revenues localities would receive from selling rights to the data.

Endnotes

1 G. Thomas Kingsley and Kathryn L.S. Pettit are with the Urban Institute.

2 While Brookings provided the central grant to support this project, considerable additional funding was provided by the Fannie Mae and Annie E. Casey foundations, along with a number of local foundations and agencies in the individual sites. Appendix A provides a list identifying project team members and supporting organizations in each of the five sites.

3 To learn more about NNIP, visit http://www.urban.org/nnip. Concepts and history are found there in Kingsley and Pettit, 2004.

4 J. Pari Sabety and Virginia L. Carlson, "Using Information to Drive Change: New Ways to Move Urban Markets" (Washington: The Brookings Institution, 2004).

5 A broader review covering the development of such systems in the 100 largest U.S. cities is provided in a study by PolicyLink and the Urban Institute (Chandler, et al, *The Potential of Parcel-Based GIS in Community Development and Urban Land Management*. Working Paper. Cambridge, MA: Lincoln Institute of Land Policy, January 2007).

6 The uses of parcel data provided via the web are illustrated, for example, by the experience of the Neighborhood Knowledge Los Angeles (NKLA) system (developed and disseminated by NNIP's Los Angeles partner at UCLA) and by the analytic work of Metro Edge, Social Compact, and others.

7 The work that probably did the most to stimulate recent interest in this approach was the typology developed for Philadelphia in the late 1990s by The Reinvestment Fund (described by Brophy and Vey, 2002). Three of the cities participating in this project have developed and used similar typologies: Baltimore, Indianapolis, and Washington.

8 A parcel-level shape file (polygons) to support GIS applications is under construction for Washington, D.C., but is not yet complete. GIS work now depends on geo-coded points that represent approximate locations of all real property lots in DC. The points are related to parcel numbers and addresses so as to allow mapping of relevant data at this level.

9 Margery Austin Turner and others, "Housing in the Nation's Capital: 2005" (Washington: The Fannie Mae Foundation, 2005).

10 Peter A Tatian, "DC Neighborhood Assessment System: Neighborhood Sales Trends: 1996-2006." (Washington: The Urban Institute, December 2007).

11 Michael Bodaken, "The Increasing Shortage of Affordable Rental Housing in America: Action Items for Preservation." Fannie Mae Foundation. *Housing Facts and Findings*, 4:4. (2002).

12 GITA (Geospatial Information and Technology Association), "Free or Fee: The Governmental Data Ownership Debate – GITA White Paper." (Washington: Geospatial Information and Technology Association, 2005).

References

Bodaken, Michael. 2002. "The Increasing Shortage of Affordable Rental Housing in America: Action Items for Preservation." Fannie Mae Foundation. *Housing Facts and Findings*, 4:4.

Brophy, Paul C., and Kim Burnett. 2003. *Building a New Framework for Community Development in Weak Market Cities.* Denver, CO: Community Development Partnership Network.

Brophy, Paul C., and Jennifer Vey. 2002. *Seizing City Assets: Ten Steps to Urban Land Reform.* Washington: Brookings Institution.

Chandler, Arnold, G. Thomas Kingsley, Josh Kirschenbaum, and Kathryn L.S. Pettit. January 2007. *The Potential of Parcel-Based GIS in Community Development and Urban Land Management*. Working Paper. Cambridge MA: Lincoln Institute of Land Policy.

GITA (Geospatial Information and Technology Association). 2005. "Free or Fee: The Governmental Data Ownership Debate – GITA White Paper." Washington: Geospatial Information and Technology Association.

Kingsley, G. Thomas, and Kathryn L.S. Pettit. 2004. *Neighborhood Information Systems: We Need a Broader Effort to Build Local Capacity.* Washington: The Urban Institute.

Kingsley, G. Thomas, and Kathryn L.S. Pettit. 2003. *Concentrated Poverty: A Change in Course.* Washington: The Urban Institute.

Mallach, Alan. 2004. "Abandoned Property: Effective Strategies to Reclaim Community Assets." *Housing Facts and Findings*, 6:2.

Sabety, J. Pari, and Virginia L. Carlson. 2004. *Using Information to Drive Change: New Ways to Move Urban Markets.* Washington: Brookings Institution.

Snow, Christopher W., Kathryn L.S. Pettit, and Margery Austin Turner. 2003. *Neighborhood Early Warning Systems: Four Cities' Experience and Implications for the District of Columbia.* Washington: The Urban Institute.

Tatian, Peter A. 2007. *DC Neighborhood Assessment System: Neighborhood Sales Trends: 1996-2006*. Washington: The Urban Institute.

Turner, Margery Austin, G. Thomas Kingsley, Kathryn L.S. Pettit, and Jessica Cigna. 2005 *Housing in the Nation's Capital: 2005.* Washington: The Fannie Mae Foundation.

Appendix A

Site Teams and Supporting Institutions

Baltimore. NNIP Partner: Odette Ramos and Peter Armstrong, Baltimore Neighborhood Indicators Alliance (BNIA); City Officials: Martha Baker, Baltimore City Planning Department, Stephen Janes, Robert Pipik and Kurt Sommer, Baltimore City Department of Housing and Community Development. Live Baltimore Marketing Center.

Indianapolis. NNIP Partner: Sharon Kandris, GIS Director, The Polis Center at IUPUI (Indiana University-Purdue University Indianapolis); City Officials: Andy Frazier, Special Assistant to the Mayor for Community Development; Andy Swenson, Department of Metropolitan Development; William Taft, Director, Indianapolis Local Initiatives Support Corporation (LISC); and Rick Petrecca, Director City/County GIS.

Milwaukee. NNIP Partner: Michael Barndt, Coordinator, Neighborhood Data Center at the Nonprofit Center of Milwaukee; City Officials: Nancy Olson, Director of Information Management and Technology, Alvaro Garcia, Grants Manager, Department of Neighborhood Services; Leo Rief, Director of Milwaukee Local Initiatives Support Corporation (LISC).

Providence. NNIP Partner: Patrick McGuigan, President, James Lucht and Eben Dowell, The Providence Plan; City Official: Thomas Deller, Director of Planning and Development. Others: Lori Capaldi, RI Economic Development Corporation (RIEDC).

Washington DC. NNIP Partner: Peter Tatian, Jacob Cowan, and G. Thomas Kingsley, the Urban Institute, and Oramenta Newsome, Director, DC Local Initiatives Support Corporation (LISC) (the Urban Institute and LISC jointly operate *NeighborhoodInfo DC*); City Officials: Robert Mulderig and Lamont Lee, Department of Housing and Community Development; Barry Miller, Deputy Director Office of Planning; David Seidman, GIS Director, Office of the Chief Technology Officer (OCTO). Others: Patrick Simmons and Lessie Powell Evans, Fannie Mae Foundation.

Acknowledgements

Living Cities was the founding funder for the Brookings Urban Markets Initiative (UMI). UMI used Living Cities funding to support selected pilot projects, on which the research presented in this paper is based. Living Cities is a partnership of leading foundations, financial institutions, nonprofit organizations, and the federal government committed to improving the vitality of cities and urban communities. For more information see www.livingcities.org.

About the Authors

G. Thomas Kingsley is a senior researcher in housing, urban policy, and governance issues at the Urban Institute, and is the author of numerous publications in those fields. He served for 12 years as the Director of the Institute's Center for Public Finance and Housing. He currently directs the National Neighborhood Indicators Partnership—an initiative to further the development of advanced data systems for policy analysis and community building in U.S. cities. Other projects he has directed recently have focused on the following: analyzing the patterns and effects of concentrated poverty in America's urban areas; assessing lessons from HUD's HOPE VI program for the future of public housing; and providing analytic support to the Annie E. Casey Foundation's Making Connections Initiative.

Kathryn L.S. Pettit is a research associate at the Urban Institute whose work focuses on measures of neighborhood change and the role of place in social outcomes. She serves as deputy director of the National Neighborhood Indicators Partnership and leads the Institute's work providing database and analytic content for *DataPlace*, a national web-based resource for small-area housing and community development indicators. She is also the lead researcher on housing market trends and overall project manager for the Institute's annual *Housing in the Nation's Capital* report series. In addition, she contributes to research on concentrated poverty, mortgage lending, and other urban issues.

For more information contact: tkingsley@ui.urban.org or kpettit@ui.urban.org.

BROOKINGS

1775 Massachusetts Avenue, NW
Washington, DC 20036
telephone 202.797.6000
fax 202.797.6004
web site www.brookings.edu

Metropolitan Policy Program
at BROOKINGS

telephone 202.797.6139
fax 202.797.2965
web site www.brookings.edu/metro