Neighborhood Early Warning Systems: Four Cities’ Experiences and Implications for the District of Columbia

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I. INTRODUCTION

City agencies, nonprofit housing activists, and neighborhood groups have long been hindered in their community development and improvement efforts by a lack of current and reliable information about housing conditions at the neighborhood level. In response, institutions in several cities have established Neighborhood Early Warning Systems (NEWS) that provide timely and convenient access to information about properties drawn from multiple data sources. Several advances over the last decade have made these systems possible, including increasingly automated administrative records and lower-cost and more powerful GIS and Internet systems. More important though have been the innovative partnerships between city, nonprofit, and academic organizations that have made the implementation of these systems possible.

This paper explores the value and feasibility of developing a Neighborhood Early Warning System for the District of Columbia as a tool for helping to address the evolving housing and community development challenges facing the city and its neighborhoods. We begin by outlining the common elements of four established Neighborhood Early Warning Systems, and then describe their individual histories, features, and uses. Finally, we apply the lessons from other cities to explore the possibility of developing a similar system in the particular context of Washington, D.C.

Urban Institute staff circulated an earlier draft of the paper to stakeholders in the District of Columbia, and held a series of consultations in Spring 2003 to gauge interest in a NEWS system for the city. (See Appendix A for a list of meeting dates and participants.) Meetings included representatives from city agencies, community development corporations, and other community organizations. These discussions culminated in a larger meeting at the Urban Institute in April 2003, which included a presentation by Neal Richman, the director of Neighborhood Knowledge Los Angeles (NKLA) and a presentation and system demonstration by Dennis Culhane, the director of the Philadelphia Neighborhood Information System (NIS). The presentations were followed by a discussion of the opportunities and challenges that could be foreseen in the development of a similar system for the District of Columbia. Key themes from our meetings with local stakeholders and from the April gathering are incorporated into this final version of the report.

II. THE GENERAL NEWS MODEL

Purpose. The systems we reviewed shared a common initial purpose: to monitor property-based administrative data in order to predict and combat financial disinvestment and building abandonment. Other related uses have evolved independently in the various cities from needs identified by neighborhood planning processes, nonprofit users and researchers.
The term "Neighborhood Early Warning System" reflects the belief that financial disinvestment, which is generally invisible to neighbors, precedes and causes physical decline and finally abandonment of residential and commercial real estate. By providing timely notice of such financial disinvestment, NEWS operators hope that interventions can be designed to prevent abandonment, or to facilitate remedial actions and redevelopment once it has occurred.

These interventions, which are typically planned and carried out by local government or nonprofit organizations rather than the NEWS operators, may involve confronting absentee or institutional landlords, preparing financing to buy properties at tax or scavenger sales, or targeting assistance to elderly homeowners to file for property tax exemptions or to accomplish deferred maintenance before they lose their homes. Public agencies and nonprofit organizations can target their efforts more effectively when they have access to the information that a NEWS provides.

**Data contents.** While the full set of data items contained in each system varies, all of the existing NEWS include indicators of financial disinvestment, such as property tax and public utility arrears; physical decline, such as housing code violations; and physical abandonment, including utility shutoffs, public abatements and tax sales. The data are generally updated on a regular basis (quarterly or semiannually) to provide information that is current enough to make preventive and remedial interventions possible.

The underlying data in each system is parcel-based, that is it refers to individual houses and apartment buildings, rather than aggregate data on areas such as neighborhoods or census tracts. This is important because the model of building abandonment that underlies these systems is an individual process, as are the interventions that the data can facilitate. Moreover, maintaining information at the smallest geographic level of analysis allows for great flexibility in the aggregation of data and indicators at any higher level of geography, such as police districts, elementary school feeder areas, and political districts.

While these systems began with deficit-based administrative data, three of the systems have begun to incorporate data directly collected by communities. The newly generated data generally still represent physical characteristics, such as graffiti, liquor stores, or photographs of distressed housing identified by street surveys. Two of the systems have also expanded their topics to include neighborhood assets like parks, youth centers, and libraries to balance the traditional negative portrayal of low-income communities. These new directions add depth to the limited picture administrative data presents, and engage the community residents in defining indicators that reflect their priorities.

**Political and institutional support.** To function, a NEWS requires support from local politicians and in particular from the administrative agencies that provide and update the data. Critical to the feasibility of any system is the willingness and ability of city agencies to provide
administrative data at no cost (or reduced cost) and to update it regularly. This support should be institutional, or even legislative, rather than based on personal relationships, so that data access is more likely to continue despite staff and leadership changes.

**Audience.** Existing systems vary in what they make available to the general public, but all form relationships with nonprofit developers and neighborhood groups that use the data for neighborhood planning and affordable housing development. Research and data are typically also offered to the municipal agencies that provided the raw data. Although only the Philadelphia NIS and the Minneapolis NIS restrict access to parcel-level data to approved users (generally city employees and nonprofit neighborhood groups), all of the systems focus their attention on groups that are most likely to use the data to achieve positive changes in neighborhood conditions.

**Delivery system.** Systems vary, both from each other and over time, in the access and analytical tools that they provide for users, but all involve dissemination of data on the web. The oldest and newest systems, in Chicago and Minneapolis, respectively, do not yet use on-line mapping to display or analyze data, but the most extensive systems, NKLA and Philadelphia NIS, include both on-line interactive mapping capability and automated table and chart generation at various levels of aggregation. In Chicago, users can search property addresses, address ranges or neighborhood names and receive results in web table format. Minneapolis is in the process of building a web-based interactive mapping system planned for completion in 2003.

**Institutional setting.** None of the systems reviewed are housed in free-standing entities. They are instead projects of larger academic or research institutions with diversified budgets and professional staff. The systems in Philadelphia, Los Angeles and Minneapolis are located within applied university research centers and have access to undergraduate and graduate students as supplemental staff at low cost. Chicago NEWS is located at the Center for Neighborhood Technology, an established research and advocacy organization that runs a variety of programs. These institutions provide both the technology and expertise necessary to overcome technical hurdles and the grant-writing and fund-raising capacity necessary to cover startup and operating costs.

### III. INDIVIDUAL SYSTEMS

We present here short histories of the four NEWS systems that we reviewed for this report:

1. **Chicago NEWS**, the first nationally known system and the one to coin the name Neighborhood Early Warning System, was started by the Center for Neighborhood Technology in 1984.
(2) Neighborhood Knowledge Los Angeles (NKLA), at UCLA, was started in 1995, and modeled in part on the Chicago NEWS.

(3) The Philadelphia Neighborhood Information System (NIS) at the University of Pennsylvania was founded in 1998 and modeled on both Chicago NEWS and NKLA.

(4) The Minneapolis Neighborhood Information System (MNIS) at the University of Minnesota was launched in 1999.

Table 1: Characteristics of Existing Systems

<table>
<thead>
<tr>
<th></th>
<th>Chicago NEWS</th>
<th>NKLA</th>
<th>Philadelphia</th>
<th>MNIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>URL</td>
<td><a href="http://www.newschicago.org">www.newschicago.org</a></td>
<td><a href="http://www.nkla.ucla.edu">www.nkla.ucla.edu</a></td>
<td>cml.upenn.edu/nis</td>
<td><a href="http://www.npcr.org/MNIS.html">www.npcr.org/MNIS.html</a></td>
</tr>
<tr>
<td>Year Created</td>
<td>1984</td>
<td>1996</td>
<td>1998</td>
<td>1999</td>
</tr>
<tr>
<td>Institutional Location</td>
<td>Center for Neighborhood Technology</td>
<td>UCLA, Advanced Policy Institute</td>
<td>Univ. of Pennsylvania, Cartographic Modeling Laboratory</td>
<td>Univ. of Minnesota, Center for Urban and Regional Affairs</td>
</tr>
<tr>
<td>Number of staff</td>
<td>1 PT professional staff</td>
<td>8 FT</td>
<td>15 (staff and consultants)</td>
<td>At University: 1 FT director 2 PT students At City 5 PT software developers</td>
</tr>
<tr>
<td></td>
<td>currently two additional part-time staff/interns working on update</td>
<td></td>
<td>4 professional staff 4 student associates (includes student GIS director) 3 alumni student associates 2 systems admin. 2 research associates Outreach/community organizers/trainers</td>
<td></td>
</tr>
<tr>
<td>Funding Sources</td>
<td>Maremont Foundation</td>
<td>COPC</td>
<td>William Penn Foundation</td>
<td>TOP Grant Fannie Mae Partnership Office Neighborhood organizations</td>
</tr>
<tr>
<td></td>
<td>Fannie Mae Foundation</td>
<td>TOP Grant</td>
<td>Pew Charitable Trusts University of Pennsylvania</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Polk Brothers</td>
<td>CDBG Funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sara Lee (others over past 19 years)</td>
<td>Fannie Mae Foundation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ESRI (in-kind)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LISC Microsoft</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Microsoft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dissemination</td>
<td>Interactive database on web</td>
<td>Interactive mapping on web; user conferences</td>
<td>Interactive mapping on web; user training</td>
<td>In-person trainings; web site (mid-2003)</td>
</tr>
<tr>
<td>Examples of Uses</td>
<td>Identifying houses with economic distresses where elderly residents reside, in order to secure funding and offer services.</td>
<td>Identifying low-income homeowners delinquent on taxes to refer for services</td>
<td>Identifying buildings that will probably not be redeemed prior to tax foreclosure enables local governments to initiate actions against these owners first, mitigating tax losses, property deterioration, and neighborhood decline.</td>
<td>Mapping crime and notifying neighbors of rash of burglaries in their immediate area. Mapping housing improvement grants</td>
</tr>
</tbody>
</table>
These are not the only organizations that have used parcel-based data for neighborhood planning or vacancy reduction strategies, but they are the four most prominent systems, and they share a common core vision. Table 1 summarizes their start dates, location, staffing and funding sources.

The Chicago Neighborhood Early Warning System (NEWS)

The Early Warning System concept grew out of the 1970s desire of unions and community groups in older industrial cities to prevent manufacturing plants from being shutdown and moved overseas. A tactic for these groups was the development of a factory early warning system (EWS) to detect potential closings so they could develop strategies before a plant closed down. The factory EWS worked when labor unions, community groups, religious institutions, and local government built coalitions to solve a common problem.

Besides struggling with industrial decline, Chicago also faced many housing problems including economic disinvestment, discriminatory redlining practices of housing and banking organizations, slumlords, arson, vacancies, and substandard building structures and amenities. The success of the factory EWS in Chicago prompted housing advocates and community groups to seek an EWS for housing called the Neighborhood Early Warning System (NEWS). The primary impetus came from the Housing Abandonment Taskforce, which included The Center for Neighborhood Technology (CNT), The Lawyer's Committee on Fair Housing, The Chicago Rehab Network, tenant's rights groups, the City of Chicago and HUD.

In 1984, CNT took the lead on the NEWS, working with city agencies for access to housing data. Initially developed using shared floppy disks, today NEWS has a web site where data about code violations, housing court cases, water arrears, property tax delinquencies, fire records, and real estate sales, buyer and assessment information can be accessed by anyone.

However, there have been a number of challenges: Initially strong city and foundation support for CNT's NEWS has gradually weakened. One obvious problem was that the city housing staff responsible for updating NEWS were later transferred to the planning department. This suggests the importance of whole departments committing to information sharing for Early Warning Systems, rather than select individuals. In addition, a lack of training and organizing and a freely accessible web-based system makes it difficult to document community uses and efforts to change neighborhoods. This has probably also made it difficult to sustain funders' interest and at times made it difficult to update the web site, either because funding had dried up or data access was temporarily restricted.

Nevertheless, CNT continues to plan and modernize for the future. Some data have been added for Cook County, outside the city, and the system will soon include information on building construction and demolition, and information supplied by community groups.
Neighborhood Early Warning Systems: Four Cities’ Experiences

themselves. Recent support from the Fannie Mae Foundation, Polk Brothers and Sara Lee have enabled CNT to create a new, more interactive web site, including for the first time web-based mapping and aggregation, which will be released in 2003. NEWS hopes to create ways for users to communicate with each other, and a listserve to allow NEWS to communicate with its users.

Neighborhood Knowledge Los Angeles (NKLA)

The impetus for NKLA began through work under a 1995 HUD Community Outreach Partnership Center (COPC) grant at the UCLA Department of Urban Planning. Dr. Neal Richman, a UCLA professor, provided technical assistance to residents of the Pico Union neighborhood of Los Angeles, in particular to a group of Latina tenant leaders who had begun to self-manage their abandoned and physically deteriorated building. After the residents formed a resident-controlled nonprofit organization named Comunidad Cambria, funds were raised to help the tenants purchase and rehabilitate the property. The City of Los Angeles provided community development block grant (CDBG) funds to purchase the property, but forty percent of these subsidies ultimately went to cover the cost of unpaid property tax and utility liens. A study conducted by a UCLA student on the relationship between tax delinquency and residential deterioration in a second LA neighborhood found a similar pattern: large uncollected tax bills were good predictors of poor housing conditions and residential abandonment.

NKLA staff members presented an Internet-based project prototype based on the Chicago NEWS to the Los Angeles Housing Department, arguing that this interactive, database approach could yield a much more powerful policy research tool with wider use than any one-time study. Funded through city CBDG funds, the project was originally set in the Community Building Institute (CBI), a new nonprofit with the mission to combine resident organizing with grassroots technology outreach. To match the city funds, NKLA received a Telecommunications and Information Infrastructure Assistance Program (TIIAP) planning grant from the US Department of Commerce.

NKLA continued to evolve, with LISC and ESRI providing additional support for a pilot project mapping code violations. By 1997, the organizing program of CBI was not keeping pace with the growing user base of NKLA. The CBI board decided to give the NKLA project back to UCLA—where graduate students were doing much of the technical development work. The new home for NKLA at UCLA was the Advanced Policy Institute, the outreach, technical assistance,

1 This summary was adapted from “A History of NKLA.”, http://nkla.sppsr.ucla.edu/Master.cfm?Page=History/Main.cfm.

2 This program was later renamed the Technology Opportunities Program (TOP).
and training arm of the new School of Public Policy and Social Research. Dr. Richman was hired as the API Associate Director.

In 1997, a high profile Blue Ribbon Citizens Committee on Slum Housing was established with UCLA contributing supporting research on city policies and practices. The Committee criticized the Department of Building and Safety for its complaint-driven and convoluted code enforcement system. Around this time, UCLA expanded the NKLA Neighborhood Early Warning System to include city databases that could be used to pinpoint property decline and disinvestment, including data from the Department of Building and Safety, the Department of Water and Power, and the County Tax Collector.

In spring 1998, in response to the Committee’s findings, the Mayor and City Council transferred the responsibility for multifamily code enforcement from the Department of Building and Safety to the Housing Department, which had funded NKLA. The Housing Department replaced the existing complaint-driven code enforcement system with a program that inspects all multifamily units within the city on a rotating basis over a three-year period. The agency turned to the NKLA team at UCLA to build an information system to coordinate the city’s new comprehensive housing inspection program. NKLA remained firmly committed to the accountability of making public information broadly accessible and understandable to local communities, and directly linked inspection information to the NKLA public access site.

Also in early 1998, UCLA won a Department of Commerce implementation grant under the TIIAP program. The aim of the grant was to transform the NKLA Neighborhood Early Warning System into a tool for electronically monitoring neighborhood conditions, moving towards "real time" updates of information. NKLA envisioned a system that would help residents track code complaints, inspections, and improvements the same way that customers track their Fed Ex packages. The NKLA web site was redesigned and used for a citywide outreach and training program.

To expand the community application of the NKLA information, the Fannie Mae Foundation awarded NKLA a grant through its university-community partnership program. The program involved using NKLA in two targeted neighborhoods (1) to assist local nonprofit developers in acquisition of distressed properties, (2) to identify homeowners at risk of losing their properties and provide necessary counseling and services, and (3) to bring community development research and action into the neighborhoods.

The next stages of the NKLA project involved collecting new asset-based content for the site. The administrative data initially included in NKLA were collected by outsiders and often reinforced the image that low-income communities only contained problems, such as nuisance properties and environmental hazards. With support from the Microsoft Corporation, a new program, the Interactive Asset Mapping Los Angeles (I am LA) Project, trained youth to collect
electronic information on locations important to their community. In another project entitled Living Independently in Los Angeles (LILA), disabled activists collect and display local knowledge about accessibility and resources alongside locations of nonprofit and government services.

Today, the NKLA user base remains strong - more than 7,000 registered users and an average of 9,000 hits each day. API hopes to re-visit the NKLA design next year, but much of their energy at this time is focused on their new site, Neighborhood Knowledge California (NKCA). Applying the experience gained through the development of NKLA, API staff designed this statewide, interactive web site that allows users to access in one place a variety of national and local databases that can be used in neighborhood research. The site offers charts, mapping, and standard profiles of Census and home mortgage data. In addition, it allows individuals to define and save their own neighborhoods, and upload their own local data for automated geocoding and display.

API has compiled several lessons from their extensive work in applying Internet mapping to community development initiatives. The first is that the technology alone is insufficient to motivate action. Online systems will always need local intermediaries to provide training and assist nontechnical groups in applying information strategically to achieve their goals. Second, these systems can serve multiple purposes, including community development, pinpointing challenges facing communities, and supporting program coordination among diverse actors. Third, site content must be kept updated to be relevant. To control costs, it is important to plan and build integrated systems that can automate this updating process where possible. Finally, Internet mapping ideally will lead to new data collection, so users can identify what information is important based on their own experience, not on what data the government agencies happen to collect.

The Philadelphia Neighborhood Information System (NIS)

The Philadelphia NIS is a project of the Cartographic Modeling Lab (CML) at the University of Pennsylvania. It was started in 1998, with the first applications beginning in 1999. It is composed of: ParcelBase—a parcel-based information system launched in 2000 that most closely matches the general NEWS model, but is restricted to authorized users from city government and local nonprofit organizations; NeighborhoodBase—a publicly available web-based system which displays interactive maps, tables and charts on 150 indicators drawn from underlying parcel data as well as Census and other data at larger geographic levels; and the

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Housing and Neighborhood Vacancy Reporter, an e-zine launched in December 2000 as a source of news and research on housing and vacancy issues in Philadelphia.

The project actually comes out of a failed 1997 attempt to build a NEWS for the City of New York, which had taken possession of a large number of distressed and abandoned properties through property tax foreclosure and was looking for ways to prevent future foreclosures through early intervention. The project, which was foundation funded, failed because the Giuliani administration denied neighborhood organizations access to the city’s administrative data. The foundation sponsor refused to go forward on that basis, and the systems under development were adapted for use in Philadelphia.

The concept for the system was based on the NEWS at the Center for Neighborhood Technology in Chicago and on NKLA, and was intended to model the process of property abandonment by centralizing administrative data from multiple agencies. The primary audiences were city agencies, who could now look across each other’s data at particular properties and neighborhoods, community development corporations, other neighborhood groups, and housing researchers. The CML provides training on the applications to users from all of the above categories, and has over 100 community organizations and 40 city agencies as registered users of the password-protected ParcelBase application.

Although only authorized users can see data at the parcel level, the system is able to create aggregate statistics, maps, scatter plots, and tables for a wide variety of geographic boundaries, including Census tracts and block groups, council districts, neighborhoods, zip codes, and elementary school feeder areas. These aggregate data outputs from NeighborhoodBase are available to the general public.

By modeling the likelihood of abandonment based on indicators included in the Philadelphia NIS, the CML hopes to inform decisions by city agencies and nonprofits on which properties are least likely to be redeemed prior to tax foreclosure, allowing them to initiate actions against owners or to plan for redevelopment before a property is foreclosed, mitigating tax losses, property deterioration and neighborhood decline.

Minneapolis Neighborhood Information Systems (MNIS)

The idea for the Minneapolis Neighborhood Information Systems project came from a 1998 university study on abandoned housing commissioned by an inner city neighborhood organization. Based on the recommendations of the report, a steering committee was formed in 1999 to guide development of a neighborhood early warning system. To fit the unique context of

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4 Mardock 1998.
the city, the MNIS operates as a partnership among the city, the university, the city’s Neighborhood Revitalization Program\(^5\) (NRP) organizations, and other housing intermediaries. The collaborative is housed at the Center for Urban and Regional Affairs (CURA) at the University of Minnesota. Neighborhood representatives have been involved in all aspects of MNIS development, and the MNIS steering committee, composed of a representative from each organization, meets monthly. Small foundation grants and membership fees from neighborhood organizations initially funded MNIS, but work was accelerated following the receipt of a $500,000 three-year Technology Opportunities Program grant in September 2001.

The initial conception of MNIS followed the Chicago model—identifying financial and physical abandonment of individual properties to enable community-based action. By late 2000, MNIS shifted focus from solely being a tracking system to promoting the broader applications of GIS for community revitalization. MNIS now “seeks to build the capacity of neighborhood organizations to utilize detailed property data from the city of Minneapolis along with GIS software to assist in many aspects of neighborhood work.” The community partners initiate the research based on their missions and current priorities. This need-based and neighborhood-driven approach ensures that any research project undertaken will have practical applications, not just be an academic exercise.

Jeffrey Matson, Associate Program Director at CURA and Project Coordinator of MNIS, attributes MNIS’ success to date to the clear definition of roles and contributions of each of the partners. The city provides the data; CURA provides the central organization, training and student staff; and the neighborhood groups define local needs and verify the city-provided data. The university-based staff members focus on training staff of the neighborhood organizations in both the technical aspects of GIS and on how to apply the data to inform neighborhood issues. Beyond assisting with particular projects, MNIS staff members at CURA act as a broker between the neighborhoods and the city, and provide opportunities for groups to share ideas about GIS projects and housing strategies with other neighborhoods.

All parties benefit from the partnership: the university receives ideas and data for research opportunities for its students; the community organizations receive training and analytic assistance; and the city gains a feedback mechanism to test data quality. One unexpected result was the amount that the community groups are learning from each other. The monthly meetings provide a forum for the groups to share ideas for analysis and advocacy.

\(^5\) In 1990, the Minnesota Legislature and the City Council established the Neighborhood Revitalization Program with a dedicated funding stream of $20 million a year for 20 years. All of Minneapolis’s 81 neighborhoods participate, and most have developed Neighborhood Action Plans. The Program has paid neighborhood-based staff, providing a unique infrastructure for neighborhood improvement and community building efforts.
MNIS receives monthly parcel-level data files containing basic property information from the assessors, inspections, and planning departments. MNIS is negotiating with the city to receive other files, including crime, housing code violations, and utility billing information. MNIS focuses on providing the data and technical assistance to its neighborhood partners. The city, not the MNIS organization, is responsible for providing the data to the public. MNIS differs from the other NEWS systems in that the city, not the university center, is developing the web interface and interactive GIS system to distribute the data. In addition to the Internet site to be completed in mid-2003, the city is also adding data kiosks in city offices for public access to the property data.

MNIS provides several practical examples of uses of the system on its web site. In one example, MNIS and a neighborhood group developed a set of criteria to identify and map properties in the neighborhood that were at risk of abandonment. With information from the assessor’s file, they have contacted owners of the at-risk properties, and tried to discern if they were absentee landlords or low-income households that needed city assistance. For another project, a student conducted a land use and zoning analysis for potential redevelopment of industrial properties along the Midtown Greenway.

Early on, MNIS was criticized for its potential to display neighborhood problems without any funding or ideas to remedy the conditions. In response, CURA put together the MNIS Toolkit for issues around homeowner, rental, and problem properties. The toolkit provides the names and contact information for relevant city departments as well as explanations of the foreclosure, tax forfeiture, and other legal housing processes.

The long-term future of MNIS is not clear. Currently, twelve of the city’s neighborhood organizations are active participants. Matson would like to expand the number of participants, but servicing additional groups would require additional funding. The TOP grant ends in September 2004, and the small amount of local funding MNIS has received will not be sufficient to sustain its activities. As a public university, UMN has seen major cuts in its state funding, and is not able to support MNIS on its own. Matson speculated that the system might find a home within a city department, or be funded by the city and remain housed at CURA.

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6 The State Data Practices Act of Minnesota states that any data given to one organization must be made available to all.
IV. APPLICATION TO DC

The primary impetus for the development of the existing Neighborhood Early Warning Systems was declining population and housing disinvestment leading to increasing blight from vacant and dilapidated housing. Local researchers began assembling property level data in order to predict where further abandonment was most likely to occur. Although vacant and abandoned properties are a concern to residents of many D.C. neighborhoods, the problem is not as extensive as in Philadelphia, for example, where an estimated 30,000 properties are vacant. In contrast, many D.C. neighborhoods are seeing sharp declines in vacancies and the purchase and renovation of long-term blighted structures. While this can be a good thing for neighbors, the accompanying increases in rents and values and the conversion of rental stock to homeownership are raising concerns about gentrification and displacement among low- and moderate-income households, community organizations, and advocacy groups. Thus, many local stakeholders argued that a D.C. “neighborhood early warning system” would need to focus at the outset on predicting or anticipating gentrification and displacement as well as disinvestment and abandonment.

Potential Uses and Users

Although a DC NEWS would have a different focus than existing systems, community organizations as well as city officials identified many ways in which such a system could be useful here. Examples include:

- City agencies and nonprofit organizations could use the system to identify rental housing developments likely to undergo redevelopment as homeownership or high-cost rental housing, and intervene in time to preserve affordable units.
- Systematic data on property transactions and sales prices could be used to target neighborhoods that appear to be on the brink of gentrification so that the city and local CDCs could intervene early to preserve affordable housing and minimize displacement.
- Working with community groups, the system could be used to improve the accuracy of the city’s annual housing vacancy database, which is based on utility cutoffs and windshield surveys. This database is used by the RPTA to meet its obligations to promptly reclassify properties as vacant for tax purposes and is of interest to anyone concerned about vacant and abandoned properties.
- By identifying the factors that undermine reinvestment and potentially lead to abandonment, such as neighborhood drug markets, crime clusters, and homeowner financial distress, neighborhood groups may mobilize to address them before they affect neighboring properties and cause a chain reaction of declining maintenance and disinvestment.
Because the city’s system of tax lien sales does not result in city-ownership of tax-delinquent properties, city agencies and nonprofit developers must focus their energies on tax-delinquent properties that are likely to be abandoned. For example, the Williams administration’s Home Again Initiative chooses properties on which to foreclose and then assembles these properties for sale to developers. This initiative would benefit from a model that identifies properties least likely to be redeemed or purchased at tax sale (known as “bidbacks”) since they are the most cost-efficient properties for assembly.

The data could be used to identify elderly or low-income property owners who are unable to meet financial burdens or continuing maintenance challenges, particularly in neighborhoods experiencing rising property values. Almost one-third of the homeowners in the District are over 65 years old, and about one-quarter earn less than $35,000. These vulnerable households could be referred to home-retention counseling or assistance, including tax deferments or subsidy programs for which they may be eligible. If such programs are lacking, identifying the scope of the need may push nonprofits or city agencies to develop them.

Although all of the existing NEWS’ now support a fairly wide array of uses, they all began with an explicit focus. Both of the national experts who participated in our April meeting emphasized the importance of starting with such a focus, assembling data, developing analytic tools, and training potential users to address a particular set of neighborhood challenges facing the District of Columbia today.

Potential Data Elements and Sources

The District of Columbia has the capacity to immediately assemble many of the data sources that other systems have found useful (see table 2). In fact, many of these sources are already incorporated in the DC Data Warehouse, a joint undertaking of the Urban Institute and DC Agenda, which is discussed further below.

The backbone of any NEWS is a database of property addresses and characteristics. In systems which include mapping capabilities, such a database should be tied to a parcel-level GIS coverage that allows properties to be quickly and accurately located in reference to other properties and to the neighborhoods, census tracts and political boundaries that they reside in. In the District of Columbia, a set of parcel images and parcel-points that could serve as such a backbone, with sales, tax payment and assessment information attached to it, is administered by the Office of the Chief Technology Officer (OCTO GIS) and used by the Real Property Tax Administration (RPTA) and other agencies. Representatives of OCTO GIS participated in our April meeting, and expressed enthusiasm for partnering in a DC NEWS effort, indicating that the city is willing to share this critical infrastructure at no cost.
<table>
<thead>
<tr>
<th>Indicator</th>
<th>Chicago</th>
<th>Minneapolis</th>
<th>Los Angeles</th>
<th>Philadelphia</th>
<th>DC Data Warehouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property Tax Delinquency for residential and nonresidential properties.</td>
<td>yes</td>
<td>monthly</td>
<td>every 6 months</td>
<td>Every 6 months</td>
<td>Quarterly from RPTA/Spatial Systems</td>
</tr>
<tr>
<td>Lien sales for delinquent taxes</td>
<td></td>
<td></td>
<td></td>
<td>Annual</td>
<td>Annual from RPTA</td>
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<tr>
<td>Real Estate Sales</td>
<td></td>
<td></td>
<td>Every 6 months</td>
<td></td>
<td>Quarterly from RPTA/Spatial Systems</td>
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<tr>
<td>Building Permits</td>
<td></td>
<td>Monthly</td>
<td></td>
<td></td>
<td>Available monthly, but so far requested and received annually</td>
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<tr>
<td>At Risk Affordable Housing (Period of affordability agreement has expired)</td>
<td></td>
<td>every 6 months</td>
<td></td>
<td></td>
<td>Available From HUD on an irregular basis</td>
</tr>
<tr>
<td>Code Complaints (Building and Safety)</td>
<td></td>
<td>every 3 months</td>
<td>Every 6 months</td>
<td></td>
<td>Available from DCRA, but not yet requested.</td>
</tr>
<tr>
<td>Code Enforcement</td>
<td>yes</td>
<td>Bi-weekly</td>
<td>Every 6 months</td>
<td></td>
<td>Available from DCRA, but not yet requested.</td>
</tr>
<tr>
<td>Nuisance Abatement</td>
<td>yes</td>
<td>every 3 months</td>
<td>Every 6 months</td>
<td></td>
<td>Available online from DCRA.</td>
</tr>
<tr>
<td>Land Use/Zoning</td>
<td></td>
<td>monthly</td>
<td>every 6 months</td>
<td></td>
<td>Quarterly from RPTA/Spatial Systems</td>
</tr>
<tr>
<td>Water arrearages and shutoffs</td>
<td>yes</td>
<td></td>
<td>Every 6 months</td>
<td></td>
<td>Part of 1999, 2001 DCRA vacancy surveys. No direct source currently.</td>
</tr>
<tr>
<td>Gas records (shutoffs, Low Income Home Energy Assistance, senior discounts, crisis grants)</td>
<td></td>
<td></td>
<td></td>
<td>Annual</td>
<td></td>
</tr>
<tr>
<td>Vacant housing</td>
<td></td>
<td></td>
<td>2000 survey, USPS 7/01</td>
<td>1999, 2001 DCRA surveys</td>
<td></td>
</tr>
<tr>
<td>Clean/seal properties</td>
<td></td>
<td>every 3 months</td>
<td>Every 6 months</td>
<td></td>
<td>Available online from DCRA.</td>
</tr>
<tr>
<td>Demolished properties</td>
<td></td>
<td>every 3 months</td>
<td>Every 6 months</td>
<td></td>
<td>Available online from DCRA.</td>
</tr>
<tr>
<td>Fire records</td>
<td>yes</td>
<td></td>
<td>Every 6 months</td>
<td>annual</td>
<td></td>
</tr>
<tr>
<td>Crime data (complaints or arrests)</td>
<td></td>
<td></td>
<td></td>
<td>Quarterly</td>
<td></td>
</tr>
<tr>
<td>Housing Court (evictions and foreclosures)</td>
<td></td>
<td></td>
<td></td>
<td>May be available, but not yet requested.</td>
<td></td>
</tr>
<tr>
<td>Deed transactions (foreclosure notices, foreclosures, deed releases, etc.)</td>
<td></td>
<td></td>
<td></td>
<td>Available online from the Recorder of Deeds.</td>
<td></td>
</tr>
<tr>
<td>Section 8 Vouchers used by tract</td>
<td></td>
<td></td>
<td></td>
<td>Irregular, from HUD. May also be available from DCHA.</td>
<td></td>
</tr>
<tr>
<td>Nonprofits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Baseline available from National Center for Charitable Statistics</td>
</tr>
<tr>
<td>Community-collected data</td>
<td>Youth/family resources, home repair grants and others (for individual neighborhoods)</td>
<td>Youth centers, libraries, churches and others (for several neighborhoods)</td>
<td>Vacant housing information from CDC (for several neighborhoods)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
If it was to perform the traditional NEWS role of identifying properties likely to become vacant and abandoned, a D.C. system should seek to identify individual properties that are at various stages of physical and financial distress through a combination of:

- property tax and utility arrearages and lien sales (RPTA and WASA)
- the results of the annual vacancy survey and associated vacant property registration (DCRA and RPTA)
- housing inspection reports or code complaints (DCRA)
- public abatement actions, such as buildings sealed or razed (DCRA or RPTA).

As in Philadelphia, system development should be accompanied by research to establish what value each of these indicators has for predicting physical abandonment or other negative outcomes. Other indicators used by or proposed for early warning systems in other cities that could be tested and explored for use in D.C. include:

- proximity to vacant properties
- crime data, both arrests and complaints
- absentee ownership (distance to owner's address)
- fire department records.

Diverging from the NEWS model seen in other cities, a system tailored to D.C.'s housing market should also seek to monitor rising prices and declining vacancies as an indicator of overheated markets, identify properties likely to experience redevelopment (and displacement) or predict the likely path of neighborhood revitalization and rising housing costs. Possible data sources include:

- changes in home prices and the race or income of home buyers (RPTA and HMDA)
- rising building permit activity, whether for new construction or renovation, not counting public projects such as HOPE VI (DCRA)
- sales and building permits involving properties previously identified as vacant or abandoned (DCRA and RPTA)
- evictions and foreclosures (Superior Court and/or Recorder of Deeds)
- properties removed from the subsidized rental stock and declines in the number of vouchers used in a neighborhood (HUD administrative data).
Data Challenges. System developers in the four cities all cited access to city administrative data as the most critical challenge facing a potential NEWS developer. As noted in the description of the Philadelphia NIS, the failure to establish a NEWS in New York City is directly attributable to the unwillingness of city government to make its administrative data publicly available. Without real, ongoing support from city government, a NEWS cannot realistically be sustained. Related challenges for a Washington system, which were raised and discussed both in our meetings with stakeholders and in the April gathering, include:

- Needed administrative data are ‘owned’ by several independent agencies, each with its own sensitivities and concerns that will need to be addressed in custom negotiated data-sharing agreements. Although OCTO is currently assembling many of the data systems maintained by government agencies, and expressed strong support for a NEWS partnership, other potentially important data sources are outside OCTO’s jurisdiction. To assemble the data listed in table 2, agreements would have to be reached with OCTO, WASA, RPTA, and several components of DCRA. Potentially very useful expansions would necessitate agreements with the Police and Fire Departments and the D.C. Superior Court.

- Identifying appropriate data elements can be time consuming and frustrating, particularly if data systems are not adequately documented or if requestors are expected to know what they want in advance of knowing what is available or collected. Although support for city participation in a NEWS effort would have to come from the top, NEWS staff would also need to work directly with the agency staff who have substantive knowledge of the data, rather than to management or public service representatives who cannot suggest useful data elements or provide detailed documentation.

- Assessing the quality of the data, particularly of data elements not central to the collecting agency’s mission, can be a tremendously difficult and time-consuming task. Furthermore, data that might be beneficial in a NEWS might not be important to city agencies and therefore might not even be included in their administrative databases. For example, the RPTA legacy system stored only the most recent sales price, which is used to update assessments. They had no reason to store older sales, making accurate calculations of average sales prices in prior years impossible and rates of change difficult to calculate with confidence. Several participants in our April meeting identified this as one of the potential benefits of a NEWS that is housed outside of city government; by linking city data with other information sources, and combining current and historical data to anticipate and predict emerging trends, such a system can inform city policymakers and program administrators as well as community based organizations.
Even if agencies are willing to provide data, they may not be able to, if data are not in digital form, lack critical elements such as dates, or are inaccessible because of limitations in older administrative systems. For example, several of the proposed data sources—including rental registration and housing court—are currently used as filing catalogues. In these systems, property addresses are stored electronically, but substantive information, such as rent ceiling or reason for eviction, are recorded in paper files accessed with a file number stored in the electronic database. Representatives of city agencies have indicated that they are in the process of automating some of these important systems. It is possible that, over time, development of a DC NEWS could contribute to the modernization of city systems. In the short-term, however, some important data items may simply be unavailable (or prohibitively expensive to automate).

As one NEWS administrator noted, municipal agencies change the content and format of their data over time—which creates challenges for data integration and analysis of change. This may be particularly problematic in the District, where a large number of information systems are currently undergoing modernization. However, OCTO’s coordinating role and its interest in partnering with a NEWS initiative may help address this issue over the medium- to long-term.

In addition to data access and quality challenges, there is the purely technical work of building an accessible, useful database and web applications. The resources needed for such work should not be underestimated, but these tasks are technologically straightforward and were not cited by any of the existing systems as the most critical challenge. Nonetheless, the experts who participated in our April meeting stressed the importance of starting with a clearly defined predictive focus. Although a mature NEWS can serve many users and multiple purposes, it would be a mistake to launch with the initial goal of assembling as wide a range of property-level data as possible in order to inform virtually any analysis. Instead, a DC NEWS should begin by developing analytic tools and associated data to address a clearly defined set neighborhood issues, such as impending gentrification or potential displacement. Once tools are in place to inform advocacy and policy on this initial set of issues, the system can be expanded gradually to tackle a wider set of topics.

Additional Considerations for a Possible DC NEWS

The challenges identified are formidable but not impossible to overcome given the right setting and adequate resources. As in existing systems, the institution that develops DC NEWS must have a professional, politically savvy staff that can spearhead the negotiations involved in promoting and launching this system. It must also have technical staff that can perform (or manage contracting for) data acquisition and processing and technical development of the delivery system. Finally, it must be able to conduct (or partner with others to provide) training and outreach to community-based organizations working in neighborhood revitalization.
The ideal organization would have a stable, diversified budget and solid relationships with potential funders. Possible homes for a DC NEWS include independent research organizations such as the Urban Institute, community intermediaries such as DC Agenda, or an applied research center at one of the major local universities. Whatever place is chosen, the planning stage should include formalizing a relationship with other data collection and dissemination efforts in the city. It would not make sense to have multiple organizations using resources to assemble and clean city data.

One such effort is the DC Data Warehouse and Neighborhood Information System currently being conducted in partnership by the Urban Institute and DC Agenda. In building and operating the DC Data Warehouse, the Urban Institute’s Metropolitan Housing and Communities Policy Center and DC Agenda have negotiated data sharing agreements with various city data providers such as the Office of Planning, the Metropolitan Police Department, the Office of Chief Financial Officer, and the Office of Income Maintenance in the Department of Human Services. The Urban Institute cleans and stores the data files at its facilities and makes the information available to the public in a manner consistent with the agreements negotiated with data providers. DC Agenda applies the data from the DC Data Warehouse for community capacity building and to address city-wide issues. A partial list of data currently available in the Warehouse is included in Table 2. Other data sets already incorporated include: demographic and housing data from the Census, vital statistics records, TANF cases, home mortgage lending activity, and child abuse and neglect cases. The majority of these data are regularly updated with the most recent information available.

Another effort currently underway is the DC government’s own DC Atlas, a project of OCTO. Currently available only to DC government employees, the Atlas includes all of the city’s GIS coverages, with more being added as they are created. Its goals focus primarily on giving DC government employees convenient access to information from their agencies and currently there is no public access. A simplified version, called the Citizen’s Atlas, is in the testing phase, and access to the full DC Atlas may be made public as well. However, the DC Atlas and Citizen’s Atlas do not include analytical tools or community outreach and training, both of which would be critical to the analytical tasks described above for a Neighborhood Early Warning System. Representatives of OCTO GIS have been very supportive of the DC Data Warehouse and of the NEWS concept, seeing it as a useful extension of their work on the DC Atlas, that would provide additional benefits to the city and neighborhood organizations, at no cost to the city. Discussions are currently underway about strategies for building on the work of both the DC Data Warehouse and the DC Atlas as a basis for development of a NEWS.

Whatever the institutional location, a certain critical mass of data is necessary from the beginning, in order to create immediate usefulness and build a base of users. A substantial, up-front investment as well as more modest, ongoing support would be required to launch a
meaningful NEWS for the District of Columbia. The Philadelphia NIS was initially developed with a $700,000 foundation grant, spread over three years. NKLA received a $600,000 TOP grant over a four-year period for system development, and approximately $300,000 for special outreach projects to use the data. Given the amount of data already processed by the DC Data Warehouse and the possibility of purchasing and adapting the already existing NEWS technical systems, it may be possible to reduce these costs somewhat. For example, with the political relationships established and the data files processed, Chicago’s system is currently being updated to include on-line mapping for $100,000 using open-source software.

Once the system is operational, other data and uses can be developed incrementally, as relationships are built with data-providing agencies and accomplishments fuel further interest among users. Moreover, current data limitations are likely to be reduced over time as investments continue to be made in the District government’s data systems, and as currently undigitized data are stored electronically going forward. The costs of maintaining a NEWS also decrease as the data negotiations and cleaning become more routine. The Philadelphia NIS has operating costs of approximately $150,000 per year, funded by the William Penn Foundation, the Pew Charitable Trusts, and the University of Pennsylvania, and the director of NKLA estimates that the system (excluding training) now requires about $40,000 per year to maintain. The Chicago NEWS, despite being started and operated for lower total cost than the more sophisticated systems in other cities, has faced a number of funding crises over its 18 year existence. Retaining relevance and funder interest over the long term is clearly challenging, and requires continuing effort in pioneering data and uses that are relevant to potential users.

No system will be useful without partners capable and interested in interpreting and acting upon the information. In other words, simply assembling data and making it accessible is not sufficient. A DC NEWS must therefore include strategies and resources for outreach and training to city agencies, local nonprofits, advocacy organizations, researchers, and foundations. Each of the four cities has a training program that could be adapted for local use. And again, D.C. already has systems in place that provide a base for such a program. Specifically, the Neighborhood College, a leadership-training program recently launched by DC Agenda, could be one mechanism for the training. In addition to teaching potential users how to use the system for its intended purposes, outreach would allow interested groups to identify their own data needs and research interests and to shape the further development of the system. For example, to supplement the introductory courses on the data and uses, Los Angeles holds annual user conferences and Minneapolis sponsors monthly meetings with representatives from the participating neighborhood organizations.
Conclusion

Neighborhood early warning systems have proven to be valuable tools for those working to revitalize neighborhoods. Our discussions with potential stakeholders clearly demonstration that Washington, D.C. has the source data to provide the content for such a system, as well as the government and nonprofit capacity to put the data from an early warning system to good use. Because the challenges facing many D.C. neighborhoods today are different from those that motivated the development of existing systems, a DC NEWS would have to start with a somewhat different set of data items and analysis tools. But there appears to be considerable interest from many community based organizations and advocacy groups, as well as a commitment from city government. The next steps are to begin developing a preliminary set of analytic tools that would have immediate value locally, hammering out the data access and data sharing agreements necessary to put these tools into operation, and working with city and community stakeholders to test the usefulness of these tools for their ongoing work in D.C. neighborhoods.
Glossary of Acronyms

**NEWS** – Neighborhood Early Warning System

**NIS** – Neighborhood Information System

**CML** – University of Pennsylvania Cartographic Modeling Laboratory

**DCRA** – D.C. Department of Consumer and Regulatory Affairs

**RPTA** – D.C. Real Property Tax Administration

**WASA** – D.C. Water and Sewer Authority

**HMDA** – Home Mortgage Disclosure Act
REFERENCES


Culhane, Dennis. Telephone interview by Chris Snow. 11 November 2002.

Haas, Peter. Telephone interview by Chris Snow. 18 December 2002.


Matson, Jeffrey K. Telephone interview by Kathryn L.S. Pettit. 7 October 2002.


Neighborhood Revitalization Program. NRP Primer: A Snapshot of the Minneapolis Neighborhood Revitalization Program.  


## Appendix A
### Stakeholder Consultations

<table>
<thead>
<tr>
<th>Location and Date</th>
<th>Attendees</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Urban Institute, March 21, 2003</td>
<td>Oramenta Newsome, Curtis Watkins, George Rothman</td>
<td>Local Initiatives Support Corporation, East Capitol Center for Change, MANNA Inc.</td>
</tr>
<tr>
<td>Mi Casa, April 2, 2003</td>
<td>Fernando Lemos, Elin Zurbrigg, Jobi Magaña</td>
<td>Mi Casa</td>
</tr>
<tr>
<td>The Urban Institute, April 15, 2003</td>
<td>Martin Trimble</td>
<td>Washington Interfaith Network</td>
</tr>
<tr>
<td>Coalition for Nonprofit Housing &amp; Economic Development, April 17, 2003</td>
<td>Robert Pohlman, Tania Jackson</td>
<td>Coalition for Nonprofit Housing &amp; Economic Development, Coalition for Nonprofit Housing &amp; Economic Development</td>
</tr>
<tr>
<td>By telephone, April 17, 2003</td>
<td>Charles Richman</td>
<td>Office of Planning</td>
</tr>
<tr>
<td>By telephone, April 18, 2003</td>
<td>William Ward</td>
<td>ACORN</td>
</tr>
<tr>
<td>MANNA CDC, April 23, 2003</td>
<td>Dominic Moulden, David Haiman</td>
<td>MANNA CDC</td>
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</tbody>
</table>
Stakeholders’ Meeting, April 22, 2003
Participant List

Olive Akhigbe  Fannie Mae Foundation
Scott Barkan  Office of the Deputy Mayor for Housing & Econ. Development
Jessica Cigna  The Urban Institute
Tia Clark  Fannie Mae Foundation
Dennis Culhane  University of Pennsylvania
Charles Fox  Department of Consumer and Regulatory Affairs (DCRA)
Butch Hopkins  Anacostia Economic Development Corporation
Stanley Jackson  Department of Housing and Community Development (DHCD)
Tom Kingsley  The Urban Institute
Fernando Lemos  MiCasa
Sandy Padilla  The Urban Institute
Kathy Pettit  The Urban Institute
Charles Richman  Office of Planning
Neal Richman  Advanced Policy Institute, UCLA
Art Rodgers  Office of Planning
Martha Ross  The Brookings Institution
Mark Rubin  DC Agenda
David Seidman  Office of the Chief Technology Officer (OCTO)
Pat Simmons  Fannie Mae Foundation
Dwayne Smith  Department of Consumer and Regulatory Affairs (DCRA)
Don Smith  Office of the Chief Technology Officer (OCTO)
Christopher Snow  The Urban Institute
Peter Tatian  The Urban Institute
Greg Taylor  Fannie Mae Foundation
Shawnise Thompson  The Urban Institute
Jordene Trueh  Fannie Mae Foundation
Margery Turner  The Urban Institute
Jaron Waldman  Advanced Policy Institute, UCLA
Howard Ways  Office of the Deputy Mayor for Housing & Econ. Development
Alisa Wilson  The Urban Institute
Elin Zurbrigge  MiCasa
Hubert Johnson  Department of Consumer and Regulatory Affairs (DCRA)
Curtis Watkins  East Capitol Center for Change
Vivian Vasallo  Fannie Mae Foundation
E. Jemal  Department of Consumer and Regulatory Affairs (DCRA)