



# A Neighborhood Indicator System for Detroit

Empowering Communities Through Information



University of Michigan  
Urban and Regional Planning Program  
April 2004



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# Summary

A neighborhood indicators system is an information-sharing system that contains a broad variety of data on conditions and trends at the neighborhood level. The City of Detroit Planning & Development Department (P&DD) and the Southwest Detroit Business Association (SDBA) have partnered with students at the University of Michigan's Urban and Regional Planning Program to develop a plan for such a system in Detroit. This proposal for a neighborhood indicators system (NIS) for Detroit grows out of the need to understand and analyze the condition of neighborhoods. Similar systems exist in many cities around the country and the recommendations for Detroit are based on analysis of these existing systems as well as original ideas. The plan for Detroit:

- Introduces various ways of using data to describe neighborhood condition.
- Describes a system that houses, organizes, and distributes data to many kinds of users.
- Demonstrates a pilot model that uses specific sets of data to predict neighborhood condition.

## Goals and Objectives

SDBA and P&DD identified several goals for this plan based on their need for information about neighborhoods.

- Maximize the potential of information to help Detroit's neighborhoods.
- Inform resource allocation decisions across the city, especially decisions about the distribution of federal funds to neighborhoods, to ensure that those resources strengthen neighborhoods and combat blight
- Supply decision makers with accurate, balanced information for thoughtful and fair planning outcomes.
- Empower organizations and individuals that work for Detroit's neighborhoods by providing a means to demonstrate the results of their efforts, their need for resources, and their own ability to strengthen neighborhoods.

The objectives of this system are:

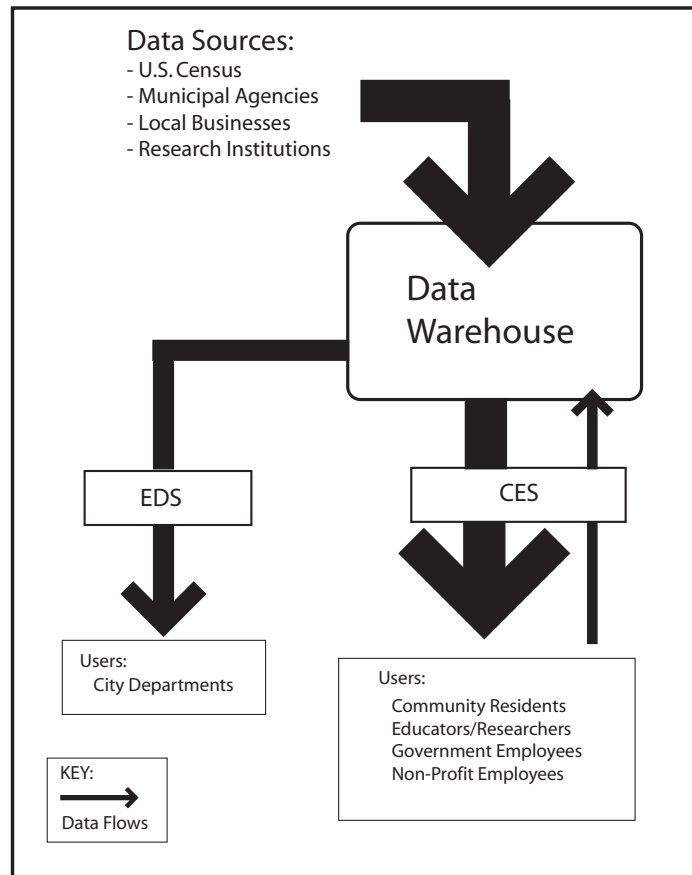
- **Compare areas:** Analyze data to compare neighborhoods. Identify neighborhoods as improving or declining, especially those where revitalization or blight is just beginning. Help decision makers to identify areas to be

targeted for assistance.

- **Improve communication and collaboration:** Facilitate communication and collaboration among those that provide information about neighborhoods and those who use those data.
- **Train for purposes of usability:** Educate community-based organization staff, neighborhood residents, government agency staff, researchers, and other users about effective use of the neighborhood indicator system, and train those users when necessary.

A neighborhood indicator system that allows users to achieve these goals and objectives will be an asset for Detroit, providing a wealth of data and analysis to bring about positive change.

### Detroit Neighborhood Indicator System Diagram



## Recommendations

Detroit's indicators system will be built on a data warehouse. The data warehouse is the location where data providers place and store data. All NIS have a data warehouse as their foundation. In this central data repository, information is stored and made available for particular applications. Different organizations, agencies, or foundations may design new applications that utilize the data warehouse. The figure below illustrates how the various structures within a neighborhood indicator system would relate to one another. It also illustrates the paths and directions that data about neighborhoods will flow within the system. The following plan outlines two recommended applications as initial uses:

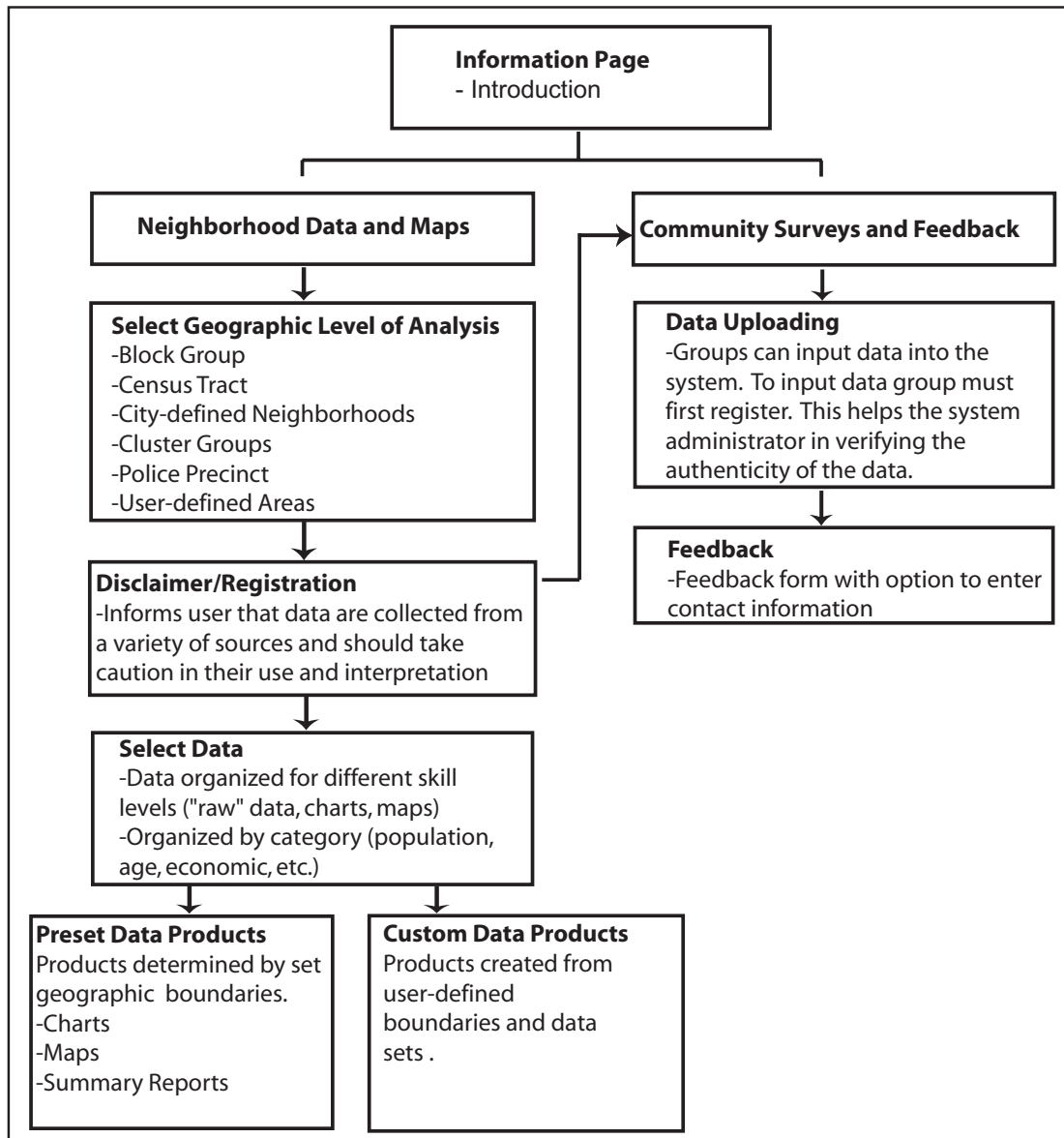
**Community Empowerment System (CES):** This system component makes the data currently available to P&DD available to a wider audience. It also will function as a place to store other administrative and survey data on neighborhoods in a publicly accessible location. Staff and/or partner organizations will provide training for community organizations and other users. The system will serve as a place where many organizations, residents and researchers can collaborate to get and share information through a web-based interface. The figure on the following page illustrates the structure and some of the functions of a Detroit CES.

A CES can serve two major functions if developed properly.

- Make data about Detroit available to many users with a focus on the community level. In doing so, it can facilitate data collection, aid in the identification of areas of concern or opportunity in Detroit neighborhoods and track trends.
- Facilitate cooperation among organizations and individuals, which will produce other benefits that are difficult to predict. Backed by a data warehouse, the Community Empowerment System encompasses all activities that involve bridging gaps between "raw" neighborhood information and community members. It can serve to provide a deeper understanding of assets or deficits in neighborhoods, especially when they are indicated by an Early Detection System.

A CES makes information on neighborhoods more accessible to more people. It also provides a feedback mechanism to improve the system as well as the data that underlie the system. For these reasons it is a key component of a Detroit neighborhood indicator system.

## A User's Guide to the Model Detroit CES



**Early Detection System (EDS):** This system component provides a way to identify trends in small areas of the city using a small amount of carefully selected data. This section of the report is split into two parts.

- **Part I: How to Build an EDS**

Early detection systems, often called early warning systems, are data-driven information analysis tools designed to provide insight into the health of neighborhoods. Neighborhood health can be defined as the overall quality of life in an area. Factors considered

in the analysis of neighborhood health may include social connectedness, housing stock quality, economic strength and public safety.

The steps to develop an EDS are:

- Define the question the system seeks to answer.
  - Develop criteria for how specific indicators will be selected.
  - Gather additional data if necessary.
  - Establish a database.
  - Test the data for use in the EDS.
    - Analyze the statistical relationships among indicators.
    - Establish thresholds for neighborhood change.
    - Set neighborhood types by showing different levels of neighborhood change.
    - Combine different indicators to produce a comprehensive typology.
    - Produce multiple outputs.
- **Part II: A Pilot EDS**

This section provides a sample EDS focused on physical blight built. Using the process outlined above, the pilot EDS demonstrates the problems and potential of such a system. This section illustrates the type of output an organization may see from an EDS. Technical details are included in appendices for users who want an in-depth look at the pilot system.

An EDS makes inter-neighborhood evaluations about the health of neighborhoods and can track trends within the city. For these reasons, it is a key component of a Detroit neighborhood indicator system.

## Implementation

In order to facilitate smooth development and a widely supported system, the Detroit NIS should be developed in a three-phase process:

### Phase 1: Setup and Development

- Establish system host
- Identify funding sources
- Assemble and organize data

**Phase 2: Construction**

- Construct CES interface
  - Maximize use of currently available data
  - Provide summary reports
- Construct EDS interface
  - Test available indicators
  - Incorporate indicators into a system using process outlined in EDS section
- Expand outreach efforts
  - Train persons in the use of the CES and EDS

**Phase 3: Refinement and Expansion**

- Incorporate user feedback to include more data for CES and Data Warehouse and stronger indicators for EDS
- Increase user base through outreach and community involvement

**Conclusion**

Within the proposed plan, the Early Detection System provides the Detroit Planning & Development Department and SDBA a narrow view of neighborhood condition, showing decline and improvement as they appear. The Community Empowerment System provides access to those who need data and supports EDS, by providing a fuller view of neighborhood condition. Supported by the data warehouse, these two system elements work in tandem to provide both city departments and city residents with a more accurate picture of Detroit's neighborhoods.

# Introduction

In this information age, city agencies and community organizations have tremendous potential to use data to make better decisions. Governments, from the federal level to local governments and agencies, collect vast amounts of information about buildings, businesses, people and natural features in neighborhoods. Unfortunately, this information is used far less than it could be. Those working to improve neighborhoods often are not aware data are available, do not have easy access to the data or lack the capacity to collect, store and analyze data.

In this atmosphere of insufficient information distribution, the city of Detroit and its neighborhoods face serious challenges. Following a trend of decline that began in the mid-20th century, Detroit's population decreased about 20 percent from 1980 to 2000. Poverty remains a problem, as 25 percent of Detroit's population live below the poverty line.<sup>1</sup> Vacant lots, houses and commercial properties put a drag on revitalization in some parts of the city.

At the same time, Detroit has a wealth of assets. Detroit has physical gems such as beautiful parks and historic buildings, and strong communities with individuals and groups working for a better future. Southwest Detroit is home to many such assets, and provides examples of the strength that exists in the city's neighborhoods and in its people. Home to a burgeoning immigrant population, Southwest Detroit is one of the few areas of the city that has recently gained population. The area boasts a vibrant culture and a strong sense of community. Its population has grown despite its adjacency to heavy industry and the negative effects of the current rail yards within its borders. Because challenges remain, Southwest Detroit has the need for communities to understand neighborhood health and the forces that threaten it.

## Goals and Objectives

Our partners, the Southwest Detroit Business Association (SDBA) and the City of Detroit Planning & Development Department (P&DD), identified several key goals for this plan based on their need for systemized information about neighborhoods. The plan describes a flexible framework for a neighborhood indicators system for the city of Detroit to accomplish these goals:

- Maximize the potential of data to positively affect

<sup>1</sup> Berube, Alan. Ryan Prince and Hilary Smith. 2003. *Detroit in Focus: A Profile from Census 2000*. Brookings Institution Center on Urban and Metropolitan Policy, The. <http://www.brookings.edu/dybdocroot/es/urban/livingcities/detroit.pdf>. Accessed March 28, 2004.

Detroit's neighborhoods.

- Use neighborhood indicators to inform resource allocation decisions across the city, especially decisions about the distribution of federal funds to community groups, to ensure that those resources strengthen neighborhoods and combat blight.
- Provide decision-makers with accurate, balanced information that represents as many interests as possible to ensure thoughtful and fair planning outcomes.
- Empower organizations and individuals that work for Detroit's neighborhoods by providing a means to demonstrate the results of their efforts, their need for resources, and their own ability to strengthen neighborhoods.

A neighborhood indicators system (NIS) is a computer-based information system that contains a broad variety of data on conditions and trends at the neighborhood level.<sup>2</sup> The system should make data available to community-based organizations (CBO), individuals, governmental departments (city, state, regional, and national), academic researchers, students and local citizens.

The objectives for the Detroit Neighborhood Indicators System are as follows:

- Use data analysis to compare areas across the city and identify those that are improving or declining to help city agencies (especially P&DD) discern which areas are most in need of investment of time or money.
- Make data that are currently in the hands of P&DD more accessible to others.
- Gather administrative data from other agencies working in Detroit and make that data available to interested parties in reports and as databases.
- Educate CBO staff, neighborhood residents, government agency staff, researchers, and other users about effective utilization of the NIS, and train those users when necessary.
- Facilitate communication and collaboration among those that provide information about neighborhoods and those who use that data.

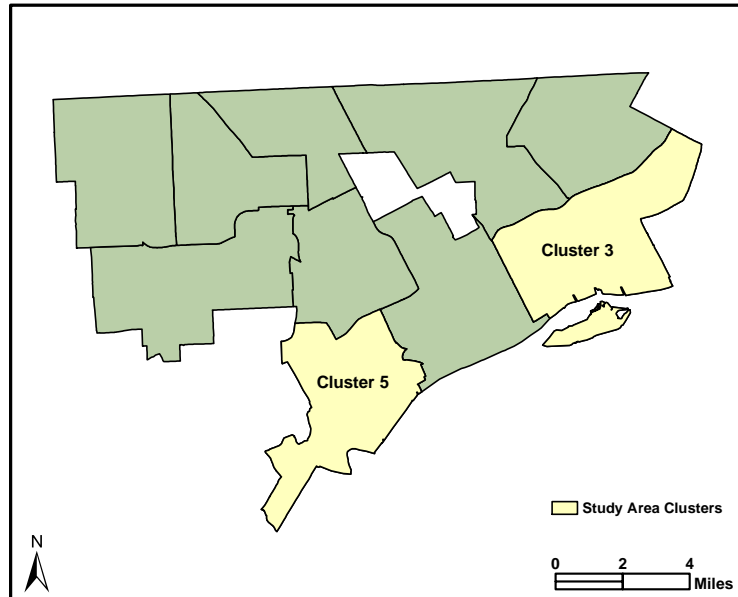
An NIS that achieves all of the above objectives will serve as a central repository of neighborhood information. This can reduce redundant data collection efforts across the city, empower less technically savvy or resource-poor organizations, and provide a way for those with an interest in Detroit's neighborhoods to work together towards the goal of enhanced neighborhood health.

*A neighborhood indicators system (NIS) is a computer-based information system that contains a broad variety of data on conditions and trends at the neighborhood level.*

<sup>2</sup> Kingsley, G. Thomas (ed.). 1999. *Building and Operating Neighborhood Indicator Systems: A Guidebook*. National Neighborhood Indicators Partnership – The Urban Institute. <http://www.urban.org/nnip/pdf/guidebk.pdf>. Accessed March 28, 2004.

**Figure 1**

Detroit: Cluster 3 and 5 Study Areas



Source: U.S. Census 2000; City of Detroit P&amp;DD

Figure 1: Map of Detroit with Study Area (Clusters 3 and 5)

**Background and Study Area Description**

This discussion of neighborhood indicator systems is divided into two parts: a discussion of systems and a discussion of indicators. The systems discussion will address various types of indicator systems that are currently in use, their strengths, weaknesses and applicability to Detroit. The second section will give an overview of indicators – what they are made of and what functions they serve.

For this plan, the geographic scope has been narrowed from the entire city of Detroit to Community Reinvestment Strategy Clusters 3 and 5 (see Figure 1 above). The pilot system considered these clusters because they include a broad variety of neighborhood conditions. This variety allows Clusters 3 and Five to serve as a proxy for the city as a whole.

**Systems**

More than 25 neighborhood indicator systems are in place in the United States. However, the term means different things for different programs. The various types of systems fall into three major groups (although the groups are not mutually exclusive). A system often begins with an Early Warning System and expands to form what is referred to here as a Community Empowerment System. These

systems have benefits for both those who know the areas (by giving them new insights into their communities) and those who do not (by providing a better understanding of an area).

- **Early Warning or Detection Systems:** These systems seek to identify areas that are declining or improving, so that appropriate action may be taken to staunch decline or nurture improvement. They generally use fewer variables than other systems that describe neighborhood condition (e.g., property value, property tax delinquency, building code violation and land use data).
  - **Strengths of EDS:** Data used are often easy to access and hard to dispute. Such systems can be put online quickly.
  - **Weaknesses:** Narrow data set gives a limited view of a neighborhood. Many existing early warning systems fail to predict by merely describing an area.
  - **Detroit Relevance/Challenges:** According to P&DD and SDBA, some of the data used in these early warning systems nationwide (like fires, building permits and land vacancy) are neither reliable nor accurate enough to use in an NIS in Detroit.
  - **Examples:** CityNews in Chicago<sup>3</sup> strives to prevent neighborhood decay by identifying early warning signs. The system uses city and county tax info, housing court cases, fire data, sales and census data to identify warning signs, and provides outputs through a web interface. (CityNews and many other indicator system models are discussed in detail in Appendix 1, Part II)
  
- **Community Empowerment Systems:** These systems often include many more data than EDS (including community surveys and qualitative data). Also, these systems do not try to predict the future of a neighborhood. Instead, they seek to describe a neighborhood as well as possible. They often allow users to download data as well as obtain pre-designed reports on neighborhoods.
  - **Strengths:** These systems can give a rich, nuanced look at a neighborhood.
  - **Weaknesses:** If they allow different data in different areas, these systems are not good for comparing one area to another. The complexity of these types of systems can make them difficult to use or interpret.
  - **Detroit Relevance/Challenges:** The complexity

<sup>3</sup> City News Chicago. <http://www.newschicago.org/>. Accessed January 23, 2004.

*An indicator is a measurement that reflects the status of some social, economic, or environmental system over time.*

- of these systems means that they have greater demands for ongoing staff and user training.
  - **Examples:** The Neighborhood Knowledge Los Angeles system (NKLA) includes an asset-mapping feature to enhance residents' awareness of their neighborhood. Systems in Minneapolis (Crossroads Resource Center Neighborhood Sustainability Indicators Project) and Chicago (Greater Chicago Area Housing and Community Development Website) also serve to empower neighborhood residents and organizations. (Further information about these systems and their roles is located in Appendix 1, Part II).
- **Hand-Built Indicator Systems:** Some systems generate neighborhood reports for interested parties on an as-needed basis.
  - **Strengths:** Interested parties can get reports built to fit their needs if they lack the capacity to produce reports themselves. One central source that is familiar with available data serves as a clearinghouse within the service area.
  - **Weaknesses:** Users must make specific requests to a staff member to generate reports. This means that those who do not know of the service cannot get the information. Also, staff resource limitations can restrict the amount of information distributed.
  - **Detroit Relevance/Challenges:** These systems have limited capacity and high staffing costs. They are not easily expanded, and are more of a 'stopgap' measure than a real solution to information sharing challenges.
  - **Example:** Miami Dade County employs one full-time staff person to respond to individual data requests. (See Appendix 1, Part II for more information)

This plan draws upon the positive aspects of each type of system in its design for a Detroit-based system.

## Indicators

An indicator is a measurement that reflects the status of some social, economic, or environmental system over time. It also helps to quantify or express the achievement and progress towards an outcome or goal.<sup>4</sup> An indicator generally focuses on a small, manageable, tangible and telling piece of a system to give a sense of the bigger picture.<sup>5</sup> To assemble useful indicators, one

<sup>4</sup> Baltimore Neighborhood Indicators Alliance. *Definitions of Terms, Data Definitions, Map Definitions*. <http://www.bnia.org/definitions.html>. Accessed January 27, 2004.

<sup>5</sup> Top 10 by 2010. 2004. *Glossary of Sustainability Indicator Terms*. <http://www.top10by2010.org/glossary.pdf>. Accessed January 27, 2004.

must first gather base data, test that data statistically, and then construct the indicator list.

A subgroup of indicators is neighborhood indicators, which are measures that demonstrate a neighborhood's progress toward targeted goals. For example, a decrease in the crime rate is an indicator of neighborhood security. Properly interpreted, these indicators may provide some measure of a neighborhood's health. As shown in Figure 2, indicators are distinct from primary data and statistics in that they represent data in an understandable manner to decision-makers and the public, for specific purposes.

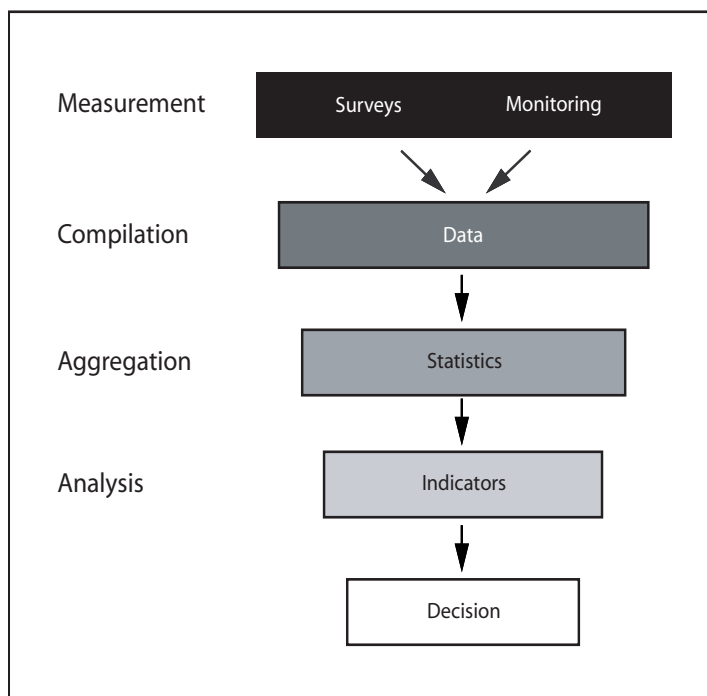
Based on the above findings on indicator systems and indicators themselves, the following section makes recommendations for the development of an NIS to provide information to help strengthen neighborhoods in Detroit.

## Recommendations

The balance of this document lays out a plan for an indicators system that is built on a core data warehouse. All NIS have a data warehouse as their foundation. In this central data repository,

### Figure 2

#### Indicators Used in Decision Making



Source: Briggs, et. al. (1996)<sup>6</sup>

Figure 2: An illustration of the process by which indicators can be used in the public policy decision-making process.

<sup>6</sup> Briggs, D., Corvalan, C. & Nurminen, M. 1996. *Linkage Methods for Environment and Health Analysis: General Guidelines*. Geneva. Office of Global and Integrated Environmental Health, World Health Organization.

*When implemented, the system will put the power of the information age at the fingertips of those working to strengthen Detroit neighborhoods.*

information is stored and made available for particular applications. Different organizations, agencies, or foundations may eventually design new applications that utilize the data warehouse. This plan outlines two recommended applications as initial uses:

- **Community Empowerment System (CES):** This system component makes the data currently available to P&DD available to a wider audience. It also will function as a place to store other administrative and survey data on neighborhoods in a publicly accessible location. Finally, it will provide training for community organizations and other users, and will serve as a place where many organizations, residents and researchers can collaborate to get and share information through a web-based interface.
- **Early Detection System (EDS):** This part of the NIS allows for the comparison of various neighborhoods across the city. This system will allow users to see which areas improve or decline, as well as see the current conditions of neighborhoods. and researchers can collaborate to get and share information through a web-based interface.

The plan that follows outlines a system that will collect the data in one place, use that data to begin to indicate neighborhood health or decline, deliver data to community organizations that need it, and provide a way for those organizations to build upon the system with their own information. When implemented, it will put the power of the information age at the fingertips of those working to strengthen Detroit neighborhoods. Figure 3 (see following page) demonstrates the relationship between the three components within the NIS and how they interact. The next section of this plan describes the considerations and recommendations surrounding the first step of neighborhood indicator system construction, the establishment of the data warehouse.

**Figure 3**  
Detroit Neighborhood Indicator System Diagram

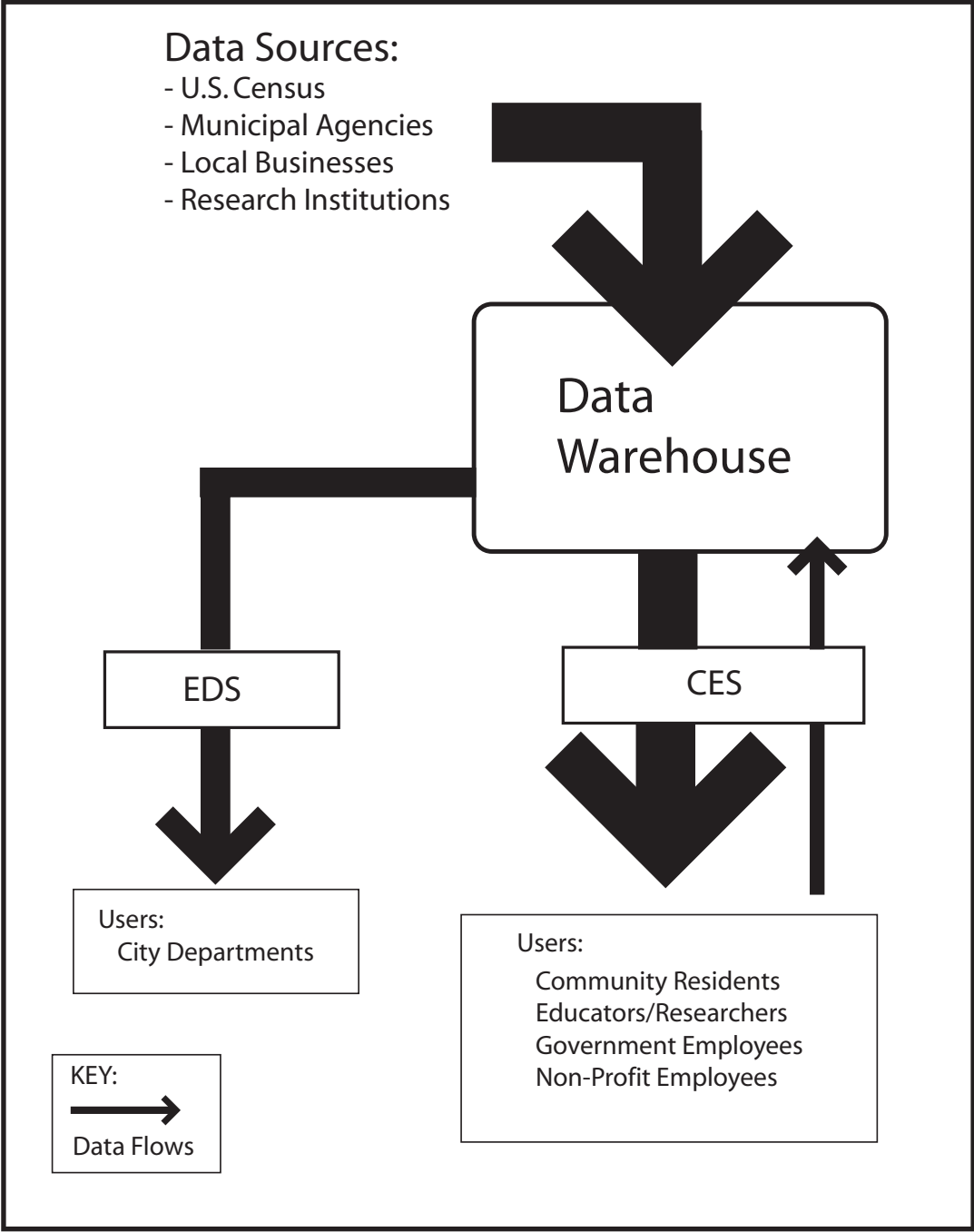


Figure 3: An illustration of the system design and data flows within the Detroit Neighborhood Indicators system.

# Data Warehouse

## Introduction and Background

A data warehouse will be the foundation of Detroit's Neighborhood Indicators System. Although many actors need quality data on neighborhoods, no one place currently provides this essential information. The data warehouse will solve that problem by making relevant data available in a central location, accessible through different applications. (Two initial applications are described here. In the future, there potentially may be many more). The information then can be used in a variety of ways by a variety of users.

Creating and maintaining a hub for neighborhood indicators data is a challenging endeavor. This section will discuss the challenges and present some ideas for how a data warehouse might be implemented in Detroit.

## Methods and Results

Numerous neighborhood indicator systems exist in the United States and each system has a data warehouse platform. Each data warehouse serves the goals of its respective programs, and functions vary by system. In general these functions include:

- **Collection and Maintenance:** All systems serve some data collection and maintenance functions. They collect, organize and clean data from various sources. The National Neighborhood Indicators Partnership (NNIP), a collaborative effort by the Urban Institute to foster usage of neighborhood-level information promotes this function as a key aspect of neighborhood indicators systems.<sup>7</sup> Also, compiling metadata — that is, information about the origin, date, source and type of data<sup>8</sup> — on all data in the system is necessary to maintain a data warehouse.
- **Distribution:** All systems provide data to organizations and individuals in response to requests for that data via a web site. How this is done depends on the system and its goals and users. Table 1 below outlines some major methods, characteristics, and users.
- **Expansion:** Some data warehouses are designed for community-focused data uploading. This allows for

<sup>7</sup> National Neighborhood Indicators Partnership. <http://www.urban.org/nnip/>. Accessed February 12, 2004.

<sup>8</sup> For more information about metadata, please see p. 21.

**Table 1**

## Data Warehouse Distribution Methods, Characteristics and Primary Users

<b>Distribution Method</b>	<b>Characteristics</b>	<b>Primary User(s)</b>
Pre-designed area reports	Reports with fixed areas (e.g. census tract) and data contents.	Individuals or organizations with fewer technical skills or in need of commonly used data (e.g., Census).
Data files	Spreadsheets or databases (in Microsoft Excel or Access, for instance).	Lower skill users in need of a basic database to begin to understand an area as well as high skill users looking to manipulate data and/or use it in geographic information systems (GIS) for analysis and to generate maps.
Custom built area reports	Reports for which the user can define the data included for specific areas.	Higher-skill community organizations or others with particular questions or reporting needs.
Maps (custom built)	Data is presented spatially, allowing an easier visual interpretation.	Higher-skill community organizations or others with particular questions or reporting needs.
Maps (pre-designed)	Data is presented spatially, allowing an easier visual interpretation.	Individuals or organizations with fewer technical skills or in need of commonly used maps (e.g., Census).

flexibility, and lets users with the capacity to collect data and internet access to contribute to the database. The West Oakland Environmental Indicators Project is an example of this functionality.

These components are not mutually exclusive, but no one system has all of these qualities. The strongest data warehouse system will include the best qualities from all of the examples.

## Recommendations

A data warehouse should be established as the foundation for two major user-friendly systems – Early Detection System and Community Empowerment System. For these purposes, the establishment of a data warehouse presents challenges and requires some decisions. These issues and challenges involve data control and maintenance, data selection, and data acquisition. Each of these issues and their attendant considerations are discussed in turn to identify recommended directions for the Detroit Neighborhood Indicator System.

### Data Control and Maintenance

The control and maintenance of the data warehouse has important implications for the neighborhood indicators project. The Detroit NIS will need an organization to function as a system administrator to host, collect, clean, and maintain the

data. To decide what organization should serve as the data host in Detroit, one must consider what makes for a strong intermediary. Characteristics of a strong candidate include:

- **Ability to provide or capture initial development and ongoing funding:** Many NIS are able to get off the ground through funding from grant-giving organizations like the MacArthur Foundation, Fannie Mae Foundation, Local Initiatives Support Corporation (LISC), The Enterprise Foundation and others. These groups generally do not provide funding for ongoing system maintenance. To be successful in the long term, the system administrator must either be able to fund maintenance costs or must be adept at capturing new grants.<sup>9</sup>
- **Staff availability:** Data warehouses must be constantly maintained. Thus, a strong intermediary must have the staff capacity to develop and maintain a web-served database. Based on research on other systems, this plan calls for a full-time database developer whose sole commitment is to the neighborhood indicator system.<sup>10</sup>
- **Technology resource availability:** To reduce development costs (both time and money) an intermediary would ideally already have sizable network and hosting capabilities which NIS servers<sup>11</sup> could have access to.
- **Ability to build trust and facilitate data sharing:** This is probably the most important trait of a good data intermediary. To build a strong neighborhood indicator system, staff working for the intermediary organization will build and maintain partnerships with city agencies, community organizations, and other data providers.

<sup>9</sup> Funding such an organization will certainly be a challenge. Many programs use a variety of government and foundation grants. Government grants include the U.S. Department of Commerce Technology Opportunity Program, which is distributing \$12.9 million in fiscal year 2004. NNIP also discusses charging fees for data as a way to pay for the program. Some data intermediaries have a moderate annual membership fee that entitles the member to any amount of data.

<sup>10</sup> Sanders, Greg. Northeastern Illinois Planning Commission. Personal Interview. February 25, 2004.

<sup>11</sup> A server is defined as a computer where data or other files are stored and can be requested by other computers on a network, such as the Internet. It allows multiple computer users to access files from the same shared computer space.

Different organizations function as data intermediaries for neighborhood indicator systems across the country. They are discussed below with respect to how well they fit the above criteria. The major groups are:

### 1. A municipal agency

#### Pro:

- A Detroit city governmental agency (i.e., P&DD) has qualified staff that can handle data collection and management, as well as data distribution. The agency also may have adequate computer resources that can handle large amounts of data.

#### Con:

- The city might not have sufficient staff time or

funding available to devote to the NIS.

- Some organizations might hesitate to give sensitive data such as crime data and welfare statistics to a city agency, in part because of confidentiality concerns.
- A sophisticated web-based approach also might require specialized staff training, new staff or consulting arrangements that would again infringe upon current staff time and funding allocations.
- Detroit agencies have been reluctant to share data and thus might have a credibility problem when asking other agencies and organizations to share their information.

**Precedent:** Miami-Dade County houses a data warehouse and distributes data upon request from community groups.<sup>12</sup>

## 2. University-based group

### Pro:

- University-based groups usually have the capacity to handle data, with knowledgeable staff and computer resources to collect, store, manage and distribute information.

### Con:

- A university partner would need agencies' trust.
- A university would probably rely on grant funding, and the program could face elimination if the university's commitments with individual partners or funding changed.

**Precedent:** The University of Pennsylvania heads a collaboration that handles data for a Philadelphia neighborhood indicators project.<sup>13</sup>

## 3. Non-profit organization

Many cities establish non-profit organizations to handle the data warehouse function.

### Pro:

- Non-profit organizations that clearly communicate their mission and create confidentiality safeguards might have an easier time collecting data from various agencies than a governmental agency or university-based group.

### Con:

- Establishing a new non-profit organization (rather than a sub-group from an existing entity) would require more effort and money and will necessarily involve job training, new staff hires and other administrative issues.

**Precedents:** A non-profit handles the data warehouse in Baltimore<sup>14</sup> and Washington, D.C.<sup>15</sup>

<sup>12</sup> Kerr, Oliver. Miami-Dade Department of Planning and Zoning. Personal Interview. January 29, 2004.

<sup>13</sup> Philadelphia Neighborhood Information System. <http://cml.upenn.edu/nbase/>. Accessed January 27, 2004.

<sup>14</sup> Baltimore Neighborhood Indicators Alliance. *Research, Reports and Projects Produced by the Alliance*. [http://www.bnia.org/results/research\\_reports.html](http://www.bnia.org/results/research_reports.html). Accessed January 27, 2004.

<sup>15</sup> D.C. Agenda Neighborhood Information Service. <http://www.dcagenda.org/nis/index.html>. Accessed January 30, 2004.

#### 4. Regional governmental agencies

Some data warehouses are hosted by regional planning organizations. These organizations are usually concerned with neighborhood health across an entire region.

**Pro:**

- Information sharing, resource coordination and collaborative planning fall under the mission of most regional planning organizations. In addition, because these organizations do not speak for an individual jurisdiction, they might have an easier time than city governmental departments collecting data from various agencies.
- Generally, interested parties have less fear of regional planning organizations due to their lack of power at the local level. As system administrator this is an asset, as data gathering by coercion works far worse than offering incentives to recalcitrant data sources.

**Con:**

- In order to engage a regional planning organization, a neighborhood indicator system must take a regional view rather than a Detroit-centric view. P&DD and SDBA have defined the mission of this plan as Detroit-centric.

**Precedents:** Northeast Illinois Planning Commission's Greater Chicago Area Housing and Community Development Website.<sup>16</sup>

#### 5. Foundations

Some data warehouses are hosted by foundations and other philanthropic groups.

**Pro:**

- Foundations likely will have the capacity to hire staff and commit capital resources, and may even already retain staff for the purpose of analyzing data.
- Foundations may have more success building coalitions between city agencies and other data providers.

**Con:**

- The mission of the foundation would likely dictate the direction and priority of the neighborhood indicator system, and would not necessarily fit all user organization's needs.

**Precedents:** The Piton Foundation manages Denver's neighborhood indicator system.<sup>17</sup> The Boston Foundation coordinates a system in Boston<sup>18</sup> in partnership with the City of Boston/Boston Redevelopment Authority and the Metropolitan Area Planning Council.

<sup>16</sup> Greater Chicago Housing and Community Development Website. <http://www.chicagoareahousing.org/HousingHomePage.asp>. Accessed February 26, 2004.

<sup>17</sup> Piton Foundation, The. <http://www.piton.org/>. Accessed January 24, 2004.

<sup>18</sup> Boston Foundation, The. *Boston Indicators Report 2002*. <http://www.tbf.org/indicators/summary/index.asp>. Accessed January 24, 2004.

If the NIS moves forward, several potential partners would likely come forward to host the data warehouse. Based on conversations with hosts and our partners in Detroit, either a university department or a non-profit best fits the profile of a strong system administrator. In fact, most neighborhood indicators systems around the United States house the data warehouse in either a university or non-profit setting. Depending on the individual partner, either type could provide the fund raising, technical, and bridge-building skills needed for the success of a data warehouse. A phased approach should be considered where:

1. P&DD assembles as much city data as possible into a data warehouse and sorts those data into appropriate categories like housing, demography, economy, transportation to allow flexibility and easy data access.
2. The Detroit P&DD and community-based organizations cooperate to identify or create a host for the data warehouse that fits the considerations described above.

The selection of an appropriate system administrator can determine the long-term health and direction of any neighborhood indicator system. The decision about system location should be made as early as possible, as part of an open process to build support for the system in its earliest and most vulnerable stages.

## Data Selection

Systems in other cities provide examples of several approaches to deciding what types of data should be included in a data warehouse. These approaches, as described below, address general implementation and Detroit-specific considerations.

### 1. Use currently available data

#### Pro:

- This is the easiest and most cost-effective way to start and is a good first step. The completeness of the picture that the data present depends on the amount, variety and quality of data available. Currently available data for the Detroit neighborhood indicator system include all governmental data available to the public (census data and Home Mortgage Disclosure Act data), Detroit Finance Department - Assessments Division data and community-provided data.

#### Con:

- This approach excludes some relevant data that are might be considered crucial to a community-based organization, as well as data that are generated by neighborhood members themselves.

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## 2. Research and use the data described by literature, research, and current best practices as most effective for evaluating neighborhood health

### Pro:

- Data used by researchers and practitioners have a greater chance of having been tested and analyzed for flaws, so this pool of data could generate strong indicators.
- This method works well for data used elsewhere for similar purposes, such as data needed for federal grant applications. For Detroit, voter registration, Section 8 Housing Choice vouchers, and Fire Department data are examples of data other systems use that are not currently available to P&DD or SDBA.

### Con:

- Data used in other ways or in other places might not work well in Detroit neighborhoods because of different city characteristics.
- Data generated as part of a federally-funded study (for example, the National Institutes of Health grants) done at a major research university may not be readily accessible to general users because of protections for people who participate in health studies. (For a complete list of potential data to pursue see Appendix 1, Part III)

## 3. Gather data requested by users (institutions, individuals, community-based organizations)

A neighborhood indicators system in Minneapolis<sup>19</sup> uses this method to gather data. The users of the system define their data needs, and the city and university partners try to meet those needs. This approach might also allow government agencies, foundations or other users to request that data be added to the warehouse.

### Pro:

- Recognizes local knowledge by allowing residents to request data that meet specific needs in a neighborhood. This should allow for a more tailored fit between data and a specific neighborhood.
- This approach also ensures that the data warehouse includes data users most often need.

### Con:

- Creates a more complex situation in which data are not comparable citywide.

<sup>19</sup> Crossroads Resource Center. *Neighborhood Sustainability Indicators System*. <http://www.crcworks.org/nsip.html>. Accessed April 13, 2004.

#### 4. Community organization-designed public input (citizens decide what indicators best represent their neighborhood).

This approach could also include neighborhood organizations collecting their own data.

**Pro:**

- The process is democratic.
- A more descriptive portrait of the neighborhood is usually obtained.
- This method is particularly useful to community organizations for program design and allocation of resources.

**Con:**

- This is the most time- and resource-intensive method of data warehousing.
- Data gathered this way require more staff time to ensure quality and consistency.
- The design and facilitation of surveys and data collection require extra funding.
- This method requires active community organizations in the areas for which information is gathered.

**Conclusion:**

All four approaches have merit for a variety of users: community-based organizations, foundations, city administrators, and the general public. All four could be included in a comprehensive data warehousing system. These approaches might be implemented in phases as follows:

1. Start a system using currently available data.
2. Conduct a study to identify relevant descriptive data for neighborhood health and find out which of them are currently unavailable.
3. Provide for data source research for acquisition of missing data.
4. Implement a system for public input into the warehouse.

### Major Data Sources<sup>20</sup>

After an intermediary decides which approach to take towards data collection, the organization will decide specifically what types of data to include in a warehouse. Listed below are several types of data that could be included in a data warehouse. The data are evaluated based on general implementation and Detroit-specific considerations.

<sup>20</sup> Several of these source categories were taken from Kingsley, G. Thomas, (ed). 1999. *Building and Operating Neighborhood Indicator Systems: A Guidebook*. National Neighborhood Indicators Partnership – The Urban Institute.

## 1. Census

### Pro:

- Data from the U.S. Bureau of the Census (especially decennial census data) are inexpensive, easily comparable across space (nationwide or between census tracts), and cover a wide variety of information that is useful for looking at neighborhoods.
- The data include rich information about people and housing.

### Con:

- Census data on population and housing are collected only every 10 years, so the information becomes dated quickly (even before it is released) and is not as useful for those interested in shorter timelines. This may become less of a problem in the future, when the Bureau of the Census provides data from the American Community Survey (see Conclusion below).
- Sample Census data are not available for geographies smaller than a block group.

### Conclusion:

Census data are an important foundation of information in any data warehouse. However, a data warehouse should also include data that are updated more frequently. The American Community Survey may soon help to alleviate the problem of timeliness for census data, but only down to census tract-level data. According to the Census Bureau website, "...the Census Bureau will have annual data based on the American Community Survey once that survey becomes national in scope (July 2004). It will take three to five years to accumulate sufficient sample to produce data for areas as small as census tracts. Thereafter, tract data will be updated annually".<sup>21</sup>

## 2. Administrative records regularly updated and maintained by local agencies

### Pro:

- These records contain a wealth of data about neighborhoods, including information about individual parcels or people. Voter registration, auto registration, library usage and school attendance may all be relevant to neighborhood health.
- Because they are collected at the smallest geography, these databases are often flexible. This means one can aggregate them to analyze small areas.

<sup>21</sup> U.S. Census Bureau. *Question and Answer Center*. <http://ask.census.gov/cgi-bin/askcensus.cfg/>. Accessed April 5, 2004.

- The administrative data already are collected for a public purpose, so applying them to help people or neighborhoods remains true to that public purpose.

**Con:**

- Some agencies refuse to share data.
- Data collected for another purpose might be collected in a manner that makes it ill-suited for neighborhood indicator use or analysis. For example, sharing data raises confidentiality concerns if the unit of observation is the individual or if individuals can be identified. A data intermediary must be aware of this problem, and should take care to protect the privacy of individuals.
- Data collected from individual agencies may be hard to compare because of inconsistent methods across different data collectors. Agencies might use different units of analysis based on their own priorities, or collect data at different frequencies.
- It is difficult to inspect the validity of collected data. The data that agencies collect cover a broad spectrum of information. Verifying all of the varied data would likely prove cost- and time- prohibitive.

**Conclusion:**

Pursue collection of relevant agency data, but make sure the costs of using, updating and maintaining the data do not outweigh the benefit to the users of indicators.

### 3. Data purchased from vendors

Vendors such as DataQuick Inc. and Dun & Bradstreet keep family home sale prices and employment information that can be useful in analyzing neighborhood economic trends.<sup>22</sup>

**Pro:**

- Firms collect data in a consistent and clear format that in many cases are updated annually.

**Con:**

- Data can be expensive and present a long-term, continuing cost to the data warehouse.
- One must evaluate the quality of data from each vendor to make sure they are reliable and valid.

**Conclusion:**

Vendor-supplied data might be avoided because of the expense and difficulty in verifying the accuracy of such data, unless the benefits of the data outweigh those factors. The cost of the data is potentially the largest consideration. Data might cost thousands of dollars annually, depending on the individual request and the company's policy.

<sup>22</sup> Vendor data idea is discussed in: Galster, George, Chris Hayes and Jennifer Johnson. 2004. *Identifying Robust, Parsimonious Neighborhood Indicators*. The Urban Institute.

#### 4. Special surveys or inventories

Data also can be gathered from surveys or inventories. These tools can provide both objective data (i.e., how many vacant lots on a street?) and subjective data (i.e., do residents feel safe in their neighborhood?). Surveys and inventories can be created and driven by community groups or conducted under the direction of a larger organization, such as a city government or a corporation.

**Pro:**

- Surveys can provide rich data not only about what is happening but what people think is happening. Neighborhoods often change because of perceptions, and understanding those perceptions might inform policies that affect neighborhoods.
- Some surveys and inventories also can involve or increase citizen input, or give residents an enhanced view of their role in understanding and changing their neighborhood. Those capacity-building attributes come in addition to the added data.

**Con:**

- Surveys are time-consuming and expensive, both in their development and execution. They also must be crafted with care to provide reliable, valid data.
- Surveys crafted by different neighborhoods might not be comparable with ones developed by other neighborhoods.
- Partnerships necessary to do community surveys also require money and time.

**Conclusion:**

Include neighborhood surveys to the extent practical, considering staff and budget limitations. The survey can be led by one entity with the participation of neighborhood organizations.

Clearly, each of these types of data can produce benefits within a data warehouse. Due to resource and time limitations, an intermediary might face certain challenges in acquiring the data. A discussion of some of these challenges and widely-used responses follows.

### Data Acquisition and Management

Once the desired sources are identified, getting the data presents another set of challenges. Although one might find Census or vendor data easy to obtain, getting shared information from other agencies may be more difficult. This is particularly true of disaggregated data that create confidentiality concerns.

The National Neighborhood Indicators Partnership found three major obstacles to data sharing among agencies.<sup>23</sup>

1. Providing data is too much work. This is largely unfounded because technology makes the transfer of large amounts of data easy. The city of Detroit already captures some data using regular data transfers. For example, the Detroit Assessor's Division of Finance Department provides annual updates to P&DD at roughly the same time each year. Once the initial data formatting and schedule challenges are sorted out, this process takes minimal ongoing effort on either party's part.
2. Confidential client information might be released to the public. This is a serious concern, but indicator systems find ways to assure confidentiality. The Boston Foundation, according to Kingsley, signs an agreement promising to safeguard information about individual families and:
  - Forbids access to the original file to anyone except the computer operators at Northeastern University
  - Makes public only data that are aggregated at the block-group level or higher
  - Suppresses block-group data when they are based on fewer than five observations.

Confidentiality agreements should be negotiated with each data provider so the data providers know their data will not be misused and will not violate the privacy of those people whose information is in the data. The degree of confidentiality should be discussed with the data providers. If necessary, data aggregation might be a good approach to avoid such sensitive issues.

3. They might be embarrassed by the data because the data could reflect badly on their performance. NNIP cities argued that the benefits outweigh the risks of embarrassment. The data warehouse can save agencies time and effort because they do not have to work to collect data from other agencies or have to deal with so many data requests from users. The data warehouse can enable many people to obtain the data they would otherwise request from an agency.

*The most important role of city departments and agencies in the development of a neighborhood indicator system is to help provide the necessary tools for establishing the system.*

### **Role of City Departments in an NIS**

The role of city departments and agencies within a neighborhood indicator system is typically to help provide the resources necessary to run a successful system. The scope of their role

<sup>23</sup>Kingsley, G. Thomas, (ed). 1999. *Building and Operating Neighborhood Indicator Systems: A Guidebook*. National Neighborhood Indicator s Partnership – The Urban Institute.

varies depending on the amount of interest the city takes in the system, the perceived benefits and the strength of partnerships and trust between the city and the system's administrator. The two main roles city departments serve are:

### 1. Data Source

A continued supply of data from the city is vital for a successful system to establish itself, grow, and provide a reliable data source for system users. For example, in Philadelphia the city provides data through the Mayor's Office of Information Services, Office of Housing and Community Development, Department of Licenses & Inspections, Philadelphia Gas Works, Revenue, Water Revenue, Philadelphia City Planning Commission, Philadelphia Housing Association, and Philadelphia Fire Marshall's Office.<sup>24</sup> Similarly, in Milwaukee the city provides data through the Milwaukee County welfare records and city property files.<sup>25</sup>

### 2. Technological Funding and Support

Cities also provide technical assistance, staffing, and seed funding in the early stages of system development. While the seed funding is vital in the initial stages, providing data is the city's ongoing commitment to the system. Without initial funding the system will not be able to establish itself to raise more money or facilitate any research that would potentially lead to more data sources and more investment from the community. Depending on the resources available through the system administrator, the city may provide technical resources such as computers or training on how to use various computer programs.

The most important role of city departments and agencies in the development of a neighborhood indicator system is to help provide the necessary tools for establishing the system. As the system grows, the role of the city continues as one of the major data providers, though other parties eventually share the burden of data provision, funding, and technological assistance. The system administrator becomes more self-sufficient as more users and data sources are involved, but city-provided data will always be necessary.

### Metadata and Data Management

Any data warehouse should have a strong foundation of metadata for users to understand what the information they have means. This section defines and explains why metadata is important.<sup>26</sup>

<sup>24</sup> Cartographic Modeling Lab. *Project Profile*. [http://cml.upenn.edu/project\\_areas/nis.htm](http://cml.upenn.edu/project_areas/nis.htm). Accessed April 17, 2004.

<sup>25</sup> Employment and Training Institute, University of Wisconsin-Milwaukee. *Neighborhood Indicators for Central City Milwaukee 1993 – Present: Background*. <http://www.uwm.edu/Dept/ETI/reports/indypage.htm>. Accessed April 17, 2004.

<sup>26</sup> For further reference, an in depth discussion about metadata is available from: ESRI. 2002. *Metadata and GIS*. <http://www.esri.com/library/whitepapers/pdfs/metadata-and-gis.pdf>. Access February 18, 2004.

Metadata is information about data that has been collected and compiled. It tells the user about what the different fields in a spreadsheet or a database mean, who compiled the data, when the data were gathered or for what time period the data apply. The presence of metadata allows the user to work with the data because definitions and terms are clearly explained. Without metadata users are often frustrated because they do not know what different codes mean or how different numbers have been calculated. The provision of metadata increases the efficiency and effectiveness for those who analyze data and for those who interpret the results from a study involving these data.

The creation and distribution of metadata streamlines the process of data gathering and sharing. The list below identifies some of the benefits of having comprehensive and current metadata associated with all information in a data warehouse.

**1. Allow for easy data searching to expand or revise the scope of analysis**

Users can query metadata to find data previously unnoticed but potentially relevant to their research question.

**2. Help users easily evaluate data's relevance to their question**

For example, if a study relies on data from a particular year, the project manager must check that the year of the data in the warehouse matches the year that is being studied.

**3. Facilitate the selection of appropriate data from the warehouse**

A model developer must know the definition of various data fields and how they were generated in order to use, calculate, and interpret the variables in correct ways. For example, the U.S. Census has a definition for "households" that differs from the definition for "families." Therefore, household information is different from family information.

**4. Clarify which data need to be updated and when**

Associating dates with all data ensures one is using the most current data. Knowledge of the consistency of data collection is also important, as consistency suggests that the researcher can rely on the data being used.

**5. Improve understanding and ensure the study is replicable**

Any findings from a study or model are useful only if they are reproducible. For a study to be conducted by an independent third party, its components must be readily understandable. Good metadata makes both of these possible.

**6. Make studies and models more understandable for audience members**

Metadata not only helps the user in constructing a study, but also the person trying to understand the study results.

**7. Make more data accessible to more people**

Metadata explains data, making the information understandable and useful, and therefore accessible to users with varying levels of familiarity with the data and the data warehouse itself.

**8. Save time and money for both the warehouse administrator and users**

Metadata helps manage data collection and documentation. When the importance or relevance of data is clear, one reduces the amount of money spent acquiring unnecessary data and the amount of time trying to find the desired data. Metadata also makes the process of working with data more efficient by easing the transition when a project is handed from one employee or organization to another.<sup>27</sup>

### Metadata Recommendation

Metadata is a key component of management for any data warehouse. This plan recommends that all those involved with this NIS, data acquisition, or projects involving data manipulation make recording of metadata a standard practice. If the city or any CBO has concerns about privacy, they should establish different levels of access to the metadata through a registration process or by establishing user agreements. If metadata cannot be obtained, the following is a list of the most basic metadata needed for data to be useful as a guide for staff of the data warehouse in development of metadata.

- Definition (what are the data)
- Derivation (how were the data calculated)
- Date (to what year, month or day do the data refer (this is not the date of collection))

For example, the indicator Serious Crime per Capita stands for the number of total serious crimes per 100,000 people, and is defined as the combination of violent and property crime. This is a measure that can be compared across census tracts because it accounts for differences in population. Serious Crime per Capita is derived by adding the values for violent and property crime (both per 100,000). The date for this indicator is 2002. The data refer to the number of crimes that occurred in 2002.

### Conclusions about Data Acquisition and Management

Acquiring administrative data requires a combination of personal skill in working with those who create the data, political skill in convincing city leaders that the project is important and negotiation prowess to get data from reluctant agencies without

<sup>27</sup> ESRI. 2002. *Metadata and GIS*. <http://www.esri.com/library/whitepapers/pdfs/metadata-and-gis.pdf>. Accessed February 18, 2004.

Johnson, Steven. *The Quest for Data and the City of Orem, Utah*. <http://gis.esri.com/library/userconf/proc03/p0145.pdf>. Accessed April 10, 2004.

undermining their institutional needs.

Data acquisition is easier if political leaders convey that it is important. This can lead to an atmosphere of data sharing between agencies.<sup>28</sup> Working with the individuals who create the data can be fruitful. NKLA, the neighborhood indicators system used in Los Angeles and run by the University of California at Los Angeles, was able to collect data by asking agency workers if they wanted data from other departments or agencies. These data creators then wanted to share data in order to get data from other people.<sup>29</sup>

Negotiation is important. In the case of the County of Los Angeles, which was reluctant to share data because it sold its electronic assessor database to private firms, NKLA reached an agreement to buy a portion of assessor data so as not to limit the marketability of the information.<sup>30</sup>

Success encourages more data sharing. Agencies presumably will want to be part of a successful program and will see the benefits of acquiring data from a data warehouse.

## Conclusion

A data warehouse is the foundation of the proposed Detroit Neighborhood Indicator System. To ensure long-term success, the system administrator should give time and careful consideration to issues of data management and control, data selection, and data acquisition. By making decisions about these areas in an open discussion among participating partners, the system can start from a strong foundation. In turn, the Early Detection and Community Empowerment System applications that draw on the data warehouse will more likely succeed in their goals of helping improve the lives of Detroiters.

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<sup>28</sup> Kingsley, G. Thomas, (ed). 1999. *Building and Operating Neighborhood Indicator Systems: A Guidebook*. National Neighborhood Indicator s Partnership – The Urban Institute.

<sup>29, 30</sup> Neighborhood Knowledge Los Angeles. *How-To-Kit*. <http://nkla.spsr.ucla.edu/aster.cfm?Page=HowToKit/main.cfm&Page2=Political.cfm#2>. Accessed April 19, 2004

# Community Empowerment System

Schematic, authoritarian solutions to production and social order inevitably fail when they exclude the fund of valuable knowledge embodied in local practices ... Formal schemes of order are untenable without some elements of the practical knowledge they tend to dismiss.

James C. Scott, *Seeing Like a State*

Neighborhoods are complex areas with a variety of strengths and weaknesses that require appropriate attention. The proposed Community Empowerment System, or CES, is designed to identify and understand topics of concern or causes for celebration in neighborhoods through community participation. By developing and promoting a deeper, more intimate knowledge of local conditions, the CES helps drive the community development process as well. As such, it forms an integral part of the construction and function of a Detroit Neighborhood Indicator System. In other cities with established indicator systems, community empowerment systems provide information about neighborhood conditions to a wide variety of users. Different systems achieve this basic goal in different ways, depending on the mission of the data intermediary, the goals of the user groups, resource availability, and other considerations.

As advancing communications technology makes the collection and distribution of neighborhood-level data more feasible, the benefits of widespread information exchange are being realized in a growing number of America's cities.<sup>31</sup> Local governments are increasingly searching for ways to monitor small-scale changes within cities for the purposes of more efficient public service distribution. Many aspects of the grass-roots community development process- from applying for public and foundation grant funding to encouraging economic development- require the collection of neighborhood-level data from a variety of sources. By making information more accessible and by training organizations on how to use information, a CES will help build stronger Detroit neighborhoods.

This section describes a CES to suit Detroit's needs and provides recommended steps for developing a CES. The needs addressed by a CES are described and relevant case study examples are

<sup>31</sup> Kingsley, G. Thomas. 1998. *Indicators: Taking Advantage of the New Potential*. National Neighborhood Indicators Partnership – The Urban Institute.

**Figure 4**

Philadelphia: CES Interface Showing Various Geographic Units

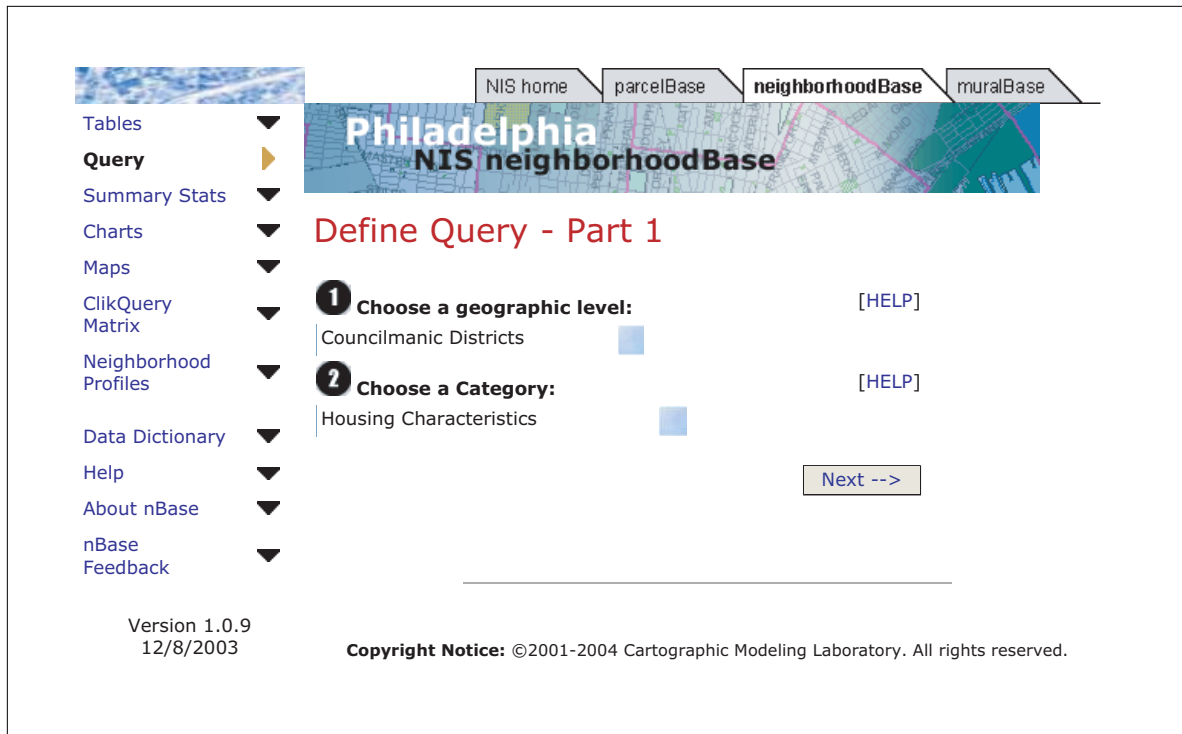
Source: Philadelphia Neighborhood Information System<sup>32</sup>

Figure 4: Illustration of the Philadelphia system's ability to report at multiple geographic levels.

given to demonstrate the roles a CES plays in various cities. Based on these case studies and an analysis of CES functions, recommendations were developed for a Detroit system.

## Key Dimensions for a Detroit CES

Research for the proposed plan focused on common practices among a wide variety of community-based information systems, as well as system components and capabilities unique to Detroit's needs. Combining this assessment of numerous systems throughout the country with a survey of information resources in Detroit, the following six considerations emerged as fundamental to the development of a CES:

### 1. Reporting

The primary function of a CES is to produce reports on the health of neighborhoods. In order to meet the needs of most component users, neighborhood reports should accommodate a wide disparity in financial capacity and technical ability. Embracing both pre-generated and custom reports maximizes the variety of system outputs, and

<sup>32</sup> Cartographic Modeling Lab. Philadelphia NIS Neighborhoodbase: Query. <http://cml.upenn.edu/nbase/nbQueryRequest.asp>. Accessed April 19, 2004.

responds most efficiently to variation in user sophistication. The Boston Foundation uses neighborhood indicators to produce a biennial Boston Indicators Report that goes to considerable length to insure data accuracy. Explanations of data collection techniques and potential policy implications supplement statistics from public and private agencies to maximize the user's ability to use data effectively.<sup>33</sup> On the other hand, the Baltimore Neighborhood Indicators Alliance allows users considerable flexibility in assembling the types of information they specifically require.<sup>34</sup> An evaluation of different reporting strategies follows.

- **Fixed Reports**

Data templates exist for each geographic unit of analysis (e.g., census tract, cluster). Reports that users access for a particular geographic unit include the same categories of information across the city. Figure 4 illustrates an example interface from the Philadelphia NIS, highlighting the availability of reports at various units of geographic analysis. These fixed-format reports are often available as printed pieces as well as in electronic forms like Adobe Acrobat. By providing reports in print, users who may not have access to Internet technology can still acquire needed information. Figure 5 (on the following page) is an example of a fixed Neighborhood Summary Report for the Allendale Neighborhood of Baltimore.

**Pro:**

- Standardized reports are quick and easy to develop.
- Using common fields allows for comparisons across different areas of the city.
- Fixed reports can be more easily used by those with limited technical skills.

**Con:**

- Fixed reports may miss unique community assets (e.g., even if Southwest Detroit residents consider murals an important feature of local maps, they may be rare enough throughout the city that standard neighborhood reports might not include mural information).

- **Customizable Reports**

These outputs provide a list of all available data and geographic resolution levels. The user is able to choose specific data and compile reports based on the chosen data. These reports are typically available in electronic format only.

<sup>33</sup> Boston Foundation, *The Boston Indicators Report 2002*. <http://www.tbf.org/indicators/summary/index.asp>. Accessed January 24, 2004.

<sup>34</sup> Baltimore Neighborhood Indicators Alliance. "BNIA Mapping System" <http://www.bniala.org/about/workgroups.html>. Accessed March 30, 2004.

**Figure 5**

Baltimore: Example of a Fixed Report

**Live Baltimore Home Center**

HOME

**Neighborhood Profiles**

**Allendale**

**City Living Resources**

Let us refer you a...

**Home Center**

General Info

**Neighborhoods**

Search by Name  
Search by Map  
Neighborhood Links  
Average Home Sales  
Resident Referral

**Home-Buying**

Incentive Programs  
Classified Ads  
Historic Property Search  
Mortgage Products  
Buying Resources  
Real Estate Agents

**Renting**

**Location**

Hilton St. (E)  
Wildwood Pkwy. (W)  
Monastery Ave. (S)  
Edmondson Ave. (N)  
Zip Code: 21229

**Description**

Family-oriented community with well maintained and attractive houses, tree-lined streets and beautiful landscaping.

**Highlights**

Daisy Field Park at the edge of Gwynns Falls Park includes open space for ball playing.

**Types of Houses**

Allendale has a total of 1500 houses including mostly brick row homes. There are also individual frame houses scattered throughout the community dating back to the 1920's.

**History**

Allendale Community Association was started in the 1950's when people met in each other's homes. The organization grew, and after the Mary E. Rodman Recreation Center was built in 1974, the Allendale Community Assn. began meeting there to accommodate larger groups. Click for more information on this Neighborhood's History .

Source: Baltimore Neighborhood Indicators Alliance <sup>35</sup>

Figure 5: Sample fixed report for the Allendale Neighborhood in Baltimore.

Figure 6 shows an example of a custom report built on NKLA, focusing on building code violations in one census tract in Los Angeles.

**Pro:**

- Flexibility allows users to look into areas of interest to them and exclude irrelevant data from the report.

**Con:**

- Developing a custom reporting function takes more time and money than a more basic system designed to produce fixed reports only.

<sup>35</sup> Baltimore Neighborhood Indicators Alliance. *Neighborhood Resources: Community Associations – Allendale*. <http://www.livebaltimore.com/neighbor/allndale.html>. Accessed April 19, 2004.

**Analysis:** Both fixed reports and customizable reports are crucial for a strong CES for Detroit. In order to support the needs of users with varying levels of sophistication, both reporting formats are necessary.

**2. User Registration**

Many CES require users to register in order to access or upload data. Some place no restrictions on the availability of local information.

<sup>36</sup> Neighborhood Knowledge Los Angeles. *Data and Maps*. <http://nkla.sppsr.ucla.edu/DataMaps/LANews/Master.cfm?Page=AreaMenu.cfm&Type=Tract&CFID=115857&CFTOKEN=46764908>. Accessed April 26, 2004.

**Figure 6**

Neighborhood Knowledge Los Angeles: Data Available for Custom Reports

**Data & Maps**

LA News Policy Room Logout of NKLA

You have selected the following Census Tract(s): 2267

Click on the map to interact!

For NKLA Property Data:

1. **Property Data Summary**

For 1990 and 2000 Census Data statistics:

2. **Total Population**
3. **Total Housing Units**
4. **Race/Ethnicity**
5. **Educational Attainment**
6. **Median Household Income**
7. **Occupied vs Vacant Units**
8. **Renter Occupied vs Owner Occupied Units**
9. **Units in Structure**
10. **Median Gross Rent**
11. **Median Value of Owner-Occupied Units**

Source: Neighborhood Knowledge Los Angeles <sup>36</sup>

Figure 6: Summary of Available Data for Customizable Report on Census Tract 2267 in Los Angeles.

- **Required Registration**

Access to, or ability to contribute, neighborhood data is moderated by a registration process that supplies system administrators with user information and/or locally-generated data.

**Pro:**

- This is an effective mechanism for capturing user and use information. The collection of user and use information can improve the system over time when these data are used to make future structural decisions. The case of the Cleveland Area Network on Data and Organizing (CAN DO) is a particularly useful example. The CAN DO program tracked system use as a method of proving the effectiveness of outreach efforts targeted at users with little or no technical training.<sup>37</sup>

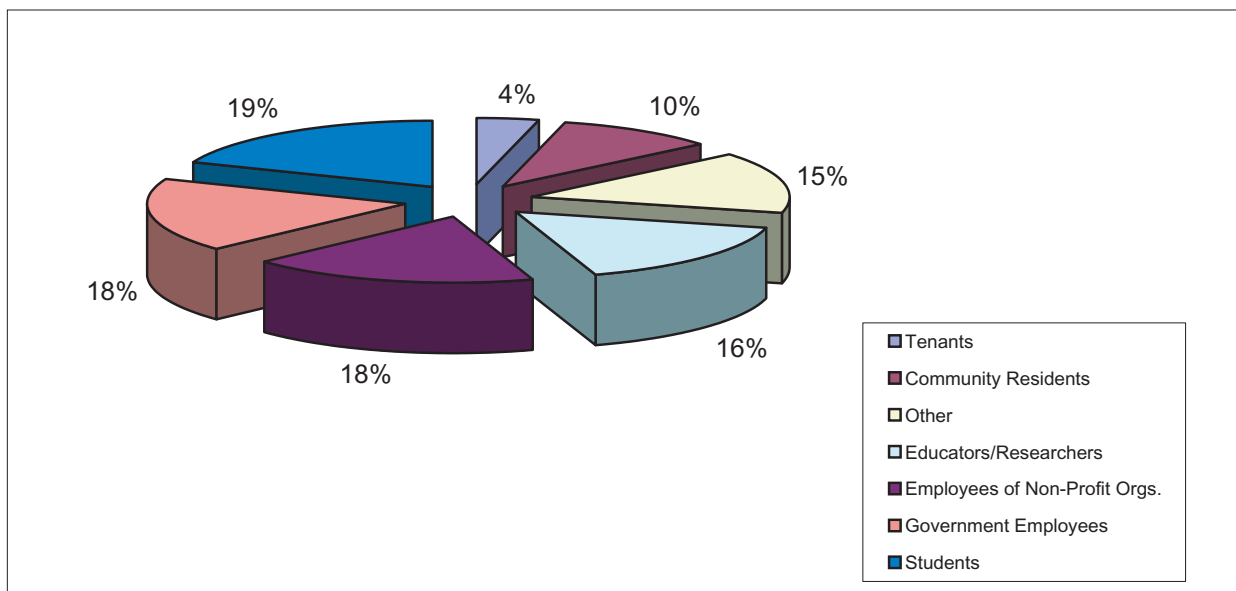
Figure 7 displays the various types of users of the Neighborhood Knowledge Los Angeles (NKLA) system. Here, the system’s registration process allows the system administrator to understand who is using the system and if a particular group dominates. One major benefit of a CES is that new uses for the system will develop in the most unlikely

<sup>37</sup> Bailey, Terri J. 2000. *Building Community Capacity to Use Information: Four Training Options From the Experience of the National Neighborhood Indicators Partnership*. National Neighborhood Indicators Partnership. <http://www.urban.org/nnip/pdf/bailey2.pdf>. p. 9. Accessed March 30, 2004.

<sup>38</sup> Neighborhood Knowledge Los Angeles. NKLA Administrators. Electronic Correspondence. March 19, 2004.

**Figure 7**

Neighborhood Knowledge Los Angeles Breakdown of Registered Users



Source: Neighborhood Knowledge Los Angeles <sup>38</sup>

Figure 7: Chart illustrating the diverse types of users for Los Angeles system.

of places. For example, 18% of NKLA's users are governmental departments who should already be sharing data among one another. The ability to evaluate different user needs and determine what types of trainings are needed is a significant benefit of user registration.

- Registration provides partial accountability for uploaded data by recording who provided the data in question, which allows for a method to check and enforce accuracy in data provision. This helps to provide information on neighborhoods which is current and correctly portrays the area.

**Con:**

- Registration might discourage the participation of citizens who desire access to neighborhood-level data but are unwilling to share information about themselves or their organization.

- **No Registration Required**

The ability to download or upload information is not qualified or restricted in any way, and anyone with internet access may access the data.

**Pro:**

- Allows for less restrictive distribution of information.

**Con:**

- Does not provide user and use information, nor does it provide a method of verifying information accuracy if users are allowed to upload data.

**Conclusion:**

Having the fixed reports portion of the CES available without requiring registration will maximize user access. However, for more sophisticated users who want to use custom reporting functions or want to upload new data, a registration process allows the system administrator to track data sources and uses of the system. Having both choices allows new users to access the CES and gain an understanding of what purpose it can serve, while more advanced users can register in order to produce their desired outputs.

### **3. Data Acquisition and Management**

The system designer must decide whether or not to allow for data uploading by partners.

- **Do not allow for data uploading**

In this case, system administrators have complete control over information provision and make all decisions about data acquisition and format.

**Pro:**

- This approach minimizes development costs and is typical of most CES.
- Develop data templates to ensure that neighborhood organizations administer similar surveys and fill in the same fields so that data can be entered into a database.
- It also excludes potentially unreliable data from the CES.

**Con:**

- Any closed system will need to add new data over time. A greater burden falls upon the data intermediary to gather data when users are prevented from uploading it.

- **Allow for uploading (with or without filtering)**

In this case partners can upload local data. Some system administrators check and filter data before they enter the data warehouse, but others allow any partner to upload any data.

**Pro:**

- Allowed uploading indicates that the CES is an open system, encouraging more partners to participate.
- Local and specific information may be captured, especially data that are not collected at a city-wide level.

**Con:**

- Initial software development costs are higher.
- Non-standard data across the city can be confusing to some users.
- Poorly collected data that sit on a server next to systematically collected data can be seen as “valid” (though this can largely be mitigated if the data host filters data once it is uploaded).

**Conclusion:**

In the initial implementation of the system, data uploading should not be included as the system development will be complicated enough without this functionality. Over time, as the user base grows and matures, uploading will be demanded by users and become more necessary to implement. This function can be added once sufficient demand and a substantial user base has been achieved.

Allowing for community input on the accuracy of existing data as they are cleaned and organized for the users creates a checks-and-balances system which leads to more precise data. This communication between community-based organizations and the agency in charge of the system needs to be constant to provide a current description of the city's neighborhoods. Through conversation problems can be identified and solved and uploading information can remain part of the CES.

A user can fill out a standard online form, as they do in Minneapolis, and describe the incorrect information and how it can be fixed. Templates for locally generated data can also be provided by the CES so that different neighborhood organization groups can use similar survey questions when inventorying retail and commercial establishments or provide exact address locations so that community assets may be geocoded and mapped. Much of the value that comes from being able to detail and describe neighborhood conditions will be the ability to communicate to city officials and other administrative agencies the resources that are available and the impacts that have resulted from investment and funding. Oftentimes follow-up questionnaires, reports on trends and maps generated can only be produced from data that the neighborhood organizations themselves provide.

#### 4. Feedback, Outreach, and Collaboration

Successful administrators conduct outreach and facilitate collaboration through multiple channels in order to build support for their community empowerment systems. This improves the effectiveness of existing systems, expands use and leads to coordinated programs for community improvement.

For example, the Baltimore Neighborhood Indicator Alliance (BNIA) has an established "Work Group."<sup>39</sup> City agencies, community organizations, and universities participate in one of four groups (Coordination Committee; Vital Signs Steering Committee; Technical Assistance and Training Work Group; Data Providers and Access Points) to help create and support BNIA projects. These groups are listed on BNIA's website, which provides links to local city, non-profit, and university websites and allows users to see who is working on the project. BNIA also lists neighborhood resources within Baltimore and provides links that list the location of the neighborhood, a description of the area, and a contact person for the

<sup>39</sup> Baltimore Neighborhood Indicators Alliance. About BNIA: Workgroups. <http://www.bnia.org/about/workgroups.html>. Accessed March 30, 2004.

<sup>40</sup> Baltimore Neighborhood Indicators Alliance. *Neighborhood Resources: Community Associations* <http://www.bnia.org/resources/community.html>. Accessed March 30, 2004.

neighborhood organization.<sup>40</sup> The goals with respect to feedback, outreach and collaboration functions are:

- Add new data providers: By conducting outreach educational meetings with potential data providers, for example, fire and police departments, the staff for the system can explain what desired data might be needed and offer personal assurances about reasonable concerns on the part of the provider. A human touch can build trust between institutions.
- Provide a forum for CES users to discuss data and other issues: In reaching out to users, data hosts like the Northeast Illinois Planning Commission (NIPC) hold periodic group meetings with community-based organizations and other user groups as well as data providers in order to work together to define system goals and objectives. According to Greg Sanders of NIPC, these meetings help participants make connections that lead to other discussions through which organizations identify complementary goals or skills.<sup>41</sup>

The National Neighborhood Indicators Partnership (NNIP) cites an example of collaboration among several Boston-based community organizations focused on health issues concerning children and families.<sup>42</sup> The Boston Children and Families Database (BCFD) was created to house information that many universities, public agencies, and community organizations needed to understand the health issues affecting the city's neighborhoods. The groups worked together to obtain information and meet obstacles. Technology concerns were a focal point for this group, specifically as they related to providing information in an inexpensive and widely available manner. Members were able to develop creative solutions due to the varied expertise across groups.<sup>43</sup> This collaboration allows groups to tailor data to their specific projects. Participants also gained a collective understanding of new technology useful in data analysis.

- Add new users and improve system awareness: In order to realize the system's capacity to help the citizens of Detroit, a strong outreach function is essential for a CES.

Different systems employ different methods of

<sup>41</sup> Sanders, Greg. Northeastern Illinois Planning Commission. Personal Interview. February 25, 2004.

<sup>42</sup> Bailey, Terri J. *Building Community Capacity to Use Information: Four Training Options From the Experience of the National Neighborhood Indicators Partnership*. National Neighborhood Indicators Partnership. December 1, 2000. <http://www.urban.org/nnip/pdf/bailey2.pdf>. Accessed March 30, 2004.

<sup>43</sup> Bailey, Terri J. *Building Community Capacity to Use Information: Four Training Options From the Experience of the National Neighborhood Indicators Partnership*. National Neighborhood Indicators Partnership. December 1, 2000 <http://www.urban.org/nnip/pdf/bailey2.pdf>. p. 9. Accessed March 30, 2004.

*Goals related to feedback, outreach, and collaboration are: add new data providers; provide a forum for discussion; add new users and improve awareness of the system.*

generating and soliciting input from system users and the larger community. None of these methods are mutually exclusive. Commonly used methods are as follows:

- **Email comments from users**

**Pro:**

- Low-cost method for capturing user feedback.
- Specific technical issues receive attention as they are encountered.

**Con:**

- Feedback is limited to particular comments. This format cannot easily capture fundamental issues of system design or direction. Likewise, lack of context can impede an administrator's ability to respond to comments.

- **Traffic Monitoring**

Some systems track web site activity to evaluate use patterns. By tracking which web pages and types of data users access most frequently, the intermediary can begin to understand areas where users would likely want to see the system expand.

**Pro:**

- Another inexpensive way to tune the system to user needs.
- Gives a verifiable measure of what areas of the system are most often used.

**Con:**

- Fails to capture information from people who do not use the site.
- Simply tracking what types of data appear most often in reports does not necessarily indicate which data are most valuable.

- **Partner Meetings**

Some systems feature regular meetings among stakeholder groups including data sources, potential users or current system users (many organizations are both data providers and system users). Holding these types of meetings can build support for the system among current and potential users and data providers and helps capture feedback from users about desirable future directions for the system to take.

**Pro:**

- Holding such meetings shows that the system host cares about the users and their needs. Such meetings can also help draw data out of hesitant organizations by constructing broad-

based arguments for why data would be useful if made public. These interactions can lead to unforeseen collaboration benefits among partners.

**Con:**

- Often community-based organizations have finite resources and cannot dedicate staff to such meetings. Northeastern Illinois Planning Commission (NIPC) overcame this issue in part by offering nominal annual grants to groups that participated actively in system development meetings.<sup>44</sup>

**Conclusion:**

All three methods of generating feedback and outreach are valuable. A simple email function ensures a continuous ability to send input to the system administrator. By tracking use, a system host can get a more objective view of what areas of the system experience the most use (and are therefore worthy of more energy, new data). Conversely, identifying an area of the system as underutilized could lead to additional training and outreach efforts about that area or, if interest remains low, the abandonment of that section of the system. This would allow finite resources to be directed to more useful areas.

## 5. User Training

Successful systems conduct user training to build support for a CES and expand the utility of the system for existing users. One of the major benefits of a CES is that it can put large amounts of data into the hands of organizations with limited resources. Yet some of these organizations lack the technical skills needed to access and effectively use CES data. If CES administrators want to utilize community groups as data collectors, training must be conducted to help those partners collect surveys and other information effectively. The goals for CES user training are:

- Expand system user base through system marketing/outreach. In order to expand the user base, the system administrator markets the CES through outreach meetings and training. By reaching out to potential users, especially those with limited technical experience, a CES will develop a broad base of support. This can help free up data from hesitant sources and build credibility for the system.
- Help existing users get more from the CES.
- Help all users function more effectively as data collectors.

<sup>44</sup> Sanders, Greg. Northeastern Illinois Planning Commission. Personal Interview. February 25, 2004.

Different training methods can be used depending on the particular goal.

- **Online Tutorials**

Some systems, like NKLA, in Los Angeles have an online tutorial function built into the web site. This allows users to learn about additional functions within the site and helps them use NKLA more effectively.

**Pro:**

- Cost-effective way to expand the utility of the system.
- Continuous and constant availability

**Con:**

- Does not reach out to the least skilled users.
- Can be expensive to develop.

- **Training Sessions**

Many indicator systems conduct training sessions for current and potential users to reach out to those with limited experience using internet databases and mapping software. The goal is to help those organizations that are the least trained to use a CES to understand how and why a system can be used to help in their areas of interest. These sessions can also help community-based organizations learn about data collection and uploading into the CES. For instance, NKLA holds training sessions where Web basics are reviewed to bring users up to speed with the necessary technology to use the system. These trainings are usually geared to groups working on specific projects, not as a service to the community in general.<sup>45</sup>

**Pro:**

- Can expand the system's user base, especially among those groups with the least technical skills. It can also expand the types of data in the system while improving the quality of data collected.

**Con:**

- This type of outreach is time consuming and expensive to conduct.

**Conclusion:**

Despite the time and money costs, a strong training program cannot begin and end with an online tutorial. While these tutorials can be useful for more technically proficient users, they fail to help those who need more fundamental training to understand and use a CES effectively. Initially, a CES should expend nearly all training energies on person-to-person training.

<sup>45</sup> Neighborhood Knowledge  
Los Angeles. *How-To-Kit*.  
[http://nkla.sppsr.ucla.edu/  
Master.cfm?Page=HowToKit/main.cfm  
&Page2=Political.cfm#2](http://nkla.sppsr.ucla.edu/Master.cfm?Page=HowToKit/main.cfm&Page2=Political.cfm#2). Accessed April  
19, 2004.

## 6. Role in Change

Existing systems vary in how active a role they take in trying to affect community change. Table 2, adapted from the NNIP Handbook, provides an example of some of the different organizations that use the CES in Denver to support policy change and/or illuminate and substantiate neighborhood-level challenges. CES users can take information from the system and put it directly to work as Mercy Housing does to target their organization's efforts to areas in the greatest need. Alternatively, stories in the Denver Post do not directly alter policy but can change the way voters and politicians perceive an issue and thereby alter policy direction.<sup>46</sup> These systems may be sorted into the following categories:

- **Passive Outputs**

This is the philosophy behind the National Neighborhood Indicators Partnership. They feel the role of an indicator system is to provide information on as many key indicator areas as possible in an unbiased fashion. "NNIP partners operate very differently from traditional planners and researchers.

<sup>46</sup> Richman, Neal and Yoh Kawano. 2000. *Neighborhood Information is NOT Just for the Experts*. National Housing Institute. <http://www.nhi.org/online/issues/113/richman.html>. Accessed March 3, 2004.

<sup>47</sup> Kingsley, G. Thomas (ed.). 1999. *Building and Operating Neighborhood Indicator Systems: A Guidebook*. National Neighborhood Indicators Project – The Urban Institute. <http://www.urban.org/nnip/pdf/guidebk.pdf>. p. 62-66. Accessed March 28, 2004.

**Table 2**

The Piton Data Initiative: Users and Purposes

User	Data	Purpose
Boys and Girls Clubs of Denver	Indicators of high-risk youth (e.g., teen pregnancy, poverty, single parenting, juvenile arrests) geographically mapped	Select site for expansion clubs
Mercy Housing	Poverty and associated characteristics by neighborhood	Target housing support strategies
Knapp Elementary School	Indicators of population, income, labor force, and educational attainment	Plans for involving parents and for community in school neighborhoods served by school
Denver Parks and Recreation	Violent crime and violent death data by neighborhood	Program development and geographic targeting
Colorado Department of Health	Labor force and disability data	Program development
Denver Post	Teen pregnancy; labor and employment; income and poverty; juvenile crime	Various news stories
Safe City Summit	Neighborhood crime and poverty data	Planning for grant distribution of city violence prevention money

Source: National Neighborhood Indicators Partnership <sup>47</sup>

Table 2: Illustrates the diverse users and uses of the Denver system.

Their theme is democratizing information. They concentrate on facilitating the direct practical use of data by city and community leaders, rather than preparing independent research reports on their own.<sup>48</sup>

**Pro:**

- This “agnostic” approach offends virtually no one and may allow the system administrators to obtain data from the most sources.

**Con:**

- This approach relies more heavily on partner initiative to accomplish change, and may draw criticism for appearing unwilling to engage in community improvement.

- **Quasi-Activist**

These systems seek to serve the needs of underserved communities while gathering and sharing data for the entire city. Detroit institutions and coalitions such as SEMCOG might adapt a program like Portland’s Multnomah Progress Board, which tracks various benchmarks at the county level (e.g. per capita income, average annual wages, jobs, unemployment, export activity of business, air traffic).<sup>49</sup>

A basic function of the CES involves improving the profile of existing efforts to measure health of neighborhoods. The Success Measures Project (SMP), coordinated nationally by the Boston-based Development Leadership Network currently tracks community-based organization (CBO) performance as well as public perception of that performance within urban areas. Since the audiences for both CES information and SMP data overlap to a certain extent, potential for integration exists between the SMP and a CES.

**Pro:**

- These systems have the potential to help identify the needs of under-served communities and empower them to achieve positive change.
- Allows an area to recognize change over time rather than base evaluations on abstract goals.
- Allows for an ideal vehicle for the publication of SMP results through an on-line CES, supplemented by community outreach efforts.
- Provides the CES with a ready-made functionality: a reason for users to upload data in a standardized format, a community-

<sup>48</sup> National Neighborhood Indicators Partnership. *The NNIP Concept*. <http://www.urban.org/nnip/concept.html>. Accessed April 19, 2004.

<sup>49</sup> City of Portland, Oregon. *Auditor’s Office: Benchmarks about the Economy*. <http://www.portlandonline.com/auditor/index.cfm?c=27359>. Accessed February 10, 2004.

generated collection of neighborhood information, and a forum for public display of local knowledge.<sup>50</sup>

- CES helps promote these initiatives through partnering with established community development initiatives, and also experienced users obtain benefits of their own as this coordination takes place.

**Con:**

- This approach is resource-intensive as the time investment necessary to establish relationships with community leaders, build trust, identify issues, and then move to address the existing problems is significant.

- **Activist**

The West Oakland system is an example of an activist approach. The system has a narrow geographic and thematic focus. Their goal is explicitly to right a wrong (environmental injustice) perpetrated on a poorer community.

**Pro:**

- These systems have a narrow focus, and therefore can have a bigger impact within their service area.

**Con:**

- Narrow focus can limit funding sources and supporters.
- These systems can be under-funded and seen as tools of a single view/agenda.

**Conclusion:**

An Activist approach to neighborhood change can be seen as too radical and might make some data providers less willing to share data. The Passive approach ignores the substantial challenges faced by some Detroit neighborhoods and at best is hard to achieve and at worst does not fully describe neighborhood situations.

## Recommendations for a Detroit CES

A Community Empowerment System engineered to empower Detroit's communities should emphasize the functions described below. These functions emerged from the above list of considerations and conversations with the project partners. Figure 8 demonstrates the flow of a CES and the various options this plan recommends.

<sup>50</sup> Community Development Advocates of Detroit. *Development: Platform 2001-2002*. <http://www.cdadonline.org/ace/index.asp?id=194>. Accessed April 15, 2004.

### Reporting

Detroit’s system should provide both fixed and flexible reports and make them available both on paper and via the Internet. By providing reports in multiple formats and in multiple media, the CES will be usable by a range of users from the beginner to the advanced. Figure 9 displays an example of a fixed report from a demonstration Detroit CES using the Springwells neighborhood.

**Figure 8**

A User’s Guide to the Model Detroit CES

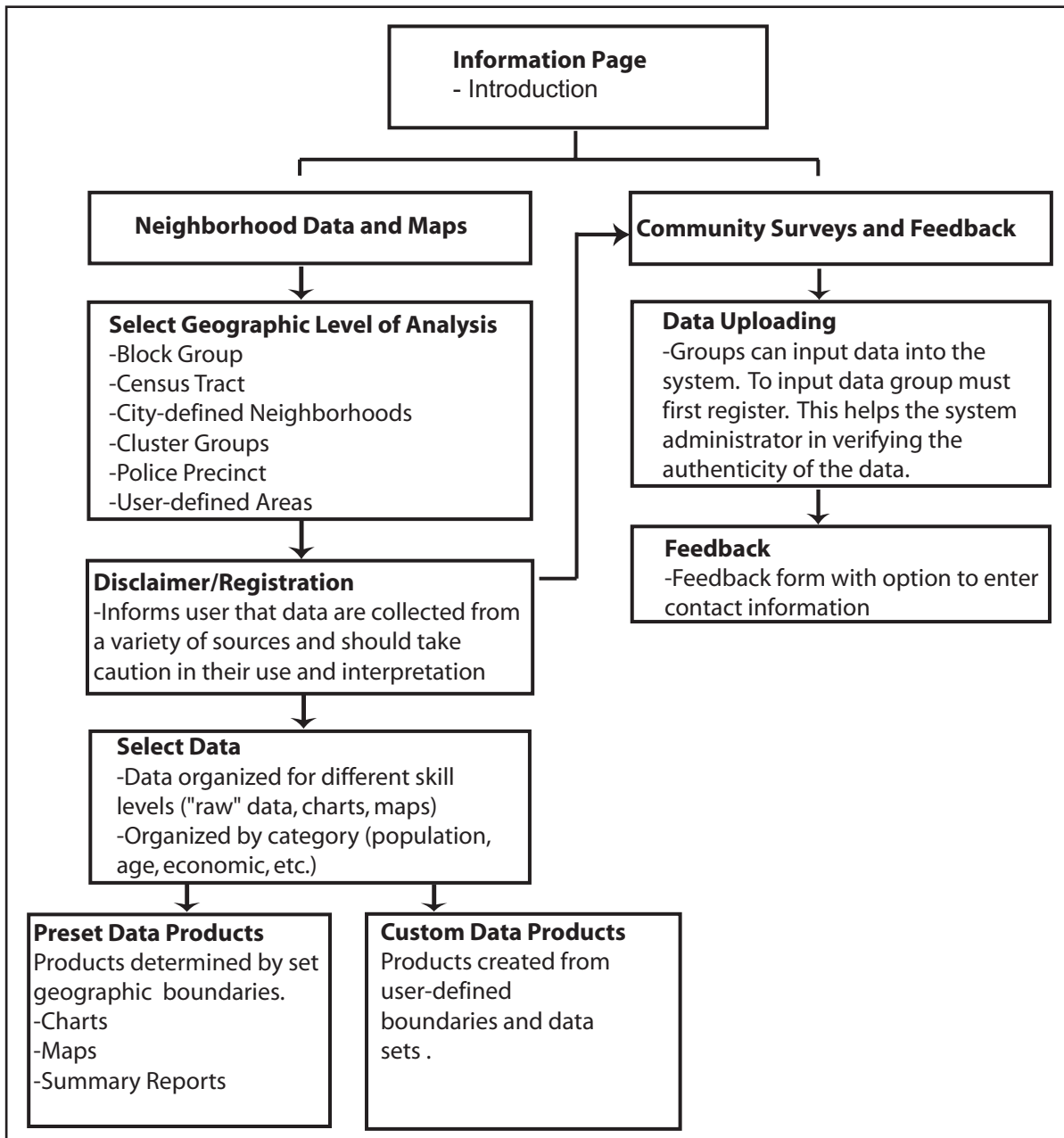


Figure 8: Flowchart illustrating the structure and functions of a Community Empowerment System.

**Figure 9**

## Sample Detroit CES Neighborhood Profile (Fixed Report)

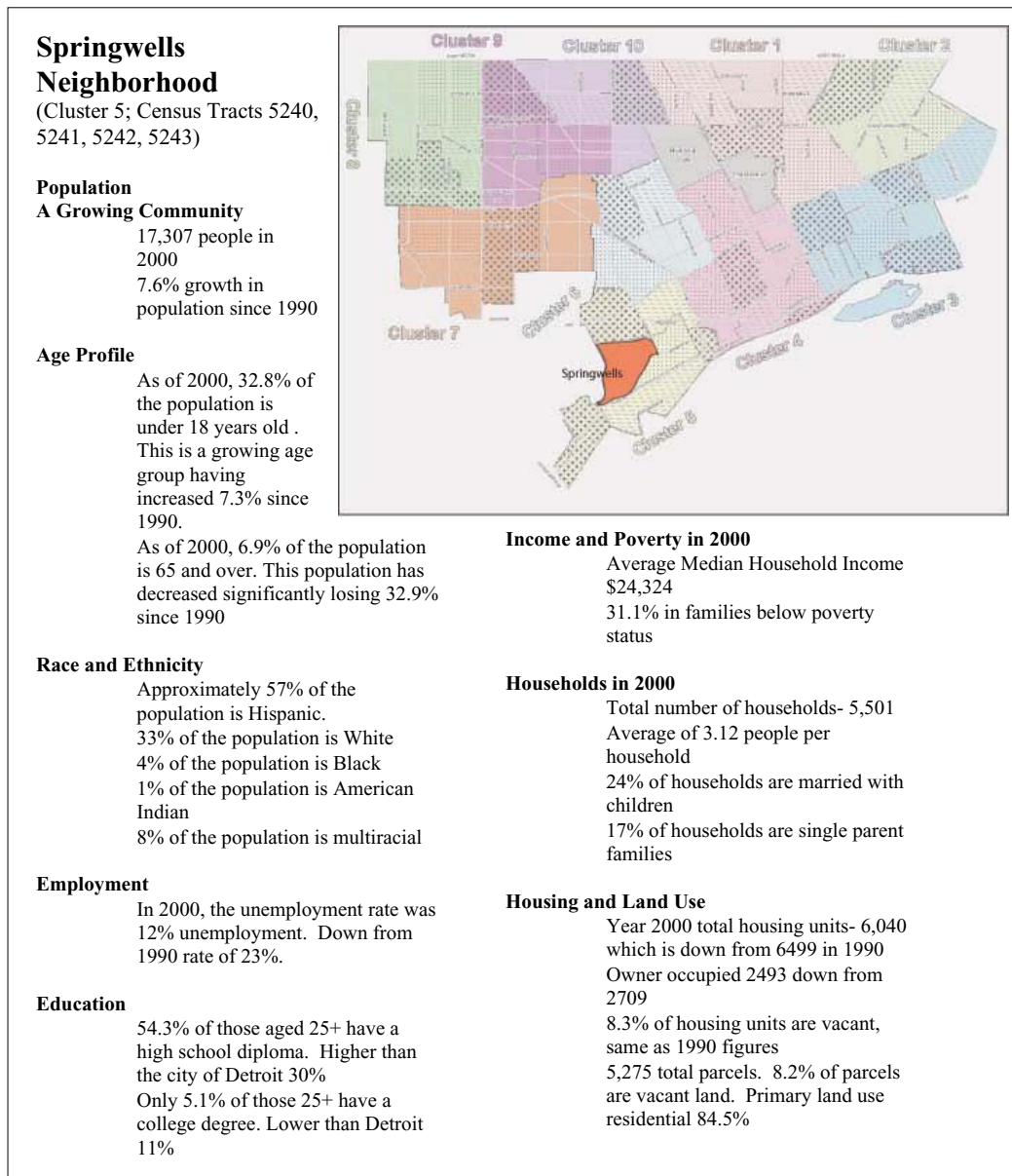
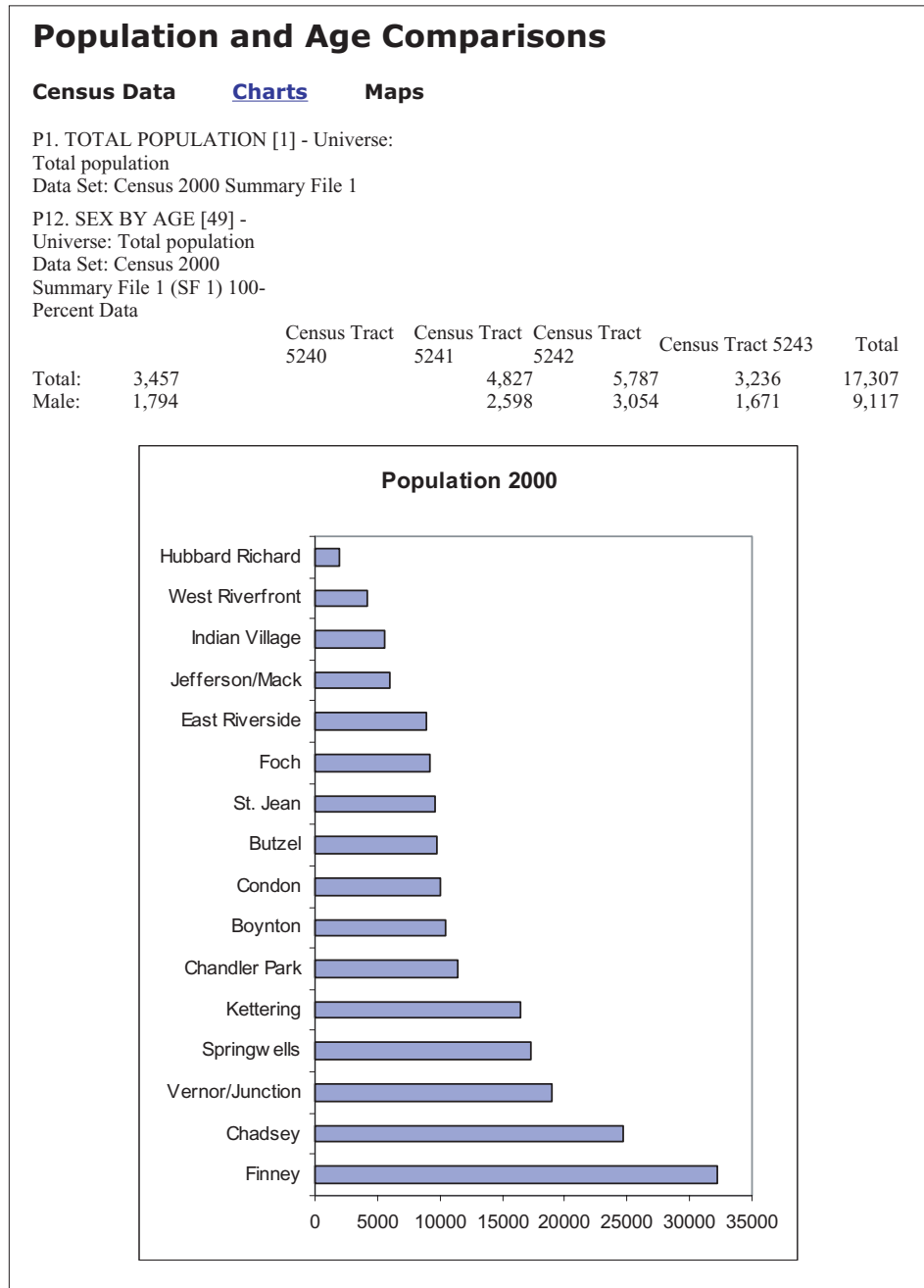
Map Source: City of Detroit Planning & Development <sup>51</sup>

Figure 9: Sample fixed report for the Springwells neighborhood in Detroit.

<sup>51</sup> City of Detroit Planning & Development Department. *Neighborhood Area Map by Cluster*. <http://www.ci.detroit.mi.us/plandev/advplanning/cinfo/inter/Census/NeighAreaMap.htm>. Accessed April 26, 2004.

**Figure 10**

Excerpt from a Sample Detroit CES Flexible Report



Data Source: U.S. Census 2000 <sup>52</sup>

Figure 10: Sample flexible report comparing population across Detroit neighborhoods.

<sup>52</sup> U.S. Census Bureau. *Summary File 1*.  
<http://www.census.gov/Press-Release/www/2001/sumfile1.html>. Accessed April 26, 2004.

Figure 10 displays an example of a flexible report using population data and highlighting the Springwells neighborhood.

## User Registration

The proposed CES component assumes a registration process to collect information on who is using the system and for what purposes. Requiring CES users seeking customized information to register with the CES authority serves two principal purposes:

1. Efficiently provide user and use information to system administration.
2. Ensure that users agree to a data use agreement.

A straightforward registration process is more likely to have users willing to register, especially new users. A clear description of what the registration process is, why it exists, and a person to contact in case of questions or problems is essential.

The rationale for a data use agreement is informed by state law. Section 3 of Michigan's Enhanced Access to Public Records Act<sup>53</sup> requires that an organization adopt an "enhanced access policy" in compliance with the Act before allowing members of the general public to access public records. The provisions of this enhanced access policy that have legal implications for the user can be made explicit as a part of user registration.

## Data Acquisition and Management

The selection and acquisition of data when assembling a neighborhood indicator system rely initially on what data are available. City agencies have existing databases that contain pertinent information for a CES; these databases can be uploaded to the CES through the system administrator who will then proceed to share the data with the community through the CES website.

As Detroit starts a CES, the focus should begin with crime data, Home Mortgage Disclosure Act data, Detroit Finance Department - Assessments Division data, and census data. With these data, a CES can be established and expanded as new data sources become available. Priorities also need to be set about what data are most important so that an expansion plan exists and can be implemented as data become available. If, for example, a priority is to obtain public health information but none is available, other data sources could be pursued while still working with public health data sources. This enables the CES to build on available data while keeping in mind that other specific sources will need following up.

<sup>53</sup> Enhanced Access to Public Records Act. Michigan Legislature. Act 462 of 1996, § 3 (5) (MCL 15.443). <http://beta.mileg.org/mileg.asp?page=getObject&objName=mcl-Act-462-of-1996>. Accessed March 15, 2004.

**Table 3**Data Providers from Case Study Analyses<sup>54</sup>

Types of Data	Cities that have provided information
Housing conditions -Housing code violations -Demolitions -Vacant and abandoned buildings -Building inspections	Minneapolis; Milwaukee Philadelphia; Miami-Dade County Baltimore; Los Angeles Chicago; Cleveland
Property tax status -Delinquent taxes -Assessed value	Minneapolis; Milwaukee Philadelphia; Los Angeles Chicago; Cleveland
Crime statistics Violent and property crime information	Baltimore; Denver Minneapolis; Milwaukee Cleveland; Portland (city-wide, not local) Miami-Dade; Washington, D.C.
Health statistics -Asthma rates -Blood lead levels for children -Birth rates	Baltimore; West Oakland Boston; Washington, D.C. Cleveland; Milwaukee Denver
Publicly subsidized housing -HUD info -Section 8 -Affordable housing	Cleveland; West Oakland Denver Los Angeles Washington, D.C.
Permits information	Minneapolis; Los Angeles Cleveland; Milwaukee
Public school data -Test scores -Enrollment -Dropout rates -Free school lunch	Baltimore Cleveland Denver Portland
Complaints/requests for city services -Illegal dumping -Abandoned vehicles -Parks maintenance -Rats -Street lights -City services performance	Baltimore (Citistat) Portland (audit services) West Oakland
Utilities Gas/water/electricity shut-offs	Philadelphia Los Angeles
Maps—city-wide parcel layer (GIS)	Philadelphia; Milwaukee Minneapolis

Table 3: A list of commonly-used data in CES across the country.

Many neighborhood indicator systems have worked with city agencies and shared data in order to develop a strong CES. Table 3 lists the most frequently used data sources from our case study cities which can serve as a guide for Detroit in the initial stages of data acquisition. (See also Appendix 1, Part III)

Many potentially interesting and valuable data sources exist already for the neighborhoods of Detroit. The system host should seek out these sources first as the data are likely to be

<sup>54</sup> For a full discussion of these systems and references, see Appendix 1, Part II.

forthcoming and, pursuing data with these sources will also function as outreach. Some examples of existing, relevant data sources are:

- **University of Michigan School of Public Health research and Detroit Health Department**  
Both the city and the University currently track public health issues in Detroit. Sample data are: asthma cases, diesel particulates, and buildings with lead paint.  
Example use: The diesel particulates data could support neighborhood organizations lobbying efforts against the Detroit Intermodal Freight Terminal.
- **Southeast Michigan Council of Governments (SEMCOG) data**  
SEMCOG gathers a great deal of data about transportation within the region. Sample data are: accident locations, traffic volumes, and aerial photographs of the region.  
Example use: By placing data about traffic volumes on a CES, users would have concrete numbers to use in efforts to lure retail development.
- **Success Measures Project**  
Community Development Advocates of Detroit (CDAD) helps selected CBO construct surveys of citizens within CBO service areas. An example of data collected might include neighborhood perception of CBO effectiveness. Especially if many CBOs use a common survey template, the data from these surveys could be used to gather, share, and compare information about the results of community development efforts across the city.
- **City of Detroit workflow data**  
Many services provided by the city take several steps from start to finish as they proceed from the initial citations to different city departments to the city council. This includes information taken in through the 311 system and other processes like demolition of dangerous structures, issuing of building code violations, sales of tax delinquent property, and street light repair  
Example use: By making that information available through the CES, the city would field fewer service calls on the same issue and community groups could take steps to work with city departments to improve neighborhoods.
- **Community Reinvestment Strategy**  
In 1997, community-based organizations across Detroit conducted surveys ranking condition of block faces in

commercial districts. Example use: With access to these data and the ability to upload new results, CBOs could periodically track the status of commercial district change.

- **Student Research Projects**

University students from Wayne State University, the University of Michigan, and Michigan State University in Urban and Regional Planning, Social Work, Business, Law, Public Policy and other fields generate many reports on Detroit neighborhoods each year that involve data acquisition and the development of data collection tools. A CES would allow these reports and the data behind them to be easily accessed and used over time.

## Data Uploading

*A CES should allow Detroit community members to upload data to help improve the statistical picture of their neighborhoods.*

In addition to making currently available data more accessible, a CES should allow Detroit community members to upload data. Uploading information serves an outreach function by inviting community members to help improve the statistical picture of their neighborhood. Filtering the flow of this information through a registration process helps the data intermediary establish relationships with community data providers and establish accountability for the data. Users should be able to submit data from a template to create a more unified data source by following a similar process as when data are uploaded by the system administrator into the data warehouse.

System administrators can provide these templates to facilitate data uploading. The templates might be made available online for the kinds of data collection that community-based organizations often undertake, including: forms and instructions for collecting data on housing conditions; vacant lot conditions; conditions of buildings in commercial districts; conditions of blocks in commercial districts; and, conditions facing pedestrians in commercial districts. The administrators can develop and add new forms and instructions as new needs arise. If numerous community organizations use the same collection methods, the data will be more comparable and therefore more useful.

Such efforts have been helpful in the past. In the late 1990s, the Detroit Community Outreach Partnership Center, a partnership of University of Michigan, Michigan State University, and Wayne State University with community-based organizations across the city, began to establish standard forms for their students to use in collecting data on housing conditions in different neighborhoods. This resulted in comparable data in several parts of the city. Also, in their 2002 plan, the Gateway

Collaborative adopted a common system for housing conditions assessment that numerous nonprofit organizations distributed to volunteers who collected the information. The result was a map of housing conditions across a large area of Southwest Detroit.<sup>55</sup>

Between existing data and system resources, Detroit has numerous assets with which a system host could acquire and maintain CES data effectively. Along with building a good set of data, strong outreach and feedback efforts must be undertaken as well.

## **Feedback, Outreach and Collaboration**

A significant role of the system administrator is to facilitate conversation among users (both potential and current), data providers, students, and researchers in order to establish lines of communication and collaboration. The Detroit CES administrator could start by holding information sessions and monthly meetings with potential users and data providers. This would help identify who is interested in the neighborhood indicator system and what needs are to be met for each organization. This is also an excellent time to address issues of concern regarding data sharing for data providers.

In order to be widely accepted by users and to ensure a broad user base, the Detroit CES must be as open as possible to a variety of feedback mechanisms. In addition, an effective outreach process will start off system development on a strong foundation and will ensure that the CES stays relevant over time. Because web feedback, traffic monitoring and person-to-person meetings all serve different functions for the CES, all are recommended for Detroit. Several organizations in Detroit could support system development and revision.

- **Community Development Advocates of Detroit (CDAD)**  
By reaching out to CDAD, a Detroit CES system host can quickly tap into a strong network of community-based organizations. By getting CDAD members to support the CES, a system host will have more power to pull data from reluctant sources.
- **City Connect Detroit**  
This organization seeks to “improve collaboration among members of the public sector” and “increase access to federal and national funding resources.”<sup>56</sup>
- **Community-based data checking**  
Ensuring that public information is easily accessible

<sup>55</sup> SmithGroup JJR, Inc. 2002. *Gateway Communities Development Collaborative: Land Use and Transportation Plan*. Ann Arbor, MI.

<sup>56</sup> City Connect. *About Us*. <http://www.cityconnectdetroit.org/About.aspx>. Accessed April 22, 2004.

and providing mechanisms to accept user feedback will allow neighborhood data sources to quickly, easily and systematically identify data inaccuracies and correct them.

Again, the CES will enhance Detroit's existing outreach activities and community involvement to expand the use of the CES and improve the quality of the data within the system.

## User Training

This is a crucial aspect of system development in Detroit. If a CES is to be useful for a broad range of users, user training will be a central part of the CES. By ramping up users, the system host will make valuable data accessible to the least savvy users. In addition, even higher end users will be able to get more out of the CES as a result of periodic training sessions. Two organizations that currently provide training for CBOs could provide the CES training function. They are:

*User training will be a central part of the Detroit CES.*

- **Community Advocates of Detroit**  
CDAD seeks to build capacity within Detroit CBOs by offering training. For example, recently CDAD “offer(ed) training to member organizations and others in the development field (including) organizational development training and follow-up technical assistance in the areas of Legal Issues, Financial Management, and Business Planning.”<sup>57</sup> CDAD has the systems in place to train potential users on how to use a CES.
- **Local Initiatives Support Corporation (LISC)**  
Among other things, LISC Detroit seeks to provide “education for the young and old” of the city.<sup>58</sup>

A system host would need to work with either CDAD, LISC, or both to design and plan a training system, but either of them could provide significant expertise to speed up the development process.

## Role in Community Change

The role of any CES in community change varies depending on the level of activism that a system embraces. Detroit will be well served by adopting the quasi-activist philosophy. Through this recommendation, Detroit should establish a benchmarking program where goals are set based on existing neighborhood conditions. Systems initially identify community assets and weaknesses in order to identify issues to address through the benchmark system.

<sup>57</sup> Community Advocates of Detroit – CDAD. *About Us*. <http://www.cdadonline.org/ace/index.asp?id=192>. Accessed April 22, 2004.

<sup>58</sup> LISC Detroit. *About Us*. [http://www.liscnet.org/detroit/about\\_us/index.shtml](http://www.liscnet.org/detroit/about_us/index.shtml). Accessed April 22, 2004.

**Assets:**

An example of an asset that could be captured is block clubs. These groups can function as social and community hubs of information and resource sharing. They are not tracked by any administrative agency (they have no business license or legal status). However, they might be useful for a CBO to track because their presence identifies local groups who contribute to the local community. A survey of local citizens might identify these groups and then post those data to the CES where the data could be used by voter registration activists or senior citizen activist groups, for example.

**Deficits:**

Administrative data cannot track certain community assets. They may also fail to demonstrate some community deficits due to either the nature of the problem or resource limitations of administrative agencies that are tasked with tracking such deficits. For example, illegal dumping is a problem in Southwest Detroit. It degrades the physical appearance of the area and can cause health risks. The City of Detroit Department of Public Works is officially tasked with clean-up of illegal dumping sites. However, due to funding and staffing limitations, they cannot keep track of or clean up all dumping in the city. A CES would allow neighborhood activists to map all of the illegal dumping sites within their area of interest. Once posted to the CES, the local problem will attract attention that would potentially spur a timely and efficient response from the city. Public and media pressure from organized groups like SDBA should use CES data to ensure corrective action. In order for responses to have an impact on the prevention of illegal dumping, community leaders and organizations need to be aware of this aspect of the CES and apply it to their goals and actions. Again, outreach and training are necessary for the CES to serve the community.

## **Phasing the Development of a Detroit CES**

The CES is a living system, and its managers will need to engage users and data providers to keep information updated and outputs from the system fresh. The timing of system development can be considered in three phases. The time required to move from one phase to the next in Detroit will vary depending on resource availability and support the system receives from users.

## Near Term

- **User-Oriented:** The process of developing an effective CES with widespread user support and constructing a truly community-based system originates in meetings with various stakeholder groups. Initially, meetings should engage representatives from several of these anticipated constituencies: community-based organizations, administrative data sources, and governmental department.

The first meeting would introduce the CES, perhaps using a system from another city as a demonstration of the power of such a system. Here, some discussion of success stories from other cities would also be useful to build excitement and support for the CES. In the case of the Chicago Area Housing system, this phase was running concurrently with system development and data collection for over one year.<sup>59</sup> Engaging users and data providers early in the system development process helps insure broad support from the outset. Moreover, as various entities come together around one table to work on the CES, other opportunities for collaboration may present themselves and could be capitalized upon.

- **Data-Oriented:** Regarding the assembly and organization of the initial database to which the CES provides access, immediate efforts should concentrate on organizing data gathered for EDS purposes and coordinating current information resources. With respect to the former priority, an ongoing procedure of cleaning datasets gathered for the EDS model—which includes the provision of appropriate metadata—should be instituted to maximize their utility for system users.

Coordination of existing information resources can take place in multiple ways, depending on the function of each resource. Projects such as the “Taking Stock of Neighborhoods” initiative at Wayne State University<sup>60</sup> and City Connect Detroit<sup>61</sup> already collect and organize a substantial amount of information about Detroit’s neighborhoods. For function-specific systems such as City Connect Detroit, a Detroit CES could at the very least act as another access point (i.e. users can link to existing databases from the CES).

## Middle Term

- **User-Oriented:** Once an initial CES provides access

<sup>59</sup> Sanders, Greg. Northeastern Illinois Planning Commission. Personal Interview. February 25, 2004.

<sup>60</sup> Urban Safety Program, College of Urban, Labor and Metropolitan Affairs, Wayne State University; <http://maps.culma.wayne.edu>. Accessed April 13, 2004.

<sup>61</sup> CityConnect. *About CityConnect*. <http://www.cityconnectdetroit.com>. Accessed April 12, 2004.

to information in the data warehouse, the outreach component of system development becomes even more important. For many users, the initial implementation of a Detroit system will reveal its possibilities and weaknesses. For this reason, system managers should respond quickly to user input. Their support will validate the existence of the CES. For example, Gasworks (a quasi-public utilities company) provided data to the Philadelphia NIS in 1999, and then refused to provide the data in subsequent years. The system has since become more successful and is receiving positive attention throughout the city, and Gasworks is now reconsidering providing data.<sup>62</sup> In the same way, a full-scale system will change the goals of the outreach effort and types of feedback received. As users react to the system, outreach shifts from a marketing function to a response to specific concerns.

- **Data-Oriented:** At this phase of the system, include the data uploading functionality of the system if demanded by users. The system will include a broader set of data by this time, based on feedback from users and increasing levels of participation from data sources.

## Long Term

- **User-Oriented:** Despite best outreach efforts, there will always be a user who needs training or outreach to get more out of the system. The outreach component of the CES must remain a central function even after many organizations have begun using it.
- **Data-Oriented:** This area would continue to expand as demand for data among users is effectively infinite. Here too, a system must continue to add information as long as users request it.

A phased approach allows the system to anticipate and respond to changing conditions, user demand. The system can only grow as fast as more money becomes available, more users and data providers engage with the system and technical capacity can support the growth.

## Conclusion

A CES can serve two major functions if developed properly. It can make data about Detroit available to many users with a focus on the community level. In doing so, it can facilitate data collection, aid in the identification of areas of concern or

*A CES can serve to provide a deeper understanding of assets or deficits in neighborhoods, especially when they are indicated by an Early Detection System.*

<sup>62</sup> Breuer, Bradley. Philadelphia Cartographic Modeling Lab. Phone interview. February 12, 2004.

opportunity in Detroit neighborhoods and track trends. Secondly, the CES can facilitate cooperation among various entities which will produce other benefits that are difficult to predict. The key to realizing both of these benefits is strong engagement by the system intermediary with current and potential users. If those users feel vested in a CES, they will provide input and underlying data that will make the system strong and provide better information on communities. As a bonus, the stronger the participation, the more other entities will want to participate. In this way, the CES has the potential to foster ongoing collaboration among users.

Backed by a data warehouse, the Community Empowerment System encompasses all activities that involve bridging gaps between “raw” neighborhood information and community members. It can serve to provide a deeper understand of assets or deficits in neighborhoods, especially when they are indicated by an Early Detection System. The section that follows explains considerations for establishing the final piece of the Detroit Neighborhood Indicator System, the EDS.



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# Early Detection System

## Introduction

The data warehouse and the Community Empowerment System previously described provide a large amount of quality data about the health of neighborhoods and put the power of that data in the hands of users, whether community organizations, government workers or researchers. This, the third part of Detroit's Neighborhood Indicators System, provides a way to identify trends citywide using a small amount of carefully selected data.

The goal of the Early Detection System is to identify the conditions of specific neighborhoods within the city—whether the neighborhoods are suffering from blight or enjoying growth and success—as a way to focus the attention of community-based organizations, government policy-makers and others. The EDS, for example, addresses the desire of the city of Detroit P&DD to identify blighted areas as a way to inform decisions about where resources should be directed. It could also help community-based organizations identify successful areas as a first step in understanding and building on that success.

This Early Detection System section is divided into two parts:

- **Part I: How to Build an EDS**  
This defines an Early Detection System and explains what steps an organization could go through to build a quality system
- **Part II: A Pilot EDS**  
This provides a sample EDS built using the process outlined in Part I and illustrates the problems and potential of such a system. This section illustrates the type of output an organization may see from an EDS. Technical details are included in appendices for users who want an in-depth look at the pilot system.

## Part I: How to Build an EDS

### Definition and Background

Early detection systems, often called early warning systems, are data-driven information analysis tools designed to provide insight into the health of neighborhoods. Neighborhood health can be defined as the overall quality of life in an area. Factors considered in the analysis of neighborhood health may include social connectedness, housing stock quality, economic strength and public safety.

Organizations around the country use early detection systems to identify potential areas of concern or opportunity. Those groups include community-based organizations, politicians, government employees, real estate developers and researchers. Web-based systems, such as one used by Neighborhood Knowledge Los Angeles, use indicators as warning signs of neighborhood decay.<sup>63</sup> Systems used in many cities, though, do not provide a clear early warning of neighborhood decline because they provide neighborhood data that describe rather than predict. Chicago's City News Chicago, for example, provides data on building code violations and vacant lots without interpreting what those numbers might mean for a neighborhood.<sup>64</sup>

This EDS plan for Detroit differs from other systems by:

- Focusing on predicting both negative and positive neighborhood conditions, which is why the word “detection” rather than “warning” is used in its title.
- Providing predictive power to help policy-makers and others making key decisions know where to focus attention or resources.

This approach builds upon previous research and analyses to create a predictive detection model. A small pool of strong, representative indicators can create a predictive detection model as the basis for many early detection systems.<sup>65</sup> Reviewing trends through analyzing time-series data also adds to the predictive capabilities of an early detection system.<sup>66</sup>

The EDS system will allow P&DD, neighborhood organizations and other actors to observe change in neighborhood conditions and assumes that decision-makers will use other methods (such as the Community Empowerment System) to gain a greater understanding of the situation in the neighborhood. It also assumes that people can take action that will prevent decline or

<sup>63</sup> Neighborhood Knowledge Los Angeles. <http://nkla.sppsr.ucla.edu>. Accessed January 25, 2004.

<sup>64</sup> City News Chicago. <http://www.newschicago.org/>. Accessed January 23, 2004.

<sup>65</sup> Galster, George, Chris Hayes, and Jennifer Johnson. 2004. *Identifying Robust, Parsimonious Neighborhood Indicators*. Working Paper.

<sup>66</sup> Temkin, Kenneth and William Rohe. 1998. *Social Capital and Neighborhood Stability*. Housing Policy Debate. Vol. 9 Issue 1.

encourage neighborhood success.

This plan outlines methods to construct an EDS and provides recommendations for the future development of a Detroit system. The sections below define indicators and then outline the steps that must be taken to construct a neighborhood indicator system.

### Indicators Defined

This section explains three types of indicators and how they can work together as part of Detroit’s Early Detection System. The three types of indicators, which provide the foundation for the EDS are *supporting* indicators, *leading* indicators and *key* indicators. These indicators lay the foundation of a well-designed indicator system. (See Table 4).

One can collect several leading and/or supporting indicators and construct a model that speaks to key aspects of the health of neighborhoods. Table 5 provides sample key, leading and supporting indicators. In this plan, key indicators of blight

<sup>67</sup> Galster, George, Chris Hayes, and Jennifer Johnson. 2004. *Identifying Robust, Parsimonious Neighborhood Indicators*. Urban Institute. Working Paper.

**Table 4**  
Types of Indicators

Indicator type	Description	Function	Example <sup>67</sup>
<b>Supporting</b>	These indicators are made up of directly measurable data.	To provide a foundation of data on which to build an EDS.	Education level attained.
<b>Leading</b>	These indicators seek to predict the future value of a key indicator. These indicators are, in essence, supporting indicators that best predict the key indicator. Leading indicators are determined by analyzing the relationship between supporting indicators.	To provide a predictive indicator that effectively represents a number of supporting indicators. Identifying leading indicators can produce an analytical tool while avoiding possible confusion caused by using a large number of indicators.	The number of home mortgage loan applications.
<b>Key</b>	These indicators support judgments about certain aspects of the future condition of a neighborhood. Key indicators are not directly measurable but provide a general category for a neighborhood characteristic. Key indicators are made up of supporting and leading indicators.	To allow observation of changes in a neighborhood, and raise awareness of the assets/growth and potential problems so that they can be addressed accordingly.	Housing Type & Tenure

**Table 5**

## Sample Supporting and Leading Indicators Listed by Key Indicator

Sample Key Indicators of Neighborhood Conditions <sup>68</sup>	Rationale	Commonly Used Leading Indicators <sup>69</sup>	Commonly Used Supporting Indicators <sup>70</sup>
<b>Social Disadvantage</b>	Social disadvantage accounts for the influence of unfavorable social or cultural conditions.	Mortgage approval rate	Teen birthrates
<b>Status</b>	Status accounts for status of an individual, household or neighborhood.	Mortgage approval rate	Educational attainment Median home values
<b>Business and Employment</b>	Business and Employment address the opportunities and services available in an area.	Number of businesses, number of jobs	Sales tax revenues per capita Unemployment rate
<b>Housing Type and Tenure</b>	Housing Type and Tenure address the feasibility and stability of residency.	Mortgage loan applications	Physical structure conditions
<b>Crime</b>	Crime accounts for the influence of perception and safety.	Mortgage loan applications and approval rate	Violent crime per capita
<b>Housing Vacancy</b>	Housing Vacancy accounts for land use quality and variation.	Mortgage loan applications and approval rate	Empty residential units per total residential units Empty lots per total residential lots
<b>Place Attachment<sup>71</sup></b>	Place attachment addresses the psychological relationship between social and physical components of a neighborhood. High levels of attachment may mitigate the effects of otherwise disadvantageous physical factors.	Home ownership rates <sup>72</sup>	Years in residence Vacancy rates <sup>73</sup>
<b>Social Capital<sup>74</sup></b>	Social capital accounts for the resources associated with connections among individuals, resident involvement, social networks, trust, and mutual benefits.	Institutional infrastructure (such as schools, churches), social and cultural environments (the support institutions may provide) <sup>75</sup>	Home value Percentage of family households Vacancy rates <sup>76</sup>

<sup>68 - 70</sup> Galster, George, Chris Hayes, and Jennifer Johnson. 2004. *Identifying Robust, Parsimonious Neighborhood Indicators*. Urban Institute. Working Paper.

<sup>71-73</sup> Brown, B. et al. 2003. *Place attachment in a revitalizing neighborhood: Individual and block level of analysis*. Journal of Environmental Psychology 23. p. 259-271.

<sup>74-76</sup> Temkin, Kenneth and William Rohe. 1998. *Social Capital and Neighborhood Stability*. Housing Policy Debate Fannie Mae Foundation. Vol. 9 Issue 1.

and physical improvement are examined. These are social disadvantage, housing type and tenure, and status, which are evaluated more in depth later in the plan.

## Methods for Developing an EDS

Developing an EDS is a multi-step process. After gathering the appropriate data, spatial and statistical tests can help describe the relationships among indicators and judge how well the selected indicators measure the neighborhood condition that the system is being asked to detect (e.g. blight or physical improvement). On the following page, Figure 11 demonstrates the flow of the EDS process, which begins with defining the question one is trying to answer with the EDS, then moves on to selecting, collecting, manipulating and testing indicators, and ultimately producing results that identify neighborhoods and their conditions. A more complete explanation of the methods follows the flowchart.

The following methods description follows the flowchart from top to bottom and provides a general roadmap to building an EDS.

- 1. Define the question the system seeks to answer.**  
The indicators selected depend on what the model developers have determined will be the focus for evaluating neighborhood conditions. This focus is critical in developing a system that works to address the users' goals. Based on the priorities of Detroit P&DD and SDBA, the pilot model focuses on gauging physical conditions to show deterioration or revitalization in neighborhoods.
- 2. Develop criteria for how specific indicators will be selected.**  
This step allows users to spell out how indicators will be selected, based on their priorities. Key considerations at this stage are: What makes a good indicator? And, how many should be included in the system? Criteria can narrow the number of potential indicators from a great many to those that are most useful.
- 3. Gather additional data if necessary.**  
Data already in the data warehouse can be used for the EDS. A team building an EDS, though, may find that promising data that fit the indicator selection criteria are not already available in the data warehouse. To the extent possible, "wish-list" data should be sought out and included in model testing.

**Figure 11**

Early Detection System Model: Development and Function

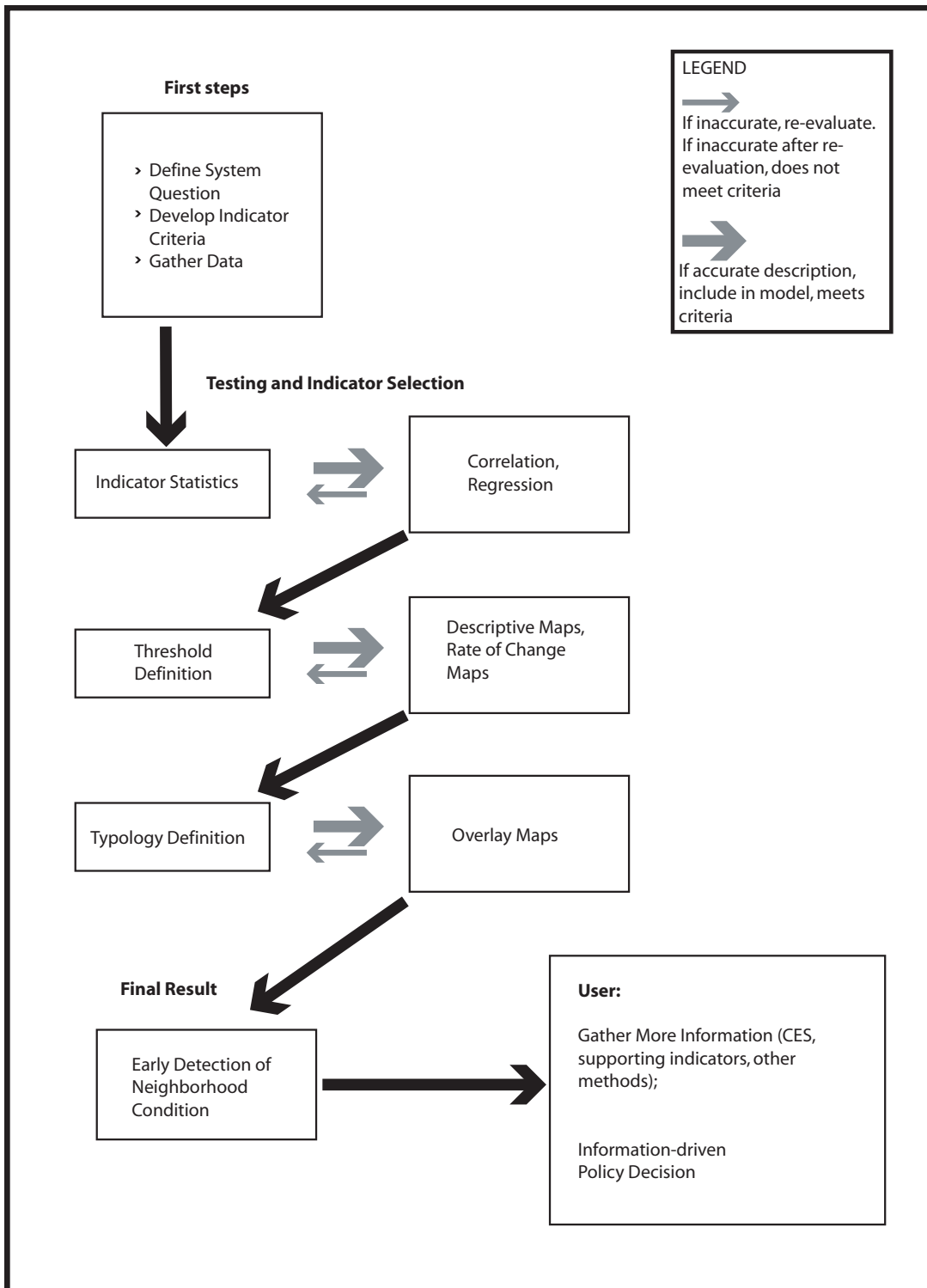


Figure 11: Illustrates the process of developing an EDS.

#### 4. Establish a database.

Once different sets of data have been selected, the numbers require manipulation and organization to be tested or used in the model. This may require the aggregation of parcel-level data<sup>77</sup> to the census-tract level.<sup>78</sup> This might be necessary because some data, such as home mortgage applications or crimes committed, are available at the census-tract level but not at smaller geographic areas, such as by city block or address. This also addresses confidentiality issues, as individual sites cannot be identified at the tract level. However, alternate calculations may provide more meaningful trends or easier comparisons. For example, the percentage of renters in a census tract provides a better comparison among tracts than the total number of renters in a tract. This is because the number of available housing units varies widely among different census tracts. Where tract A might have 50 renters and tract B might have only 20, the percentage of renters in tract B could be higher if it has a smaller number of housing units than tract A.

#### 5. Test the data for use in the EDS.

In the beginning, the relationships among a set of supporting indicators are unclear. A series of statistical and mapping tests provide a way to evaluate the role of each indicator, and how well it meets the criteria already established. The process of testing increases the likelihood that indicators will be useful in describing or predicting changes in neighborhood conditions.

##### a. Analyze the statistical relationships among indicators

Statistical tests help a model developer build relationships among indicators. Testing reveals the degree and direction of these relationships, and is useful in quantifying the relationships that may seem otherwise intuitive to local residents, community organizations, or city officials.

##### 1. Correlation

A correlation analysis measures the strength of the relationship between two indicators, such as home mortgage approval rate and a property's average true cash value for an area. This test gives an EDS development team an idea of not only how much the values between these two indicators are related,

<sup>77</sup> Parcel-level data refers to data collected at the parcel level. Parcels are often considered, "the basic administrative unit of local government" Source: East St. Louis Action Research Project. *Neighborhood Condition Survey*. <http://www.eslarp.uiuc.edu/gis/ncs/training/index99.htm>. Accessed April 13, 2004.

<sup>78</sup> A census tract is a small part of a county containing an average of 4,000 people. Source: U.S. Census Bureau. *Question and Answer Center: What is a Census Tract?* [http://ask.census.gov/cgi-bin/askcensus.cfg/php/enduser/std\\_adp.php?p\\_sid=9yjbEC8h&p\\_lva=&p\\_faqid=245&p\\_created=1077122473&p\\_sp=cF9zcmNoPSZwX2dyaWRzb3J0PSZwX3Jvd19jbnQ9MjAmcF9jYXRfbHZsMT0xJnBfcGFnZT0x&p\\_li=](http://ask.census.gov/cgi-bin/askcensus.cfg/php/enduser/std_adp.php?p_sid=9yjbEC8h&p_lva=&p_faqid=245&p_created=1077122473&p_sp=cF9zcmNoPSZwX2dyaWRzb3J0PSZwX3Jvd19jbnQ9MjAmcF9jYXRfbHZsMT0xJnBfcGFnZT0x&p_li=). Accessed April 5, 2004.

but the direction of this relationship. For example, do average true cash value rates increase or decrease as home mortgage approval rates increase? Identifying the direction of the relationships between indicators is important for understanding how different indicators influence specific neighborhood conditions.

## 2. Regression

A regression analysis is a tool that helps one further understand the relationships between two variables; in particular, how well the presence of one indicator explains the presence of another. In an EDS model, this test measures how well leading indicators predict key indicators. One way of determining which indicators to include in an EDS is to test the relationship between a possible leading indicator (such as median amount of home purchase loans) and all of the supporting indicators that make up a key indicator (property values and education help to make up the key indicator status). Repeating this test over multiple years increases one's confidence in the observed relationships.

*Other data and local knowledge can help explain more fully why neighborhood conditions appear as they do in the EDS.*

The results from such tests do not tell the whole story. They might reveal that neighborhoods that have high values in, for example, mortgage approval rates also have high values in properties' true cash value. However, the tests do not show that one causes the other or explain why their values tend to rise and fall together. Other data and local knowledge, such as that collected for the Community Empowerment System, can help explain more fully why neighborhood conditions appear as they do in the EDS. In addition, as the system developers collect more and new data over many years, the relationships among indicators should be re-evaluated and updated.

Test results also might show that data are not accurately reflecting neighborhood conditions.

For example, residents in some neighborhoods might rely on other forms of capital to finance home purchases rather than bank loans, making home mortgage loan data less useful because comparisons would be difficult between neighborhoods that use banks heavily, and those that do not. In the development of the pilot EDS, Detroit Planning & Development Department and University of Michigan Taubman College of Urban Planning Chair Margaret Dewar and Outreach Coordinator Eric Dueweke provided the local knowledge to begin to validate the findings. The Planning & Development Department also provided input about how various indicators might meet criteria.

**b. Establish thresholds for neighborhood change.**

Thresholds come into play once the model developer has started working with the data in a mapping program. In this context, a general definition of a threshold is: a point at which neighborhood conditions change enough to be considered different. If one crosses the threshold, the pattern on the map is noticeably different. Thresholds must be determined at the beginning stages of map-making in order to create descriptive maps.

"Descriptive" maps display one variable from a single year for one cluster. These maps visually and spatially represent different indicators. They show the values and patterns of distribution associated with each indicator, which offer a basis of comparison of existing conditions across neighborhoods. These patterns should be validated, or checked against local knowledge, to ensure that the chosen thresholds appropriately describe existing conditions. For example, if a map indicates blight in areas that local knowledge indicates are thriving, the thresholds will have to be adjusted. Care should be taken in defining thresholds, as the thresholds established at this stage will be used to predict future changes.

**c. Set neighborhood types by showing different levels of neighborhood change.**

Once thresholds are established, categories

of neighborhood condition can be defined. These categories can be combined to produce neighborhood typologies, or classifications. For example, some areas may be "good physical condition," whereas others could be "vulnerable." These labels describe the quality of an area, based on the selected indicators.

With mapping programs, using geographic information system (GIS) technology, different sets of data can be combined to show more than one single indicator could show by itself. For example, crime rates or mortgage loan approval rates from one year can be combined to provide a snapshot describing particular areas. Using the thresholds already established, mapping programs can show which areas fall above or below more than one threshold. For example, a map could show areas with high levels of crime and low mortgage approval rates results.

This kind of neighborhood classification helps EDS users identify neighborhoods that require action or further study. The map produced from this step is the basis of the final EDS map, described below.

**d. Combine different indicators to produce a comprehensive typology.<sup>79</sup>**

In addition to showing a snapshot of the condition of neighborhoods, the EDS model should account for how each indicator changes over time. Such information allows EDS users to get a sense of the neighborhood areas where, for instance, crime and mortgage approval rates have increased, decreased or remained the same. By combining single-year and multi-year views of a specific indicator, the EDS application provides a historical perspective of where a neighborhood has been and also shows EDS users where a neighborhood may be headed. This "predictive" map accounts for a combination of indicators and more than one year of data. In this pilot EDS, the absence or presence of blight is predicted by the combination of all leading indicators, not just one. Because each map showing categories of neighborhoods and prediction shows only

<sup>79</sup> For an in-depth discussion about neighborhood typology, consult Brower, Sidney. 1996. *Good Neighborhoods*. Westport, CT.

those tracts that meet all conditions, not all areas will be highlighted on the final map. In addition, weighting variables within the model should be considered. By establishing a priority system and giving more value to indicators that play a more significant role in identifying neighborhood strength or decline, the model can provide a more accurate output.

**e. Produce multiple outputs.**

To generate meaningful analysis for the city, the EDS should produce a variety of outputs such as maps and summary spreadsheets that allow users to compare different areas of the city. Representing indicator information in different formats enables users to see the results from more than one perspective.

After these EDS methods are followed, the next step is for users to look at neighborhoods identified and decide the policy implications of those classifications. If a neighborhood is identified as blighted, for example, actors such as government agencies or community-based organizations could decide to collect more information (such as from the Community Empowerment System) and decide whether more resources should be directed toward that area.

This methods section described how to build an Early Detection System, from figuring out which question the system seeks to answer, to testing, to producing results that identify different types of neighborhoods. The next section describes how this plan followed the steps described above.

## **Part II: EDS Methods Applied**

This plan was completed with the city of Detroit's P&DD and Detroit's community-based organizations in mind and this section shows how an early detection system can be created for use locally. It describes in general how the pilot EDS was created and is intended for a lay audience that wants to understand the methods more fully. A technical explanation of how the pilot EDS was completed can be found in the appendices referenced throughout this section, and can be used by those who wish to develop a quality EDS for Detroit.

This section will follow the organization in Part I, "Methods for Developing an EDS" above. The steps below describe how an

Early Detection System for changes in physical condition within Detroit's neighborhoods was constructed. By following the steps as described below and making different decisions, any sort of Early Detection System could be built by a system host.

## Define the Question

The question for the pilot developed from discussions with the Detroit's P&DD and SDBA. The P&DD requested an early detection system that would identify areas that were blighted or in danger of being blighted. This would help provide focus for new or continued revitalization efforts and programs. SDBA requested that neighborhood assets and progress be easily identifiable. Neighborhoods could then use that information to attract additional investment. These objectives led to the pilot EDS having the ability to identify both declining and improving physical conditions in neighborhoods. Defining the question helped focus the pilot EDS on certain key indicators (status and housing type and tenure) and clarified which data should be used to address questions about blight and neighborhood success.

## Develop Indicator Selection Criteria

The pilot EDS established criteria with which to choose leading indicators that predict neighborhood conditions. The criteria were chosen to select sound indicators that can compare neighborhoods. Table 6 shows criteria used in the pilot EDS. Ideas and explanations for selecting leading indicators have been modified from the following sources:

- Brown, B. et al. 2003. *Place attachment in a revitalizing neighborhood: Individual and block level of analysis*. Journal of Environmental Psychology 23. p. 259-271.
- Galster, George, Chris Hayes, and Jennifer Johnson. 2004. *Identifying Robust, Parsimonious Neighborhood Indicators*. Urban Institute. Working Paper.
- International Institute for Sustainable Development. *General Criteria for the Selection of Performance Indicators in the Context of Sustainable Development* <http://www.iisd.org/casl/CASLGuide/Criteria.htm>. Accessed February 10, 2004.
- Kingsley, G. Thomas, (ed). 1999. *Building and Operating Neighborhood Indicator Systems: A Guidebook*. National Neighborhood Indicators Partnership.
- United Nations Human Settlements Programme. *Global Urban Observatory Toolkit*. p. 7. [http://www.unchs.org/programmes/guo/guo\\_guide.asp](http://www.unchs.org/programmes/guo/guo_guide.asp) Accessed February 21, 2004.
- Sociology Central. *Reliability*. <http://www.sociology.org.uk/p1mc5n1a.htm>. Accessed February 10, 2004.
- Taylor, Ralph B. 2001. *Breaking Away from Broken Windows: Baltimore Neighborhoods and the Nationwide Fight against Crime, Grime, Fear, and Decline*. Boulder, Colo.: Westview Press.

**Table 6**  
Criteria for Selecting Leading Indicators (in alphabetical order)

Criteria	Definition	Purpose	Source (see previous page for full citations)
<b>Discrete</b>	The selected indicator best explains the desired aspect of neighborhood condition.	Some indicators are more accurate descriptions or more predictive than others. Using these key indicators saves time and effort and provides a clear picture of neighborhood condition.	Modified from Galster
<b>Inexpensive</b>	Data are free or inexpensive to obtain.	This facilitates acquisition of data even when resources are limited.	National Neighborhood Indicators Partnership (NNIP)
<b>Reliable</b>	Data are consistently gathered year after year, using a method that allows for consistent results if conditions do not change.	Longitudinal data are essential for year-to-year comparisons and trends. Such data can also be used to test the applicability of key indicators (whether they continue to meet the criteria over time).	<i>Longitudinal</i> : Modified from Taylor <i>Reliable</i> : Modified from NNIP; definition from <a href="http://www.sociology.org.uk/plmc5n1a.htm">http://www.sociology.org.uk/plmc5n1a.htm</a>
<b>Relevant</b>	Data reflect neighborhood realities and histories.	Data that may show some statistical relationship to other indicators might not be relevant for Detroit.	NNIP
<b>Timely</b>	Data are available at least annually.	Up-to-date information is necessary to draw conclusions that reflect recent developments in a neighborhood. Old data can give an outdated or inaccurate portrayal of neighborhood conditions.	NNIP
<b>Useful</b>	The data reflect change. The indicator implies a way issues can be addressed.  The indicator applies across neighborhoods.	Indicators need to measure a characteristic or condition that policy-makers at the local or neighborhood level can change. Does the leading indicator relate to policy issues? Comparison among similar neighborhoods is important to Detroit. One neighborhood's experience could be a lesson to others.	NNIP <i>Policy Relevance</i> : <a href="http://www.iisd.org/cas/CASLGuide/Criteria.htm">http://www.iisd.org/cas/CASLGuide/Criteria.htm</a> Modified from Taylor
<b>Valid</b>	The extent to which the data give a true measurement or description of reality.	The indicator needs to have broad applicability—does it accurately represent a larger issue?	Modified from NNIP; <i>definition of "valid"</i> from <a href="http://www.sociology.org.uk/plmc5n1a.htm">http://www.sociology.org.uk/plmc5n1a.htm</a>
<b>Simple</b>	The data are easy to understand.	Information is most useful when the intended audience has access to it. Complex issues need to be distilled to allow clear presentation to the general public.	<i>Definition</i> : <a href="http://www.iisd.org/cas/CASLGuide/Criteria.htm">http://www.iisd.org/cas/CASLGuide/Criteria.htm</a>

## **Gather Additional Data**

Although Detroit's Planning & Development Department provided data for this project, more data were needed to complete the pilot. We collected Home Mortgage Disclosure Act from the HMDA web site and City of Detroit Police Department crime data from the Wayne State University College of Urban, Labor and Metropolitan Affairs (CULMA) web site after research showed that those data might add to the model's abilities and meet the selection criteria.

## **Establish a Database**

This step involved creating a database for indicators that could be used in the pilot for Clusters 3 and 5 in Detroit. Because some data were only available for census tracts, all the data were aggregated to the census tract level. This means that the database included all census tracts in Clusters 3 and 5 and various data about those census tracts. The database was revised as testing determined which indicators to use in the final pilot EDS.

## **Test the Data**

### **Indicator statistics**

In choosing a set of indicators to measure changes in the health of a neighborhood, a model developer should perform various types of statistical analyses to understand the relationship among indicators. For this pilot model, we analyzed indicators that relate to physical conditions to demonstrate how statistical tests can be useful in evaluating indicators. The lack of a comprehensive dataset prevented us from conducting a full statistical analysis on the indicators.

The tests used Clusters 3 and 5 in Detroit as a proxy for the entire city. As mentioned, all data values were aggregated to the census tract level. Data sources include federal Home Mortgage Disclosure Act (HMDA) data from 1997 to 2002, City of Detroit Assessor's data from 2002, City of Detroit Police Department crime data for 2002 collected from the Wayne State University College of Urban, Labor and Metropolitan Affairs (CULMA) web site, geographic boundary shapefiles from the City of Detroit's P&DD, and U.S. Census data from 2000.

#### **a. Correlation**

Before explaining the results of these tests, here is some basic information about correlation:

- Correlation tells about the relationships between indicators by providing numbers between 0 and 1.

The closer to 1, the stronger the relationship between two variables.

- The numbers are accompanied by “+” and “-” signs. A positive (+) relationship between indicators means that as one indicator goes up, the other one goes up also. A negative (-) relationship means that as one indicator increases, the other goes down.

The correlation results show a strong relationship between many of the indicators. Of particular interest, the leading (independent) and supporting (dependent)<sup>80</sup> indicators with strong relationships were:

- Mortgage Approval Rate – Property value
  - Median Amount of Home Purchase Loan
  - Education

Both mortgage approval rate and average true cash value, and median amount of home purchase loan and education had positive relationships. Because of these strong relationships, the results suggest that these indicators may be useful in an EDS model. (See Appendix 3 for a more detailed description).

#### **b. Regression**

The idea behind doing a regression analysis is to build a model that can predict the value for the supporting indicator, which is used as a proxy for the key indicator. For example, if the EDS team has information on the number of mortgage loan applications, then the team can build a model that predicts the home ownership rates for a particular neighborhood. In doing regression, a model developer will need to address questions like: What changed when? And, how much variation from the predicted value is acceptable? If a leading indicator explains well the presence of all supporting indicators over multiple years, it can be said to predict the key indicator and could be used to predict future, unknown values.

The development of the pilot EDS used the supporting and leading indicators education, income, poverty, crime rate, and property value to show the beginning stages of physical decline. We selected these indicators because of the strong relationships shown in the correlation tables and the indicator selection criteria identified above. Using the research of Professor George Galster of Wayne State University on neighborhood indicators, we were able

<sup>80</sup> The independent variable (x-axis) explains the value of the dependent variable (y-axis).

to develop a basis to understand the functioning of an EDS. In order to demonstrate how the testing process can work, we adopted some of Galster's findings—primarily, that median home purchase loan amount, number of loan applications, and mortgage loan approval rate are valid leading indicators of the key indicators: social disadvantage, status and housing type & tenure.<sup>81</sup> This model includes the indicators from Galster's findings that relate to physical condition.

To simplify the pilot, we limited our regression analysis to two variables. One variable was a leading indicator (the dependent variable), and one was a supporting indicator (the independent variable). The results showed a positive relationship between the average value of property in 2002 and the median value of home purchase loans in 2001, as well as between percent of the census tract population with an associate's degree or higher in 2000 and the median value of home purchase loans in 1999. (See Appendix 3 for a more detailed description).

### **Thresholds for neighborhood change.**

As represented in Figures 12 and 13 on the next two pages, the process of creating useful descriptive maps required multiple iterations of spatial analysis (making maps and then thinking about what they say) and data interpretation in order to develop accurate representations of the study areas. This is because the patterns shown in the descriptive maps change dramatically as the model developer adjusts the thresholds in data. Overall, the process involved producing descriptive maps, observing patterns, and validating these patterns using working knowledge of existing conditions in Detroit. We determined thresholds (or classifications) by analyzing simple summary statistics (e.g. mean, minimum, and maximum), tracts distribution across the range of data values, and system output (initial "descriptive" maps). The mapping software provides summary statistics which help in map development and refinement. (See Appendix 3).

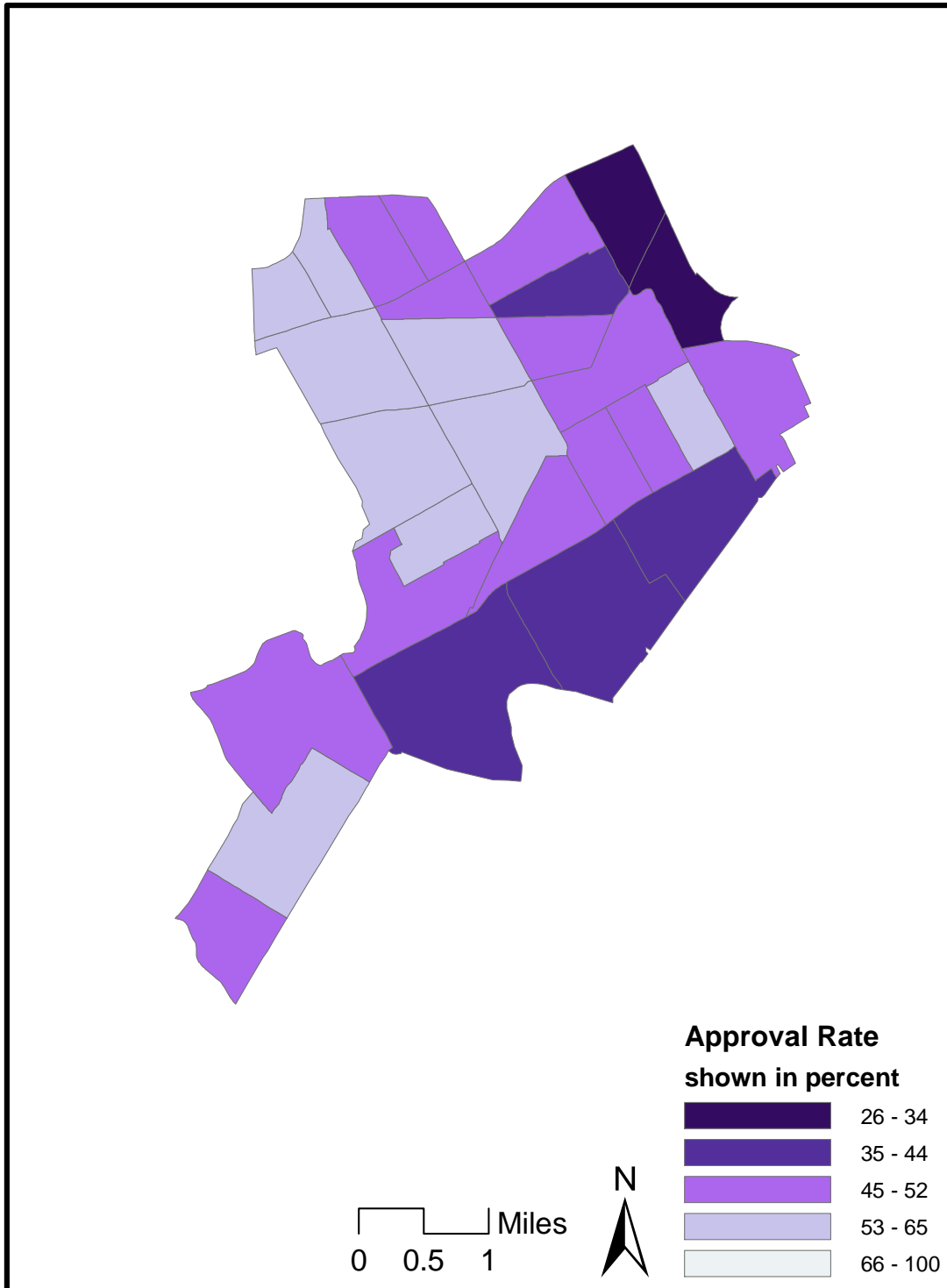
### **Descriptive Maps**

The following two figures illustrate the type of descriptive maps generated for each indicator tested. The legend represents the thresholds assigned to each indicator. In both clusters, mortgage approval rates may reflect the economic stability of applicants. Rate equals the total number of loan applications approved (accepted and not accepted) divided by the total number of loan applications submitted. (See Appendix 4 for descriptive maps of the other indicators tested).

<sup>81</sup> Galster, George, Chris Hayes and Jennifer Johnson. 2004. *Identifying Robust, Parsimonious Neighborhood Indicators*. The Urban Institute. Working Paper.

**Figure 12**

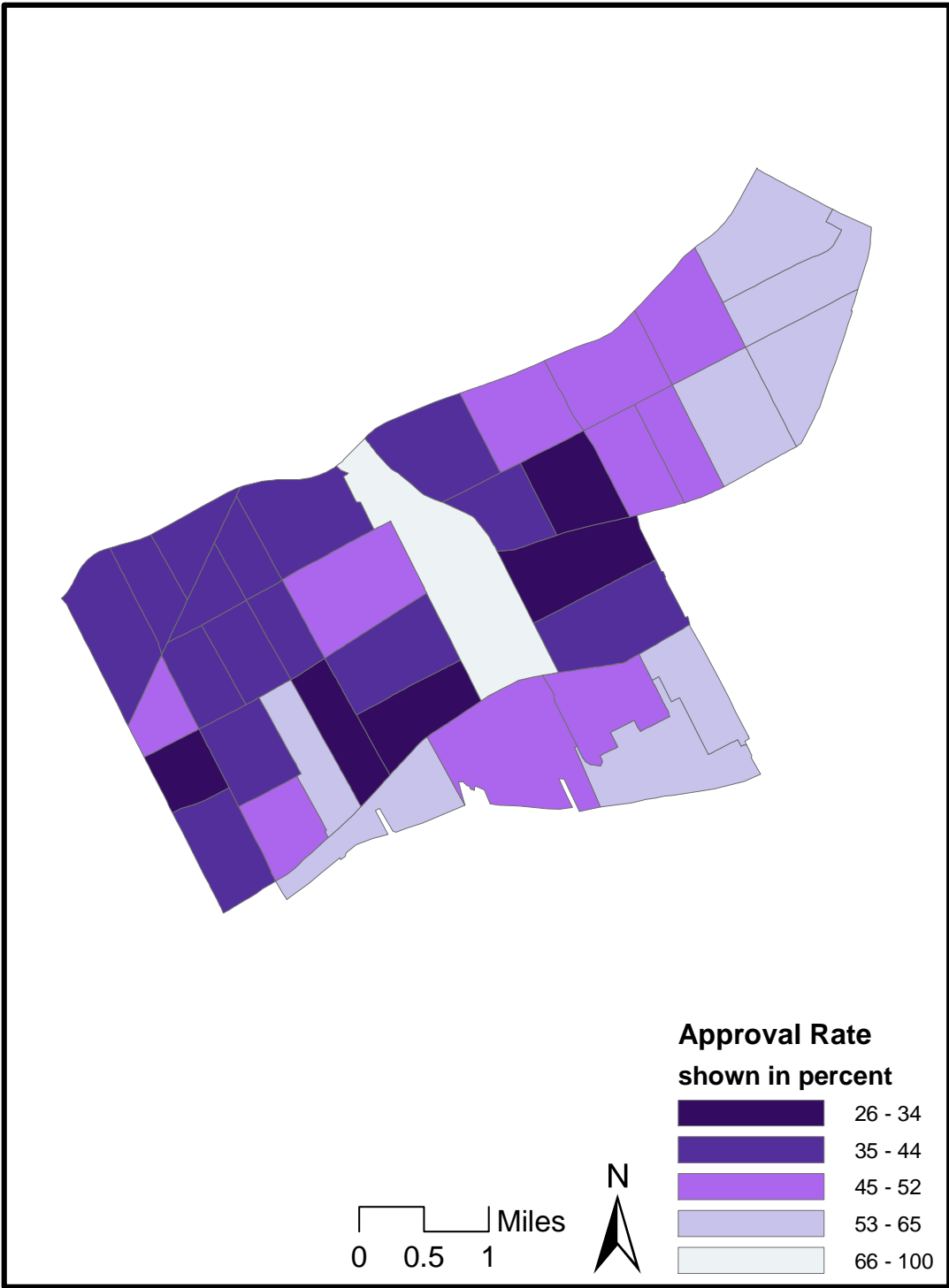
Mortgage Approval Rate, Cluster 5



Source: U.S. Census 2000; City of Detroit Planning & Development Department; HMDA 2002

Figures 12 and 13: Mortgage approval rates may reflect the economic stability of applicants. The rate equals the total number of loan applications approved (accepted and not accepted) divided by the total number of loan applications submitted.

**Figure 13**  
Mortgage Approval Rate, Cluster 3



Source: U.S. Census 2000; City of Detroit Planning & Development Department; HMDA 2002

If the EDS developer determines that the patterns represented by the descriptive maps are accurate, the indicators can be considered relevant and valid. In developing this pilot model, indicators were evaluated according to the criteria throughout the testing process. Table 7 explains the rationale behind the selection and use of the five indicators initially included in the model.

The pilot model aggregated parcel-level data to the census-tract level to allow comparison among variables from different sources (e.g. HMDA and City Assessor's data). This aggregation resulted in a loss of information and occasional misleading results. While the EDS is best used for directing attention to an area of the city, analysis of the parcel-level conditions helps to understand the specific conditions and concerns of an area. Appendix 5 demonstrates how the parcel-level data can reveal otherwise misleading census tract values.

#### **Neighborhood types showing different levels of change.**

The spatial testing process also involved combining indicators by "overlying" tracts that meet a certain classification setting. The result is a typology map. Figure 14 shows an overlay (the technical term for combining indicators in a mapping program like ArcGIS) of the following indicators: Mortgage Loan Approval Rate, Number of Mortgage Loan Applications, Median Home Purchase Loan Amount, and Delinquent Property Tax/True Cash Value. These indicators represent data available for the same year (2002).<sup>82</sup> See Appendix 6 for a chart showing the neighborhood classifications used to generate this map.

The four indicators used above demonstrated a strong ability to identify neighborhood strength and weakness, especially in relation to physical housing conditions. For reasons explained in Appendix 7, crime data failed to meet the criteria "discrete" or "valid" and were not included in the final pilot EDS. The other four indicators met all of the criteria and therefore remained a part of the model.

An EDS model developer can determine the degree to which areas are included in the final map. Changing how the neighborhoods are categorized (changing the typologies) dramatically affects the number of tracts the model captures. Figure 15 illustrates this point.

The map in Figure 15 shows an overlay of the following indicators: Mortgage Loan Approval Rate, Number of Mortgage

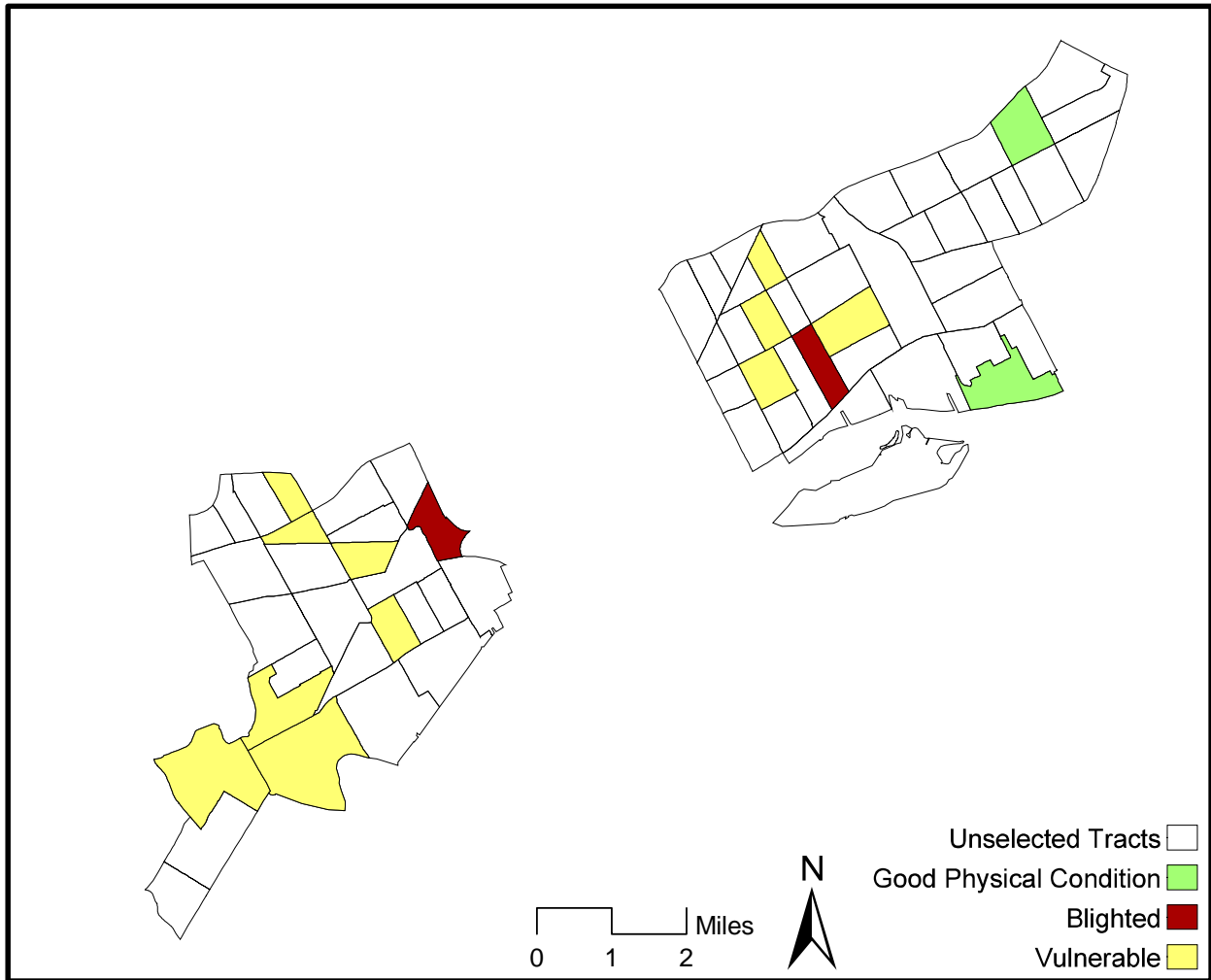
<sup>82</sup> Primary data sources include: City of Detroit Planning & Development Department; City of Detroit, Finance Department - Assessments Division Data 2002; HMDA 2002; and, City of Detroit Police Department from Wayne State University College of Urban, Labor and Metropolitan Affairs (CULMA)

**Table 7**  
**Leading Indicators Tested: Definitions and Interpretations**

Leading Indicator	Definition	Possible Interpretation	Comments
Ratio of delinquent property tax to true cash value	Delinquent tax divided by properties' true cash value.	Not paying property taxes can represent disinvestment. This may show how serious property abandonment may become in an area.	True Cash Value is nearest to the market value of a property and readily understandable as a measure of value.
Median home purchase loan originated	The median dollar amount of home purchase loans originated (approved and accepted).	The median loan value reflects cost and value of a home. It may also represent economic stability via home buyers' ability to borrow.	Number of loans originated should be considered when assessing investment in an area. Median value might be high because one large loan was originated, which would give a deceptive picture of loan activity in that area. Considering total value of homes in the tract (home purchase loan/value of homes in the tract) might give a better picture of neighborhood investment.
Percent mortgage approval	The number of mortgage approvals per the total number of mortgage applications.	This may reflect the credit-worthiness or economic stability of applicants.	Mortgage approval cannot be used to assess economic stability in isolation because low values may reflect that some banks do not approve loans in certain areas regardless of candidates' qualifications.
Number of mortgage loan applications	The number of mortgage loan applications submitted.	This variable can be used to understand potential investment as a reflection of whether people want to purchase homes in the area.	A decreasing number of loan applications may not indicate less investment and consequently more blight if the number of properties available for purchase or needing improvement decreases. Observing the real estate market is necessary to understand how many properties are available and the rate of turnover. The number of mortgage loan applications per the number of available residential parcels could also address this concern.
Serious crime rate (violent and property crime)	The amount of serious crime (sum of violent and property crime) per capita.	This variable shows areas with more or less serious crime.	Crime can be both a key and supporting indicator. It can influence decisions about whether to invest in or leave an area. One should consider, however, the actual crime rate or people's perception of crime has more influence on decisions. Crime should also be considered along with other factors for stability. For example, a strongly organized community may work to decrease criminal activity.

**Figure 14**

Neighborhood Categories, Clusters 3 and 5



Sources: U.S. Census 2000;  
 City of Detroit Planning & Development Department;  
 City of Detroit, Finance Department - Assessments Division data 2002; HMDA 2002;  
 City of Detroit Police Department 2002, from  
 Wayne State University College of Urban, Labor and Metropolitan Affairs (CULMA)

Figure 14: Illustrates that the condition of neighborhoods can be assessed using typologies, in this case good physical condition, vulnerable and blighted. The output varies depending on the classifications (or thresholds) defined for each typology. This is a static view of neighborhood condition, useful for comparing tracts spatially (to each other). Compared to a map of change over time, this map would indicate areas where revitalization efforts may be most beneficial or needed (in this instance, tracts shown as "vulnerable").

**Figure 15**

Different Definitions of the Category “Blighted”



Sources: U.S. Census 2000;  
 City of Detroit Planning & Development Department;  
 City of Detroit, Finance Department - Assessments Division data 2002; HMDA 2002;  
 City of Detroit Police Department. 2002. from  
 Wayne State University College of Urban, Labor and Metropolitan Affairs (CULMA)

Figure 15: Illustrates that changing the manner in which neighborhoods are categorized (changing the typologies) dramatically affects the number of tracts the model captures. The broad overlay generally defined blighted as a tract having the mean value of a variable and below, while the narrower definition identified as blighted only those tracts with lower than mean values. For an understanding of how this relates to neighborhood categories, see Table A5 Neighborhood Typology Classification in Appendix 6. (An EDS model developer can determine the degree to which areas are included in the final map).

Loan Applications, Median Home Purchase Loan Amount, Delinquent Property Tax/True Cash Value, and Serious Crime per Capita. A broader overlay of indicator thresholds identified the tracts highlighted in yellow. A narrower one produced those marked with orange stripes. All tracts highlighted in the "Narrow Estimate" also fall within the "Broad Estimate."

That the model is highly sensitive to how the developer defines the thresholds and typologies for each indicator can be considered a drawback and calls for caution on the part of the model developer. At the same time, an advantage to the model's sensitivity is its flexibility. That is, the model can respond to the goals of the model's developer. If the user's desire is to understand the subtle differences among a broader array of areas, the developer can use broad classifications to select the most tracts.

### **Combine Indicators to Produce a Typology**

After defining the system, developing criteria, gathering data and some initial evaluation, four leading indicators were identified as promising for the pilot EDS. In order to create a predictive map, we evaluated data from more than one year. This identified census tracts that were improving or declining (had increased or decreased in value). More than one year of data were needed for all four indicators, however, and multiple years of assessor's data were not readily available. As a result, the remaining explanation and development of a pilot EDS include only the HMDA data.

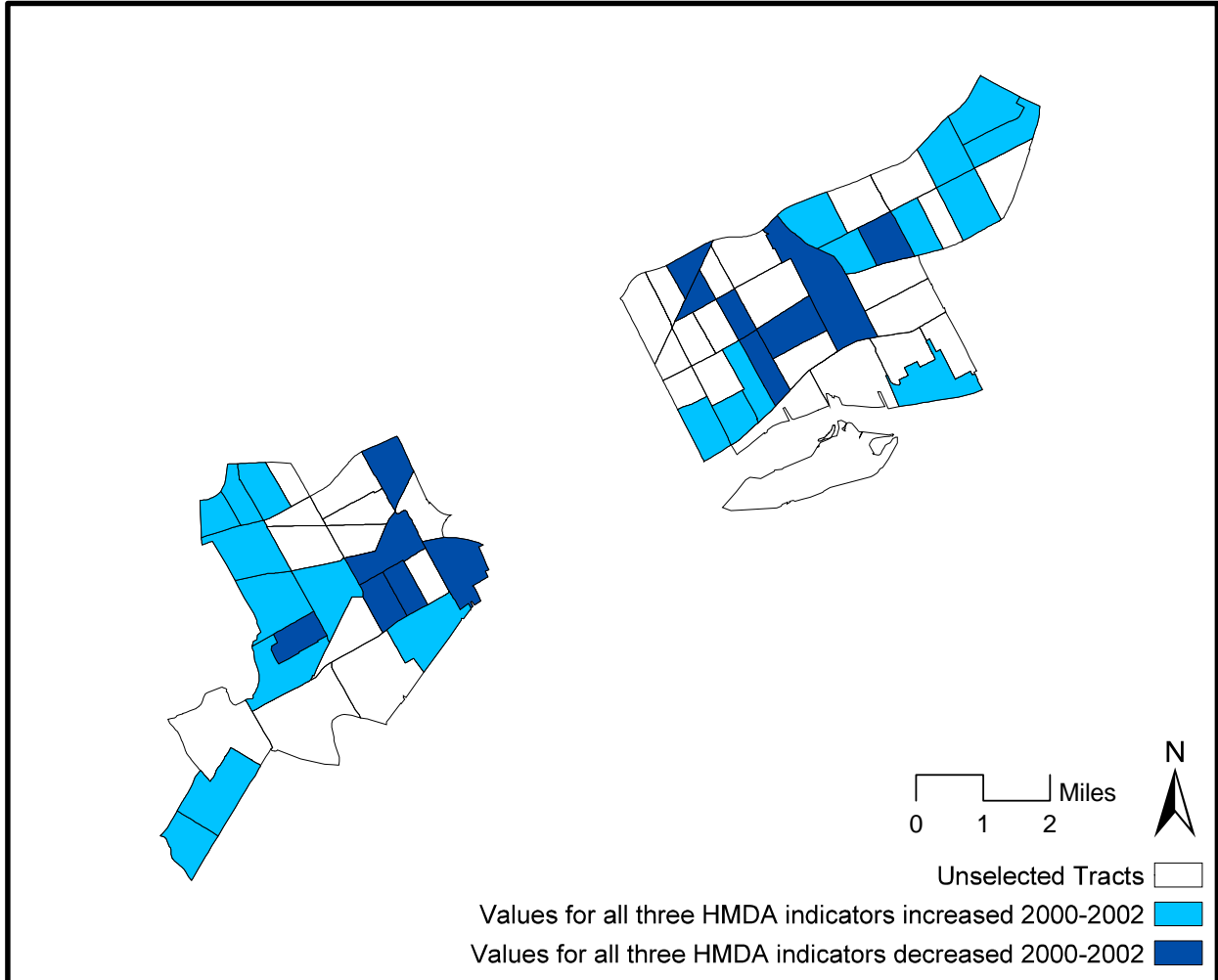
On the following page, Figure 16 shows those tracts that increased or decreased for all three indicators: Mortgage Loan Approval Rate, Number of Mortgage Loan Applications, and Median Home Purchase Loan Amount. Tracts highlighted in turquoise had a positive percent change, while those in dark blue had a negative percent change. See Appendix 8 for descriptive maps that show change over time for individual indicators.

The next step combined the outputs from the previous two maps (neighborhood typology and change over time (HMDA) in order to create the final map for the pilot EDS (See Figure 17). Comparing the conditions of neighborhoods with how indicators have changed over time allows a more comprehensive analysis. Decision-makers can assess whether an area indicated as "vulnerable" may be improving or declining and possibly study the area further to see whether policy changes or more resources are needed in that area.

Identifying different types of tracts and whether they are

**Figure 16**

Change Over Time: 2000-2002, Percent Change in Home Mortgage Disclosure Act Data

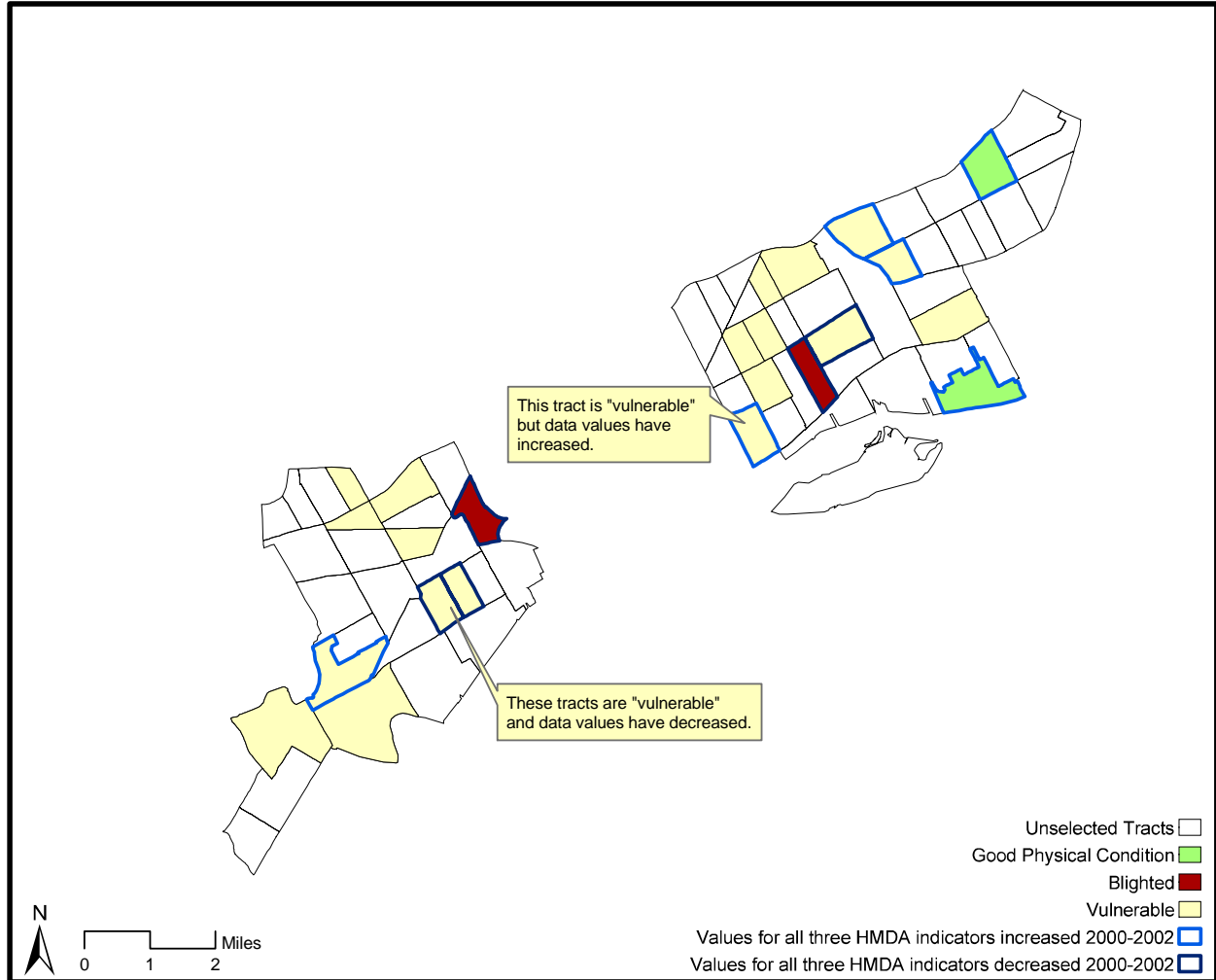


Sources: U.S. Census 2000;  
City of Detroit Planning & Development Department;  
HMDA 2002

Figure 16: This map shows the percent change in mortgage loan approval rate, number of loan applications, and median home purchase loans from 2000 and 2002. Tracts highlighted in turquoise had a positive percent change, while those in dark blue had a negative percent change.

**Figure 17**

Neighborhood Categories and Change Over Time, Clusters 3 and 5



Sources: U.S. Census 2000;  
City of Detroit Planning & Development Department;  
HMDA 2002

Figure 17: This map combines the outputs from the neighborhood category and change over time maps. Decision-makers can use this map to assess whether an area indicated as “vulnerable” may be improving or declining (having increased or decreased, respectively), and determine where to focus their revitalization efforts. Note: Due to data limitations, this map used HMDA data only (Mortgage Loan Approval Rate, Number of Mortgage Loan Applications, Median Home Purchase Loan Amount).

improving or declining is only the first step. EDS administrators, community organizations and policy-makers can use the map to identify areas of concern or opportunity, but a more detailed understanding of the forces affecting the neighborhood is necessary before action can be taken. The Community Empowerment System will provide a wealth of information about a community's assets and deficits and what forces might be at work. Because the CES focuses on collecting and presenting data for the purpose of community change, it will enhance interpretation and action once vulnerable, good physical condition, and blighted neighborhoods are identified.

This pilot EDS model illustrates some of the outputs and capabilities of such a system and includes a preliminary evaluation of indicators and indicator selection. However, the pilot shows an example of a model. Re-evaluating the criteria could result in different indicators for testing. A thorough analysis would involve a comprehensive and iterative process of testing those indicators—combining different indicators at different times to assess the relationship both among them and on the desired conditions of neighborhood strength and blight.

## Conclusion

*Part I: How to Build an EDS* defined an early detection system and explained the methods an organization can use to build a quality system. The methods involved setting a goal for the system, selecting and testing data and providing outputs that predict neighborhood conditions. *Part II: EDS Method Applied* described how the methods were used in creating the pilot EDS and gave a general description of the results.

Using this approach, city of Detroit departments can create and use an EDS to identify trends and conditions in city neighborhoods. They then can further study the neighborhoods to understand the situation and consider how to act in response.

Appendices 3 through 8 describe more technical details about the pilot EDS.

# Implementation

The preceding sections have outlined a plan for a Neighborhood Indicator System for Detroit. This section seeks to outline a schedule for implementing the plan. The system should be developed in three phases: setup/development, construction, and refinement/expansion. This phased approach will help build support for the system among users and data providers while allowing the technical part of system development to proceed at a pace that works for the system developer and users. There are not hard lines between each phase, but rough benchmarks have been provided to indicate when it would be reasonable to move on to the next phase.

## Phase I – Setup/Development

Initial development of the Detroit Neighborhood Indicator System focuses on system elements that provide the physical and informational infrastructure that allows the system to operate.

- **Partner Identification/Installation:** As discussed in the data warehouse and Community Empowerment System sections, the city of Detroit and its community partners will identify an appropriate host or data intermediary for a citywide Neighborhood Indicators System. The establishment of a permanent residence for the NIS paves the way for almost every other system functionality. The system host will not only function as a technical developer for the data warehouse, its responsibilities will also include building and maintaining the Early Detection System, and providing access to warehoused data through the CES.
- **Funding/Application:** The city of Detroit and its partners will work with the system host to secure public and private funding for NIS implementation. Most neighborhood indicators systems fund their operations with money from foundations, federal grants, or user fees.<sup>83</sup>
- **Data Collection/Organization:** Once a system host has been identified, that entity will begin the ongoing process of data collection and organization. For Early Detection System purposes, the recommendations of this report—supplemented by EDS user input—will guide the initial data collection process. With respect to the Community Empowerment System, the system host will use existing data on Detroit’s neighborhoods while seeking input from

<sup>83</sup> Kingsley, G. Thomas (ed.). 1999. *Building and Operating Neighborhood Indicator Systems: A Guidebook*. National Neighborhood Indicators Project – The Urban Institute. <http://www.urban.org/nnip/pdf/guidebk.pdf>. Accessed March 28, 2004.

community partners on what additional data to include. The system host will also contact other potential source agencies regarding possible data provision.

### Completion Benchmarks

- Establishment of NIS system host
- Funding sources for system operation identified and secured
- Initial data assembly and organization

## Phase II – Construction

Designing user interfaces for the EDS and CES follows the establishment of basic system infrastructure. Promoting awareness of the CES within the city accompanies the development of its user interface.

- **Community Empowerment Interface:** Initially, an emphasis on maximizing the understanding and use of currently available data will guide the development of Detroit’s CES. The concurrent process of soliciting input from potential users will inform the collection and organization of existing neighborhood information. As data are organized by scale, an initial set of summary reports for a variety of geographic areas will be made available to anyone online.
- **Early Detection System:** As data are collected and organized, the system host will test appropriate indicators for inclusion into an initial EDS. Relying primarily on existing data, the EDS will incorporate suitable key indicators following the process outlined in the EDS section.
- **Expanded Outreach Efforts:** During CES construction, community outreach—in the form of technical training sessions and awareness-raising—will include local input into the CES development process. Likewise, input from EDS users will continue to inform EDS development.

*A phased approach will help build support for the system among users and data providers while allowing the technical portion of system development to proceed at a pace that works for the system developer and users.*

### Completion Benchmarks

- Construction and use of EDS and CES interfaces
- Collection and incorporation of initial user comments
- CES summary report generation
- EDS neighborhood typology generation

## Phase III – Refinement/Expansion

An established, effective Neighborhood Indicator System relies on feedback from CES and EDS users to inform refinements to

the system. Outreach efforts specifically designed to elicit user commentary and understand users' needs supplement online feedback mechanisms to maximize diversity of user input. Over time, this process is itself subjected to refinement according to user needs.

- **Uploading Capability:** As long-term relationships with system users and data providers become established, the ability for users to upload information in a standardized format will enhance the community orientation of the CES. Because data needs will change and become more varied over time, this functionality increases in importance along with the growth of the size and complexity of the data warehouse.
- **Institutionalized Outreach:** Along with feedback mechanisms built into the CES, a tradition of community involvement for the purposes of targeting potential user groups and expanding CES usership will help increase the value and utility of neighborhood-level information. Promoting cooperation among system users and publicizing local success stories will also help insure the political safety of the CES.
- **System Refinement:** In the long term, user input will ultimately guide both EDS and CES development. A virtuous cycle of iterative system refinement will continue to insure the relevance and usability of a NIS in Detroit.

### Completion Benchmarks

- Institution of ongoing and meaningful community involvement
- Incorporation of uploaded information, where feasible, into Data Warehouse
- Formation of iterative refinement process to inform future system design



## **Conclusion**

The process of using neighborhood indicators to promote community change takes two principal forms. Efficient use of neighborhood-level information meets the needs of the city administration by accurately anticipating changing neighborhood conditions and informing subsequent funding distribution. Public availability of this information, along with ongoing participatory initiatives, provides other players in the community development process with an appropriately scaled and continually updated data resource. Within the proposed plan, the Early Detection System permits the City of Detroit to predict and forestall neighborhood decline, and the Community Empowerment System functions as a conduit between neighborhood data and those who need access to it, such as SDBA. Supported by the data warehouse, these two system elements work in tandem to provide both the city and its residents with a more accurate picture of Detroit's neighborhoods.



# Appendix 1: Indicator Systems in Other Cities

This appendix presents city case studies used as a reference in developing a neighborhood indicator system. This appendix is divided into three sections. Part I provides detailed city case studies. Part II is an indicators case study matrix evaluating the web-based interface of city systems. Part III reports the different data sources used in the city case study indicator systems

## Part I: Indicators System Case Studies

The following case studies explore the process and challenges developers face when creating neighborhood information systems. The details provided in each case study helped inform the recommendations in this plan, including issues of collaboration between various agencies and organizations; data acquisition and sharing; user feedback and overall system design.

### Minneapolis Neighborhood Information System (MNIS)

**Web site:** <http://www.npcr.org/MNIS.html>

The Minneapolis Neighborhood Information System (MNIS) offers an example of how community GIS can be used to develop solutions and ideas for policy changes by using property and housing data to produce maps that illustrate and analyze neighborhood changes.<sup>84</sup> The MNIS development process is also an example of how partnerships can be formed through collaborative effort. The City of Minneapolis, the Neighborhood Revitalization Program, neighborhood organizations and the Center for Urban and Regional Affairs (CURA) at the University of Minnesota are all actively involved in the MNIS program.<sup>85</sup>

### History: MNIS Development

During the late 1990's, the concept of creating an early warning system (EWS) for Minneapolis came out of University of Minnesota research on predictive indicators of abandoned housing.<sup>86</sup> The system was designed to track indicators such as unpaid taxes, housing code violations and delinquent utility bills and gave neighborhood organizations an opportunity to assist families who might lose their homes.<sup>87</sup>

<sup>84</sup> McCartney, Molly. 2003. *How to Build a Community GIS: The Minneapolis Neighborhood Information System Handbook*. Minneapolis Neighborhood Information System. p. 1 <http://www.npcr.org/reports/npcr1203/npcr1203.doc>. Accessed April 20, 2004.

<sup>85</sup> Minneapolis Neighborhood Information Systems. *MNIS Partners*. <http://www.npcr.org/MNISpartners.html> Accessed April 20, 2004

<sup>86</sup> McCartney, Molly. 2003. *How to Build a Community GIS: The Minneapolis Neighborhood Information System Handbook*. Minneapolis Neighborhood Information System. p. 9 <http://www.npcr.org/reports/npcr1203/npcr1203.doc>. Accessed April 20, 2004.

<sup>87</sup> Center for Urban and Regional Affairs, University of Minnesota. *Minneapolis Neighborhood Information System*. <http://www.cura.umn.edu/programs/MNIS.html>. Accessed March 24, 2004.

The MNIS evolved into a broader-based system that provides neighborhoods with property and housing information. With the city's Neighborhood Revitalization Program, a greater effort was made to engage in more neighborhood planning. In 2001, a steering committee, made up of City staff members, University researchers and representatives from twelve neighborhood organizations was formed to oversee the development and implementation of the MNIS.<sup>88</sup> The program also received a Technology Opportunity Grant (TOP) from the U.S. Department of Commerce providing funding of \$500,000 for three years.<sup>89</sup>

### MNIS Partnerships

The system design of the MNIS has been driven in large part by the participation of neighborhood organization staff members. Their involvement during the project was critical for developing a product that is easy to use and addresses their information needs.<sup>90</sup> One of the stated goals of the MNIS is to improve the relationship between the neighborhood organizations and staff members at city agencies.<sup>91</sup> This is accomplished by having the City establish a process for neighborhood organizations to gain access to administrative data. Continued partnership by MNIS with the University of Minnesota is important for providing project management and technical training to neighborhood organizations as well as for engaging students in research projects that address neighborhood issues.<sup>92</sup>

The MNIS does have membership requirements. The criterion for participation is to be "a recognized citizen participation neighborhood organization".<sup>93</sup> As part of the neighborhood organization participation agreement, regular attendance at MNIS steering committee meetings is required as well as an annual contribution of \$250.<sup>94</sup> One of the benefits that MNIS neighborhoods have experienced is that regular meetings have fostered collaboration between neighborhood organizations from different parts of the city as project ideas are shared and results are reported.<sup>95</sup> Currently, 12 neighborhood organizations are involved and more are being enlisted.<sup>96</sup> One of the challenges for neighborhood organizations in utilizing MNIS is whether they have adequate technological resources such as a computer with a high-speed connection that can support GIS software.<sup>97</sup> The University provides the software, easing the burden of having the neighborhood organizations procure funds to purchase it themselves.<sup>98</sup>

### Data Management and Access

MNIS members can download data from the City of Minneapolis by linking to a page found on the City's web page as shown in

<sup>88-90</sup> McCartney, Molly. 2003. *How to Build a Community GIS: The Minneapolis Neighborhood Information System Handbook*. Minneapolis Neighborhood Information System. p. 9 <http://www.npcr.org/reports/npcr1203/npcr1203.doc>. Accessed April 20, 2004.

<sup>91</sup> Minneapolis Neighborhood Information Systems. *Neighborhood Planning for Community Revitalization*. <http://www.npcr.org/MNIS.html>. Accessed March 24, 2004.

<sup>92</sup> McCartney, Molly. 2003. *How to Build a Community GIS: The Minneapolis Neighborhood Information System Handbook*. Minneapolis Neighborhood Information System. p. 7-8 <http://www.npcr.org/reports/npcr1203/npcr1203.doc>. Accessed April 20, 2004

<sup>93</sup> Minneapolis Neighborhood Information System. *MNIS Membership Criteria and Requirements*. <http://www.npcr.org/MNISmemcriteria.html>. Accessed April 21, 2004.

<sup>94</sup> Minneapolis Neighborhood Information System. *Participating Neighborhood Organization Agreement*. <http://www.npcr.org/MNISneighagree.html>. Accessed April 21, 2004.

<sup>95-96</sup> Minneapolis Neighborhood Information System. *MNIS Accomplishments*. <http://www.npcr.org/MNISaccomplish.html>. Accessed April 21, 2004. And Minneapolis Neighborhood Information System. *MNIS Partners*. <http://www.npcr.org/MNISpartners.html>. Accessed April 21, 2004.

<sup>97</sup> Minneapolis Neighborhood Information System. *MNIS Membership Criteria and Requirements*. <http://www.npcr.org/MNISmemcriteria.html>. Accessed April 26, 2004.

<sup>98</sup> McCartney, Molly. 2003. *How to Build a Community GIS: The Minneapolis Neighborhood Information System Handbook*. Minneapolis Neighborhood Information System. p. 6 - 19 <http://www.npcr.org/reports/npcr1203/npcr1203.doc>. Accessed April 20, 2004.

Figure A1. (<http://apps.ci.minneapolis.mn.us/mnisapp/>) The site requires a login and a password and gives users the ability to select the neighborhoods and the attributes they wish to download.<sup>99</sup> Users can also customize downloads in order to receive regular updates on the same pieces of information.

The City of Minneapolis' ITS and Business Information Systems (BIS) departments are responsible for maintaining the download application on the site.<sup>100</sup> The dataset is provided by the BIS department who aggregates the information from the databases of different city agencies. These agencies include:<sup>101</sup>

- Assessor
- Inspections
- Planning
- Public Works

The dataset provides parcel-level information that is updated regularly and property data that can be used in a mapping program. This dataset includes:<sup>102</sup>

- Ownership
- Mailing address
- Tax status
- Housing condition
- Zoning district
- Permits issued

### Feedback Mechanism

The membership neighborhood organizations using the data are able to improve the quality of the city's parcel data by using an online feedback form to identify any inaccuracies. These forms go to the BIS department and the information is corrected either in the department the data originated from or within the MNIS downloadable dataset itself.<sup>103</sup>

### EWS Application

The city is in the process of developing and implementing an early warning system for MNIS users.<sup>104</sup> This online analysis tool will allow MNIS users to select various factors and combine them to indicate areas that are at risk of housing abandonment. This helps identify the areas that are most vulnerable. The goal of this component is once these properties are identified, neighborhood organizations can step in to rehabilitate these properties and help keep families from losing their homes. Originally the city was only planning to offer an application that showed the mapped results. However, the neighborhood members advocated for a more open application that would give access to the data behind these maps and allow for data quality control.

<sup>99</sup> McCartney, Molly. 2003. *How to Build a Community GIS: The Minneapolis Neighborhood Information System Handbook*. Minneapolis Neighborhood Information System. p. 6 - 19 <http://www.npcr.org/reports/npcr1203/npcr1203.doc>. Accessed April 20, 2004.

<sup>100-104</sup> McCartney, Molly. 2003. *How to Build a Community GIS: The Minneapolis Neighborhood Information System Handbook*. Minneapolis Neighborhood Information System. <http://www.npcr.org/reports/npcr1203/npcr1203.doc>. Accessed April 20, 2004.

**Figure A1**

## MNIS Login Screen

City of Minneapolis Home Community Business City Hall Leisure

MNIS Minneapolis Neighborhood Information System

**MNIS Login**

Type in your user name and password, and click the "Sign On" button.

User Name

Password

Sign On

If you would like to learn more about MNIS, please contact:

Jeff Matson  
3137 Chicago Ave. S  
612-822-8146  
[jmatson@umn.edu](mailto:jmatson@umn.edu)

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Official Web Site of the City of Minneapolis, Minnesota  
MNIS 3.0 Rel.2 © 2002 See [Disclaimer](#) for legal information  
Maintained by Minneapolis Business Information Services  
Comments or suggestions? Use the [feedback form](#).

Source: City of Minneapolis Web Site<sup>105</sup>

Figure A1: The MNIS requires users to login to access data about neighborhoods.

**Community Empowerment: Mapping to Create Change**

One of the goals of the MNIS is provide information and tools that enable neighborhood organizations to identify and address important issues like such as land use patterns, crime, target areas for redevelopment and funding. These organizations can then use this information about their communities to create changes through funding efforts, policy changes and redevelopment strategies. Participating neighborhood organizations have access to training, project assistance and GIS advice from the MNIS project coordinator. This educational outreach increases the number of community-based users who are able to take advantage of information and technology to create maps and devise policy interventions to improve the neighborhoods they serve.

The organizations themselves are responsible for designing, developing and using the maps they produce. MNIS membership stipulates that each organization create one map per quarter and provide updates on their projects.<sup>106</sup> Neighborhood-specific GIS projects also allow communities to input local data such as revitalization activities and neighborhood assets. This data can

<sup>105</sup> City of Minneapolis. *MNIS Data Download Start*. <http://apps.ci.minneapolis.mn.us/mnisapp/>. Accessed April 27, 2004.

<sup>106</sup> Minneapolis Neighborhood Information System. *MNIS Membership Criteria and Requirements*. <http://www.npcr.org/MNISmemcriteria.html>. Accessed April 26, 2004.

then be mapped to illustrate the importance of providing city resources, such as the impact of revitalization funding programs have had on the neighborhood. As for obtaining other agency data such as public school information or crime incident reports, the MNIS guide mentions that developing personal relationships with agency staff is recommended.

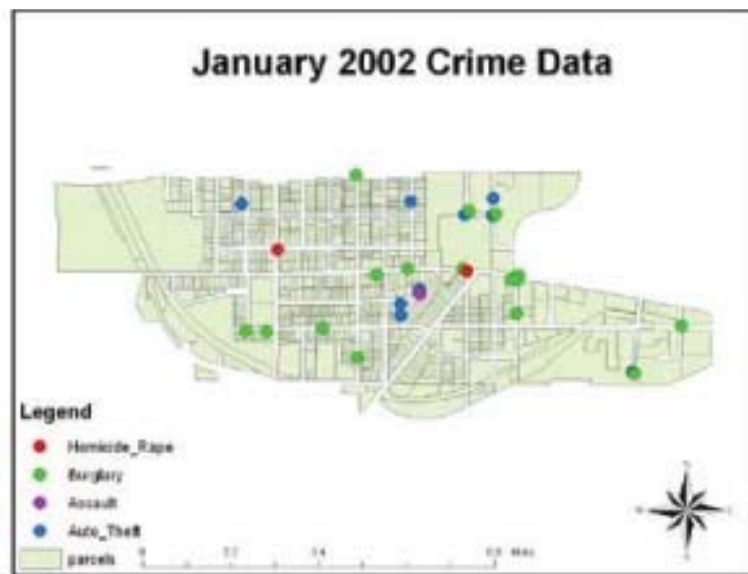
The sample projects on the MNIS Web site demonstrate how communities can use technological tools to present information about the neighborhood-specific conditions.

### Harrison: Neighborhood Crime and Safety Data

Crime statistics from neighborhood police reports were added into a database and added as a GIS layer by placing points on a map of the neighborhood. Crime statistics are not available in electronic format so they were entered into the GIS application separately.<sup>107</sup>

#### Figure A2

Crime Map for the Harrison Neighborhood, Minneapolis



<sup>107</sup> Minneapolis Neighborhood Information System. *Index Page*. <http://www.npcr.org/MNIS.html>. Accessed March 24, 2004.

<sup>108</sup> Minneapolis Neighborhood Information System. *Harrison Neighborhood Crime and Safety Data*. <http://www.npcr.org/sampleGISprojects2001/Harrison2ndQtrproj2001.html>. Accessed April 27, 2004.

Source: MNIS Web Site<sup>108</sup>

Figure A2: Map generated from neighborhood police reports for the Harrison neighborhood in Minneapolis.

**Figure A3**

Elliot Park Land Use Map

Source: MNIS Web Site<sup>109</sup>

Figure A3: Land use map generated for Elliot park in Minneapolis as part of an MNIS project.

**Elliot Park: Mix of land uses**

The primary motivation for this project was to analyze the amount of land in the neighborhood devoted to parking lots and the impact this has on the values of surrounding land parcels. This type of analysis enables neighborhoods to plan for the future and address issues such as unwanted land uses.<sup>110</sup>

<sup>109</sup> Minneapolis Neighborhood Information System. *Elliot Park Urban GIS Project Abstract 2001*. <http://www.npcr.org/sampleGISprojects2001/Elliotsamplegisproj2001.html>. Accessed April 28, 2004.

<sup>110</sup> Minneapolis Neighborhood Information System. *Index Page*. <http://www.npcr.org/MNIS.html>. Accessed March 24, 2004.

## Philadelphia Neighborhood Information System (PNIS)

**Web site:** <http://cml.upenn.edu/nbase/>

The Philadelphia Neighborhood Information System (PNIS) is a web-based property and social indicators database launched in the summer of 2000 and used by city agencies and community-based organizations.<sup>111</sup> The system began as a project at the University of Pennsylvania and is currently maintained by their Cartographic Modeling Lab (CML). The university works in partnership with the city and the different agencies that provide the data. CML operates the software used to organize the data and houses the web-based applications used for creating maps and downloading data. The University, the city of Philadelphia, the William Penn Foundation and Pew Charitable Trusts, have provided funding for the system.

### PNIS System Design

There are three web-based components of the PNIS. The parcelBase application allows users to work with address-level data and requires a login and password. The neighborhoodBase site works with aggregate data at different geographic levels. There is also a muralBase that details the hundreds of murals found throughout the city.

The PNIS allows users to perform the following tasks:

- Research individual properties.
- Query data to gather comparisons.
- Describe neighborhood conditions with user-defined maps, charts and reports.
- Support University of Pennsylvania research on housing and abandonment.

ParcelBase helps users identify and map individual properties and incorporates the most recent data uploaded into the system. Access to parcel-level data is restricted because of confidentiality concerns with parcel-level housing information and because licensing requirements to use the city's parcel map layer stipulates that users must be registered with the city's Office of Housing and Community Development.<sup>112</sup> These users include staff from city agencies, community development corporations and other community-based organizations that do business with the city.

Use of the system increased from October 2002 to October 2003. In 2003, NIS users represented 55 city agencies and 220 non-profit organizations, up from 144 non-profits in October 2002.<sup>113</sup>

<sup>111</sup> Cartographic Mapping Lab. *Philadelphia Neighborhood Information System*. [http://cml.upenn.edu/project\\_areas/nis.htm](http://cml.upenn.edu/project_areas/nis.htm). Accessed April 26, 2004.

<sup>112</sup>Hiller, Amy E. Dennis P. Cullhane, Tony E. Smith, and C. Dana Tomlin. 2003. *Prediction Housing Abandonment with the Philadelphia Neighborhood Information System*. *Journal of Urban Affairs*. Vol. 25. Number 1. p. 93.

<sup>113</sup>Breuer, Bradley. Philadelphia Cartographic Modeling Lab. Email correspondence. February 12, 2004.

The neighborhoodBase application is not restricted and users can map information and analyze trends for different neighborhoods. User access to neighborhoodBase and muralBase is not tracked, but the user base is primarily CDC/non profit, and some city users. The use of this site is growing at a faster rate than the use of parcelBase.

Outputs for the PNIS include charts, maps, tables, which are shown on-screen and can be copied and pasted into other documents. Future development for these applications will enable users to download files directly into spreadsheet and database formats.<sup>114</sup> Currently users do not have the capability to upload data to the system. However, CML is exploring the feasibility of allowing users to add information in spreadsheet format and then geocode their address information to be show up as points on a map.

## Data Management

The biggest challenge in the development of the PNIS was collecting data for use in the system and significant time was spent to establish relationships with data-providers. Data sharing agreement were secured from the agencies that were providing data to the NIS that detailed the types of users who were allowed to access their information and at what geographic level.<sup>115</sup> Providing administrative data at the individual level requires diligence to ensure that the privacy rights for these persons are protected. Eight different municipal agencies provide parcel-level data on a regular basis.<sup>116</sup> (See Table A1). Not all providers were initially cooperative, however. One example is Gasworks, a quasi-public gas company that provided data at first and then stopped for an unknown reason.<sup>117</sup> Now that the project is successful and has received public recognition, Bradley Breuer (NIS Outreach Coordinator for the Cartographic Modeling Lab) indicated that Gasworks is interested in providing data once again.

The data acquisition process succeeds if the developer understands the dynamics between different municipal departments, and identifies partners to help introduce the system.<sup>118</sup> For the PNIS, the director of the Office of Housing and Community Development advocated for the system by writing letters of introduction for the project to other city agencies and requested their participation. Meeting with city agencies throughout the development process fostered these relationships and ensured that data providers had a stake in the project.

Users of the system are able to provide data quality control by spotting errors that may have been missed by administrators. Though data is reviewed before it is uploaded, the users of

<sup>114</sup> Breuer, Bradley. Philadelphia Cartographic Modeling Lab. Phone Interview. February 12, 2004.

<sup>115</sup> Hiller, Amy E. , Dennis P. Cullhane, Tony E. Smith, and C. Dana Tomlin. 2003. *Predicting Housing Abandonment with the Philadelphia Neighborhood Information System*. Journal of Urban Affairs. Vol. 25. Number 1. p. 95.

<sup>116</sup> Hiller, Amy E., Dennis P. Cullhane, Tony E. Smith, and C. Dana Tomlin. 2003. *Predicting Housing Abandonment with the Philadelphia Neighborhood Information System*. Journal of Urban Affairs. Vol. 25. Number 1. p. 93.

<sup>117</sup> Breuer, Bradley. Philadelphia Cartographic Modeling Lab. Phone Interview. February 12, 2004.

<sup>118</sup> Hiller, Amy E. and Dennis Cullhane. *Integrating and Distributing Administrative Data to Support Community Change*. 2004. Working paper.

this information are best able to discern any discrepancies or inaccuracies. Staff members from city agencies are often more familiar with how specific pieces of information are collected and then encoded, and neighborhood-based organizations that are more familiar with particular properties, provide external data checking to the system.

Data from different agencies are not always available in a usable format, and this is a challenge of acquiring data from different departments. Many departments have databases that do not allow for easy information downloads or do not keep certain records in electronic format. These data availability issues may change as technology use increases within municipal governments.

### User Feedback

User feedback is collected and incorporated by the PNIS developers to determine how the system can be improved. Besides user surveys, the types of tables and queries that are requested by users are monitored to see how often they are used and how information is gathered to generate maps. Mr. Breuer said that users have often called for having the ability to export data and to define their own neighborhood boundaries, two new features that are being explored for the next release of neighborhoodBase.

Users also contact Mr. Breuer with questions or technical problems by using the feedback request form or by simply e-mailing him.<sup>119</sup> Mr. Breuer says that ordinarily there are 10-15 e-mails per week on the NIS and include comments on the site such as assistance on data interpretation and comments regarding desired features for the site.<sup>120</sup>

<sup>119</sup> Philadelphia Neighborhood Information System. *Nbase Feedback*. <http://cml.upenn.edu/nbase/nbFeedbackRequest.asp>. Accessed April 26, 2004.

<sup>120</sup> Breuer, Bradley. Philadelphia Cartographic Modeling Lab. Email correspondence. March 15, 2004.

<sup>121</sup> Cartographic Modeling Lab. *Current PowerPoint Presentations*. [http://cml.upenn.edu/presentations/nis3\\_5\\_01.ppt](http://cml.upenn.edu/presentations/nis3_5_01.ppt). Accessed April 27, 2004.

**Table A1**

Examples of Data Available

Data Provider	Items provided
City Planning Commission	City-wide parcel coverage
Department of Licenses and Inspections	Housing code violations, demolitions, clean and seals, vacancy
Philadelphia Gas Works	Shutoffs, housing characteristics
Revenue Department	Property tax arrearages, lien sales
Water Department	Shutoffs, suspended service, delinquency, vacancy
Board of Revision of Taxes	Owner's name, sales date/price, land and building characteristics
Office of Housing and Community Development	Digital photographs of vacant lots and houses, vacancy survey
U.S. Post Office	Vacancy (suspended mail service)

Source: Cartographic Modeling Lab<sup>121</sup>

## Greater Chicago Housing and Community Development Website

**Web site:** [www.chicagoareahousing.org](http://www.chicagoareahousing.org)

The Greater Chicago Housing and Community Development site is maintained by a government entity, the Northeastern Illinois Planning Commission (NIPC). The NIPC is a regional council of government that work with and provide data for the different municipalities that fall within its jurisdiction.<sup>122</sup> The site focuses on data that relate specifically to housing issues in the region and coordinates the information on a number of geographic levels. For example, users can find information at the county-level, the municipal level and on specific neighborhoods within Chicago. Information for specific parcels is available only for the city of Chicago.<sup>123</sup>

### Data Management

The site serves a variety of users, including developers, potential home purchasers, landlords and renters. The housing information is provided in a number of different formats depending on the type of research a user is interested in. Much of the data comes from the U.S. Census and has been aggregated to allow comparisons across counties and municipalities. Users can request information such as crime rates or median property levels which NIPC has obtained from other sources in table format. Crime data for the site come from the Chicago Tribune, which publishes the annual crime rates for the region; and the number of building permits issued is collected and provided by the NIPC itself.<sup>124</sup> Users are able to investigate specific communities in greater detail because demographic and other property information is further organized by municipalities. Some maps are provided on the site, but interactive mapping is not currently offered.

### Collaborative Partnerships

The NIPC has a number of partners involved with the project, including the Center for Neighborhood Technology, the City of Chicago departments of housing and planning, and the Metropolitan Planning Council. NIPC has received funding from the City of Chicago Housing Department and grants from MacArthur Foundation and Fannie Mae Foundation. Many CBO and data holding agencies have been involved in the development process for the system functions, and the NIPC has even funded CBO participation in giving feedback on the system.<sup>125</sup>

Future versions of the site include plans to incorporate more local knowledge and even allow local organizations to update data

<sup>122</sup> Sanders, Greg. Northeastern Illinois Planning Commission. Personal Interview. February 25, 2004.

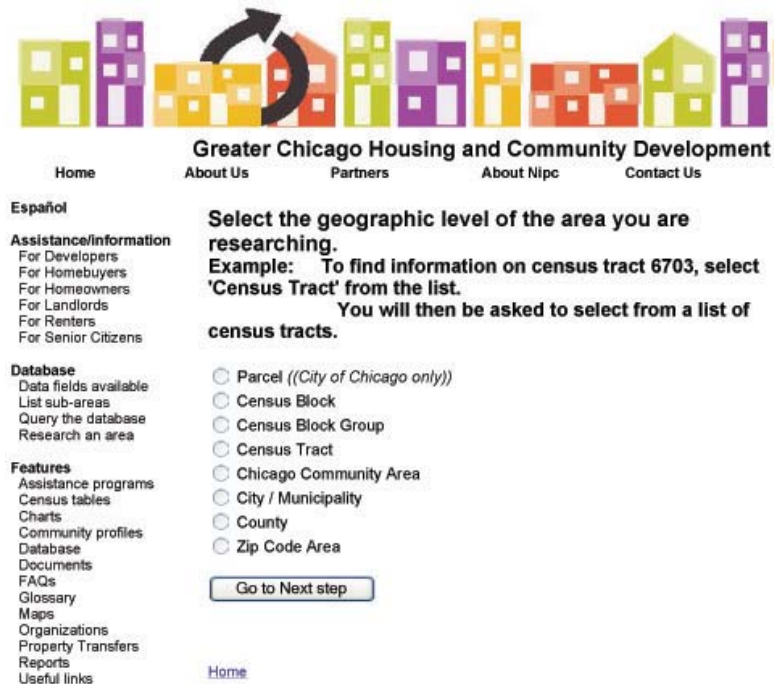
<sup>123</sup> Greater Chicago Housing and Community Development Website. *Housing Homepage*. <http://www.chicagoareahousing.org/HousingHomePage.asp>. Accessed April 26, 2004.

<sup>124</sup> Greater Chicago Housing and Community Development Website. *Data Info*. [http://www.chicagoareahousing.org/DataField\\_Info.asp?datid=539](http://www.chicagoareahousing.org/DataField_Info.asp?datid=539). Accessed April 26, 2004.

<sup>125</sup> Sanders, Greg. Northeastern Illinois Planning Commission. Personal Interview. February 25, 2004.

from the field with mobile phones. The program does not currently plan to produce regular reports but does present information in a number of different formats, enabling a wide range of users to gather information. This site is a regional information sharing initiative, which generates a different set of challenges but also allows for greater potential collaboration between different agencies in working together to provide information.<sup>126</sup> The site also hopes to enhance regional planning efforts and community mapping efforts that are being undertaken by NIPC.<sup>127</sup>

**Figure A4**  
Geographic Unit Selection Page



Source: Greater Chicago Housing and Community Development<sup>128</sup>

Figure A4: The geographic options for data selection allows users to choose the level of information they wish to obtain.

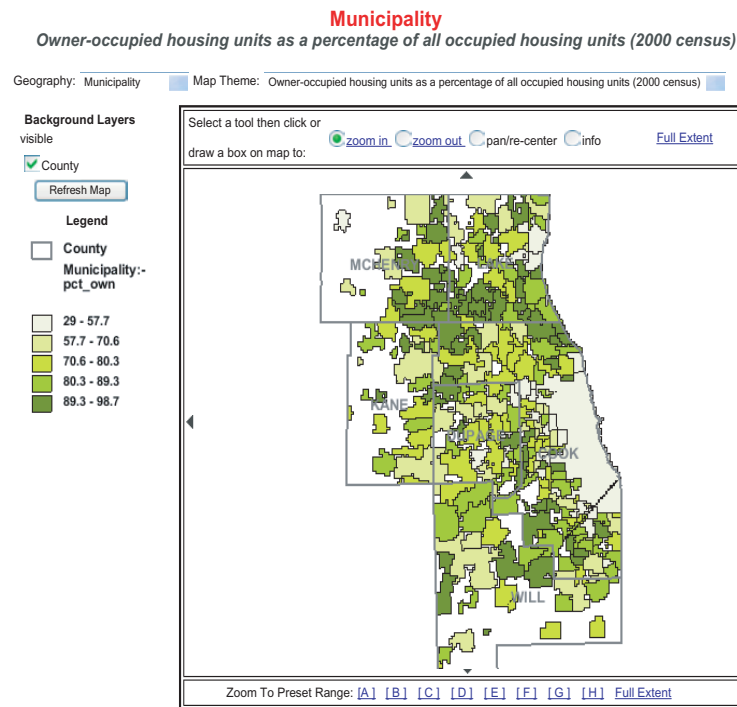
<sup>126</sup> Sanders, Greg. Northeastern Illinois Planning Commission. Personal Interview. February 25, 2004.

<sup>127</sup> Northeastern Illinois Planning Commission. *Full Circle Community Mapping and Planning Project*. <http://www.chicagoareahousing.org/FullCircle/>. Accessed April 26, 2004.

<sup>128</sup> The Greater Chicago Housing and Community Development Website. Database: *Research an Area*. [http://www.chicagoareahousing.org/Area\\_SelectGeogLevel.asp?cb=Area\\_SelectGeogs.asp&context=1&newlayout=](http://www.chicagoareahousing.org/Area_SelectGeogLevel.asp?cb=Area_SelectGeogs.asp&context=1&newlayout=). Accessed April 27, 2004.

## Figure A5

### Mapping Feature



Source: Greater Chicago Housing and Community Development Website <sup>129</sup>

Figure A5: An example of map output from selected geographic data.

## Part II: Indicators Case Studies Matrix

Part II of this appendix evaluates the web-based interfaces provided by select case study cities. The web sites are evaluated by their mapping units, ability to produce certain outputs (maps, reports, etc.), community involvement, data used, and accessibility.

<sup>129</sup> The Greater Chicago Housing and Community Development Website. *Features: Maps.* <http://www.chicagoareahousing.org/GIS/Theme.asp>. Accessed April 27, 2004.

	<b>Baltimore</b>	<b>Boston</b>
<b>Data Host</b>	Baltimore Neighborhood Indicators Alliance	The Boston Foundation
<b>Partners</b>	A number of different community organizations serve on committees. The city is represented by the Planning Department on the Coordinating Committee. University of Maryland social work and urban planning departments are also involved.	City of Boston/Boston Redevelopment Authority and the Metropolitan Planning Council
<b>Goals</b>	The system promotes better decision-making by using accurate, reliable, and accessible data and information to improve quality of life.	The site itself consists of components of the 2002 Boston Indicators report that provides data, graphs, and charts.
<b>Geographic unit</b>	Census tract, zip code	Neighborhood, city
<b>Mapping features</b>	Interactive mapping is available. There is a login screen. Static maps are provided on the site in PDF format.	Static maps are provided.
<b>Data downloads</b>	Data may be downloaded in PDF format for the entire city or by neighborhood.	Users can download data for some charts in Excel or view them on-screen. There is a page that looks at information comparing neighborhoods.
<b>Reports</b>	Main report is Vital Signs and is rich with data tables for all neighborhoods.	The system produced a comprehensive indicators report for 2002 entitled "Creativity and Innovation: A Bridge to the Future)
<b>Level of Community Input</b>	Initial yearlong planning process involving several citywide nonprofit groups and neighborhoods.	The level of community input is unclear.
<b>Data Sources</b>	Census info; administrative data from city and state sources	Compiles data from a number of different sources and surveys. Not intended to be updated on a regular basis.
<b>Access/Training</b>	Believes in "one stop shop" for data. Available online and in the office. Technical training and assistance available	Web and print information is available but the outputs are not customizable.
<b>Methodology</b>	Focus group participants were asked to state what vision and outcome they wish to see in their neighborhood in 10 years and what indicators and measures would show that this outcome was being reached.	The system aggregates a large amount of data from a variety of sources.
<b>Other Information</b>	Not available	Not available
<b>Source</b>	<a href="http://www.bnbia.org/vitalsigns/index.html">http://www.bnbia.org/vitalsigns/index.html</a> . Accessed April 18, 2004.	<a href="http://www.tbf.org/indicators/">http://www.tbf.org/indicators/</a> . Accessed April 18, 2004.

	<b>Chicago</b>	<b>Cleveland</b>
<b>Data Host</b>	Center for Neighborhood Technology	The T2K Group is a nonprofit collaborative that works to provide information for Cleveland's community-based organizations.
<b>Partners</b>	Funding is provided by the Sara Lee, Maramont, Polk Bros and Fannie Mae Foundations.	Case Western Reserve University (CANDO), Cleveland State University (Neighborhood Link) Enterprise Foundation, U.S. Department of Commerce, Cleveland Housing Network, City of Cleveland, Neighborhood Progress, Inc.
<b>Goals</b>	The system strives to prevent neighborhood decay by identifying warning signs and facilitating data access.	An interactive source for data on Cleveland's neighborhoods and is designed for use by community-based organizations, govt. agencies, students and researchers.
<b>Geographic unit</b>	Parcel, ward, neighborhood, zip code	Parcel, block, block group, tract
<b>Mapping features</b>	Is available. Feature was added in late April 2004 after this plan went to press.	Dynamic GIS mapping is available. Some static maps are provided as well.
<b>Data downloads</b>	Can do queries for statistics by building and area (ward, community area, zip code). Data primarily related to building structures.	Users can export data into Access or Excel and can also query for the system for specific information.
<b>Reports</b>	Not available	There are no regularly produced reports.
<b>Level of Community Input</b>	There is a low level of community input in the system.	This site uses information that may have come out of a separate community process, but the level of community input is unclear.
<b>Data Sources</b>	City and county tax info, housing court cases, fire data, sales data, census data	Census; city, state and federal agencies
<b>Access/Training</b>	The system is accessible only through a Web site.	The system is very accessible as part of the T2K Group's information web-portal for community organizations. Users can research by property, street or an area, and can query the database. There is an online tutorial available.
<b>Methodology</b>	The system aggregates several data sources.	It is unclear exactly how the T2K Group has gained access to data or how regularly information is updated. There is a link to Case Western Reserve University's CAN DO neighborhood data sharing project, which does gather much of the same info for the metropolitan area as well as Cleveland State University's Neighborhood Link.
<b>Other Information</b>	Output is difficult to draw conclusions from and not statistically-based. Trends seem difficult or even impossible to track (time series over a neighborhood). One of the oldest systems available for compiling information for use by housing advocates. Began in 1984.	The lack of contact information other than an e-mail link on the site is unfortunate. It is unclear who T2K is and subsequent links lead to the Cleveland Housing Network. There is a wealth of information on the Web site. However, greater transparency is needed.
<b>Source</b>	<a href="http://www.newschicago.org/">http://www.newschicago.org/</a> . Accessed April 18, 2004.	<a href="http://www.cleveinfo.net/">http://www.cleveinfo.net/</a> . Accessed April 18, 2004.

	<b>Denver</b>	<b>Grand Rapids</b>
<b>Data Host</b>	The Piton Foundation	Undecided. A group of Grand Rapids-based non-profits and neighborhoods is currently working on data collection issues.
<b>Partners</b>	The "Neighborhood Facts" component of the site is a joint project between Piton and the Community Planning and Development Agency of the City and County of Denver.	The web site is maintained by Grand Valley State University. The Dyer-Ives Foundation leads meetings.
<b>Goals</b>	"Neighborhood Facts" provides info on Denver's neighborhoods designed for use by residents, policy makers and other interested parties.	The goal is to create neighborhood-level indicators of environmental, physical, demographic, economic and cultural conditions that can be used to evaluate and monitor the health of Grand Rapids' neighborhoods.
<b>Geographic unit</b>	Neighborhood Census tracts; school (not school district)	Point, address, or tract
<b>Mapping features</b>	A variety of interactive neighborhood maps are provided for different data categories such as economics, demographics, and education. Also a clickable neighborhood map that brings up data tables.	Not available (indicators are still being developed)
<b>Data downloads</b>	Data graphs are available. Data is provided on-screen. Can cut and paste if needed. Search by neighborhood on map or by list. Can do customized searches of database.	Not available (indicators are still being developed)
<b>Reports</b>	No regularly published reports. There are fact sheets for select neighborhoods based on census data. Also reports with data analysis of neighborhood conditions.	Not available (indicators are still being developed)
<b>Level of Community Input</b>	The site provides no information on whether there was community input in gathering the information.	The system encourages broad-level input to make the indicators that are chosen useful for analyzing neighborhood conditions. Several organizations have participated so far.
<b>Data Sources</b>	Data Sources are not described on the web site.	US Census Bureau, REGIS, City of Grand Rapids, GVSU State of Michigan, FFIEC, US EPA
<b>Access/Training</b>	Requires registration and login. There are samples for users to view to see the types of information available. A few links and documents go over why data is important for grants and how to interpret Census information.	The system is committed to public access but protects confidentiality. Police records, for example, are aggregated to the neighborhood level.
<b>Methodology</b>	Not available	A working group met with neighborhood groups and stakeholders to help develop indicators. The site discusses what other programs are doing, but how they picked the indicators is a little hard to determine.
<b>Other Information</b>	A Spanish version of the web site is available.	The Community Data Working Group has developed a Web site where future meetings and progress is posted. Will try to include examples of how data is being used for change.
<b>Source</b>	<a href="http://piton.org/default.asp?nav_id+4">http://piton.org/default.asp?nav_id+4</a> . Accessed April 18, 2004.	<a href="http://www.nicdwwg.org">www.nicdwwg.org</a> . Accessed April 18, 2004.

	<b>Los Angeles</b>	<b>Miami</b>
<b>Data Host</b>	UCLA Advanced Policy Institute	Miami-Dade County
<b>Partners</b>	The system is funded by: National Telecommunication Information Administration, Fannie Mae Foundation, Los Angeles Housing Department, Microsoft Corporation	None
<b>Goals</b>	The goal is prevention of neighborhood decay through identification of warning signs of decay, facilitation of data access, and mobilization of support for community improvement.	An information portal called "My Neighborhood" is hosted on the county's Web site. A staff member from the county works to compile community information, increase citizen awareness of their own communities, and empowers community groups.
<b>Geographic unit</b>	Individual property data, City Council District, Zip Code, or Census Tract, Community assets ("community" seems to have a fluid definition – you can choose the boundaries for your search)	Address, intersection and landmark
<b>Mapping features</b>	Includes a sophisticated and useful mapping interface, allowing flexibility in searches.	Interactive mapping is available.
<b>Data downloads</b>	Can view maps or tables with data. Not exportable but can cut and paste.	Not Available
<b>Reports</b>	No regular reports are produced.	No regular reports are produced.
<b>Level of Community Input</b>	The NKLA project demonstrates a high level of community input. NKLA formed as a result of a grass-roots community effort involving many neighborhood groups and the UCLA planning program	Community input is higher in the city of Miami than elsewhere, though data for other parts of the county are made available.
<b>Data Sources</b>	U.S. Census, tax delinquencies, code complaints, code enforcement, building permits, at-risk properties, contract nuisance abatements, non-profit orgs, identified assets, others	U.S. Census; various statistics from local agencies such as the Center for Children and Families.
<b>Access/Training</b>	A user must log in to access data and maps. The system conducts extensive training and outreach to ensure that NKLA is being used to improve LA neighborhoods. This training usually is targeted to community-based organizations that are involved with housing and neighborhood development.	The program has many users, composed mainly of organizations that already know about its existence.
<b>Methodology</b>	Not Available	Community agencies contact Miami-Dade County for information about their particular neighborhood. Information is gathered on a case-by-case basis for individual organizations, though general information is posted on a website.
<b>Other Information</b>	Simple searches and more advanced queries are available. A useful guidebook is included on the site, which is available in English and Spanish.	The system is essentially one staff member working with other public agencies.
<b>Source</b>	<a href="http://nkla.sppsr.ucla.edu/">http://nkla.sppsr.ucla.edu/</a> . Accessed April 18, 2004.	<a href="http://gisims2.co.miami-dade.fl.us/MyNeighborhood/home.asp">http://gisims2.co.miami-dade.fl.us/MyNeighborhood/home.asp</a> . Accessed April 18, 2004.

	<b>Portland</b>	<b>Washington DC</b>
<b>Data Host</b>	Auditor's Office, City of Portland	DC Agenda- a nonprofit civic organization.
<b>Partners</b>	Portland Multnomah Progress Board	The DC Data Warehouse is managed by the Urban Institute's Metro Center. The Annie E. Casey Foundation provides funding.
<b>Goals</b>	Establish benchmarks that are intended to gauge conditions in the community, encourage organizations to focus on outcomes, and increase collaboration to deal with significant, long-term conditions	The system provides community-based organizations and residents with local data and analysis they can use to improve the quality of life in their neighborhoods. The goal is to democratize data for use as a tool in civic engagement.
<b>Geographic unit</b>	City and county	Council Wards, Advisory Neighborhood Commissions (ANC), Neighborhood Clusters (Clusters are used by the DC municipal government for budgeting, planning, service delivery, and analysis) Police Service Areas (PSA), Census tracts
<b>Mapping features</b>	Not available	Maps are used to choose geographic area.
<b>Data downloads</b>	Can download benchmark trend data into an Excel spreadsheet or download as a PDF.	Data charts are viewed on-screen. Users must cut and paste to utilize data.
<b>Reports</b>	There are a few reports that can be downloaded on benchmark trends.	"Issue Scan" is regularly produced report that looks at changes in neighborhood conditions. Report briefs are also posted on the site.
<b>Level of Community Input</b>	Medium: Citizens initially helped develop goals and translate them into benchmarks.	Limited
<b>Data Sources</b>	Census, city and state and federal departments.	US Census, TANF Cases, subsidized housing, crime reports & arrests, vital statistics records, home mortgage lending activity, property Sales, child abuse & neglect cases
<b>Access/Training</b>	Not available	Tables are available on the web site: mostly tables for each set of indicators. Published reports and briefs w/ data analysis and suggested applications Community outreach and capacity building. Technical assistance forms on web site, provides "on-demand" technical assistance to local organizations
<b>Methodology</b>	The system used community input to develop goals and indicators. The Progress Board currently tries to define benchmarks to track those issues of community concern.	The Metro Center cleans and stores the data files to be distributed through the NIS site.
<b>Other Information</b>	These benchmarks are not for use in comparing neighborhoods. However, there are a number of interesting indicators that have been included. The FAQ page on the site provides useful information about how benchmarks are used and how they are selected.	Two full-time support staff persons administrate system.
<b>Source</b>	<a href="http://www.portlandonline.com/auditor/index.cfm?c=27347">http://www.portlandonline.com/auditor/index.cfm?c=27347</a> Accessed April 18, 2004.	<a href="http://www.dcagenda.org/nis/">http://www.dcagenda.org/nis/</a> . Access April 18, 2004.

<b>West Oakland</b>	
<b>Data Host</b>	Pacific Institute, a nonprofit research organization
<b>Partners</b>	The 7th Street Neighborhood Improvement Initiative
<b>Goals</b>	The goal is to give residents the information they need to revitalize their communities, especially information about environmental issues.
<b>Geographic unit</b>	Neighborhood
<b>Mapping features</b>	Not available
<b>Data downloads</b>	Not available
<b>Reports</b>	Individual indicator reports can be downloaded in PDF format.
<b>Level of Community Input</b>	The system is a resident-driven process managed and implemented by Pacific Institute.
<b>Data Sources</b>	Various city departments, EPA, other
<b>Access/Training</b>	Neighborhood groups have access to data and use it to advocate for the neighborhood.
<b>Methodology</b>	Neighborhood residents on a Neighborhood Taskforce choose indicators. Technical assistance and training is provided through different coalitions. Brochures and speakers are available to inform residents about the project.
<b>Other Information</b>	Pacific Institute for Studies in Development, Environment, and Security
<b>Source</b>	<a href="http://www.pacinst.org/eip/woeip.html">http://www.pacinst.org/eip/woeip.html</a> . Accessed April 18, 2004.

## Part III: Data Providers for Neighborhood Indicators Systems

This appendix reports on the different data sources that have been used by the cities reviewed in case study research for this plan. Each city has used data beyond U.S. Census information to enrich their neighborhood indicator system. The local, state and federal agency from which data was obtained is listed as well as the type of information provided.

### BALTIMORE, MD

Baltimore Neighborhood Indicators Alliance  
218 W. Saratoga Street, Suite 5B, Baltimore MD 21201  
(410) 235-0944 - [bnia@bnia.org](mailto:bnia@bnia.org)  
Web site: <http://www.bnia.org/index.html>

This list of data from different partners comes from the BNIA's data inventory report. (<http://www.bnia.org/PDF/DATA%20INVENTORY%202004.pdf>)

#### Baltimore City Board of Elections

- Population 18-25 registered to vote in general election
- Population ages 18-25 who voted in general election

#### Baltimore City Data Collaborative

The BCDC is a separate organization that warehouses public health from other agencies data on children and families for the City. ([www.baltimorekidsdata.org](http://www.baltimorekidsdata.org))

- Arrest information for juveniles

Locations for:

- After-school programs
- Pre-school programs
- Head start programs
- Tutoring/mentoring programs
- Teen pregnancy prevention centers, family support centers
- Births data—born at full term, satisfactory birth weight, births to teens, births to bother receiving prenatal care
- Maternal and child health index
- Child abuse and neglect
- Emergency and non-emergency ER visits
- Children with asthma

## **Baltimore City GIS (Mayor's Office of Information Technology)**

Site provides information for maps. Some of these features are added by BNIA.

- Bus routes
- Major streets/roads
- Light rail routes/stations
- Boundaries of police districts
- Public schools
- Libraries
- Colleges and universities
- Locations of health care clinics
- Mental health care clinics
- Stadiums
- Government buildings
- Museums
- Cultural centers, theaters
- Grocery stores
- Banks
- Post offices
- Recreation centers
- Parks
- Community gardens
- Religious organizations
- Maryland General Assembly legislative district boundaries
- City Council district boundaries
- Census tract boundaries
- Community Statistical Area boundaries
- Zip code boundaries

### **Obtained from Department of Housing and Community Development:**

- Vacant and abandoned homes
- Other housing violations
- Baltimore City Health Department
- Information organized by zip code
- Houses with active lead violations
- Children ages 0-6 diagnosed with elevated blood lead levels
- People with vaccine-preventable disease
- AIDS cases

## **Baltimore City Department of Housing and Community Development**

- Residential construction investment (new and rehab)
- Designated historic buildings
- Vacant lots

- Business construction and investment
- Vacant commercial properties
- Total commercial properties
- Empowerment Baltimore Management Corporation
- Empowerment zones
- Empowerment zone village centers

### **Baltimore City Department of Recreation and Parks**

- Locations of public senior centers

### **Baltimore City Department of Planning**

- % Of area covered by tree canopy (environment)
- Locations of community organizations
- Racial diversity index (from 2000 U.S. Census)
- Economic diversity index (from 2000 U.S. Census)

### **Baltimore City Police Department**

- Criminal offenses
- Violent crime
- Domestic violence
- Total 911 calls
- Locations of police and fire stations (for maps)

### **Baltimore City Substance Abuse Systems**

- Locations of drug treatment centers

### **Citistat (an accountability program for every City agency)**

<http://www.baltimorecity.gov/news/citistat/index.html>

- Illegal dumping
- Dirty streets and alleys
- Clogged storm drains
- Abandoned vehicles
- Rats
- Parks maintenance

### **BNIA**

- Main Street initiative programs

### **Maryland Center for Community Development**

- Locations of community development corporations
- Maryland State Department of Education (compiled by school)
- Maryland student assessment test scores
- Enrollment
- Dropout rate

- Graduation rate
- Graduates completing advanced programs
- Locations of non-public schools

### **Maryland Department of Environment**

- Ozone days (for entire city)
- Days above 90 degrees
- % Of population served by high quality water treatment
- Locations of hazardous waste sites (formerly and presently investigated) [mapping]

### **Maryland Transportation Authority**

- Average daily boarding for weekdays and weekends

### **OTHER PROVIDERS**

#### **First American Real Estate Solutions, Maryland Property View**

- Total properties-- residential
- Housing units sold
- Owner and renter-occupied units
- Sales prices and dates

#### **Maryland Regional Information System**

- Number of days property is on the market

#### **Jacob France Institute at the University of Baltimore**

- Dun and Bradstreet data on number of businesses including small businesses
- Households receiving temporary cash assistance (TCA) (from Maryland Department of Human Resources)

## **BOSTON, MA**

The Boston Foundation Indicators Project  
Web site: <http://tbf.org/indicators/>  
The Boston Foundation  
(617) 338-1700 [info@tbf.org](mailto:info@tbf.org)  
75 Arlington Street, 10th Floor, Boston, MA 02116

These are the data providers for information that related specifically to Boston's neighborhoods.

### **Boston Office of Cultural Affairs**

- Free and reduced price tickets at cultural institutions and venues in Boston by neighborhood

### **Boston Department of Neighborhood Development**

- Median home prices by neighborhood, Boston, 1998-2002
- Distribution of affordable housing units by Boston neighborhood
- Abandoned residential properties by Boston neighborhood, 1997 - 2002

### **Boston Police Department**

- Domestic violence by neighborhood
- Partnerships with law enforcement agencies by neighborhood

#### **Public Citizen Survey**

- Boston residents' trust in neighbors
- Resident public perception of safety and quality of life ranking by neighborhood

### **Boston Public Health Commission**

- % Of children under 6 with elevated lead levels
- Asthma hospitalization rates for children under 5
- Reported cases of lead poisoning, 1992 - 2001

### **Boston Public Library**

- Library books in circulation, by Boston neighborhood

### **Metropolitan Area Planning Council, Boston Redevelopment Authority**

- Green space distribution, acres/1,000 children by Boston neighborhood

**Massachusetts Department of Environmental Management**

- % Of Tree cover by neighborhood

**Mass GIS**

- Miles of bike paths

**U.S. Small Business Administration**

- Small business loans by neighborhood

**After School for All Partnership**

Public-private partnership focused on children

- Children served by after-school programs versus children ages 5-18, by neighborhood

**Boston Indicators Project**

Based on analysis of 2000 U.S. Census data

- Residents within a 10-minute walk or short drive from transit nodes by race, income, age group and transit dependency

**Boston Natural Areas Network**

Oversees many of the city's gardens

- Community gardens in Boston

**Boston VOTE**

Nonpartisan organization that tracks voting information

- Registered voters and participation rates, Boston, 2000-2002

**New England Foundation for the Arts**

- 2.3.1 Distribution of Boston's arts and cultural facilities

**Bankers and Tradesman**

- Mortgage foreclosures by Boston neighborhood, 1990 - 2002

## CHICAGO, IL

CityNews

Community Technology and Neighborhood Early Warning System

Web site: <http://www.newschicago.org/>

Center for Neighborhood Technology

2125 W North Ave. Chicago, IL 60647-5415

(773) 278-4800

This is a list of the data that are available for view on the web site. The website does not give information as to which city departments in Chicago are responsible for providing these housing data.

(Note: A new mapping feature with additional information was introduced to the site after this plan went to press. Please refer to the web site for more information).

- Number of parcels
- Fires
- Code violations
- Housing court visits
- Annual sales
- Vacancies

### **Tax Class**

- Buildings with Tax Classes
- Exempt
- Vacant
- Residential
- Rental
- Not for Profit
- Commercial and Industrial
- Industrial Incentive
- Commercial Incentive
- Commercial and Industrial Incentive
- Multi Family Incentive

## CLEVELAND, OH

Cleveinfo

Web site: <http://www.cleveinfo.net>

Sponsored by the T2K Group, a nonprofit collaborative that has developed a web-based information portal.

The Cleveland Housing Network, Inc.

2999 Payne Avenue Suite 306 Cleveland, Ohio 44114

(216) 574-7100

Listing for data sources if found here: [http:// www.cleveinfo.net/AllIndicators.asp](http://www.cleveinfo.net/AllIndicators.asp)

### City Community Development Dept

- Residential and commercial investments through city programs
- Building permits
- Code violations

### Cleveland Municipal School District

- Public school attendance rate
- Public school enrollment rate

### Cleveland Police Department

- Alcohol-related violations
- Drug-related violations
- Weapons violations
- Domestic violence
- Violent crimes (aggravated assault, homicide, assault, rape)
- Property crimes (arson, auto theft burglary, larceny)
- Arson

### Cuyahoga County Auditor

- Auditor market value assessment
- Tax assessed value
- Sales price
- Building condition
- Building Size
- Buildings: general info, number of buildings, year building was built
- Amount of delinquent taxes as certified by the County
- City land bank property
- Address of owner
- Previous sales price of property
- Total property value
- Size of lots in square feet

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### **Cuyahoga County Elections Board**

- Registered voter participation rate
- Number of registered voters
- Voter participation rate
- Voting population

### **Starting Point**

- The county's childcare referral and resource agency.
- Number of slots for children ages 0-18 months (infant), 18-36 months (toddler), 3-5 years (preschool), 6-12 (school age)
- Childcare centers with evening shifts
- Childcare centers that participate in the Headstart program
- Childcare centers that have overnight shifts

### **Ohio Department of Health**

- Vital statistics
- Births to teen mothers/1,000
- Births to unwed mothers/1,000
- Low weight births/1,000
- Infant mortality rate
- Total births

### **Ohio Department of Human Services**

- Food stamp recipients
- State public assistance recipients

### **Ohio Division of Liquor Control**

- Address of liquor license holder

### **Home Mortgage Disclosure Act**

- Denial rate for home improvement loans (%)
- Number of home improvement loan applications
- Number of home improvement loans approved
- Value of home improvement loans
- Denial rate for home purchase loans
- Number of home purchase loan applications
- Number of home purchase loans approved
- Value of home purchase loans

**U.S. Department of Housing and Urban Development (HUD)**

- Number of section 8 units
- Number of renters with Section 8 vouchers
- Number of units with HUD rental assistance in this property
- Number of total units w/section 8 expirations

**Local CDCs**

- CDC housing production--number of square feet, units
- Total cost of CDC sponsored project
- Year building was built/renovated
- CDC-related project-- include total cost, type of project, year built

**DENVER, CO**

The Piton Foundation  
Web site: [www.piton.org](http://www.piton.org)  
370 17th Street, Suite 5300 Denver, CO 80202  
[info@piton.org](mailto:info@piton.org)

**Denver Planning Office**

- Number of housing units
- Average home sales price (from Denver Assessor's Office)
- Publicly assisted housing units (from Denver Housing Authority, Colorado Housing Finance Authority and HUD)

**Denver Public Schools**

- Public school children receiving free school lunch
- Student enrollment
- percent of students who speak no or limited English
- High school graduation rate
- Test scores
- High school dropout rate
- Public school suspension and expulsion violent offense rate

**Denver Department of Safety**

- Property crimes
- Violent crimes

**Denver Department of Social Services**

- People on public assistance

**Denver Regional Council of Government (DRCOG)**

- Type of jobs by sector
- Total number of jobs
- Average annual wage
- Average household income

**Colorado Department of Human Services**

- Out-of-home placement (children in foster care)
- Adults on TANF (Temporary Assistance to Needy Families)
- Number of childcare slots at licensed day care centers
- Number of children in subsidized childcare
- % Children on Medicaid
- Confirmed child abuse and neglect rate

**Colorado Department of Public Health and Environment**

- Total Births
- Teen birth rate
- Births to unwed mothers
- Births to women receiving prenatal care
- Low birth weight rate
- Premature birth rate

## GRAND RAPIDS, MI

NICDWG  
Neighborhood Indicators/Community Data Working Group

Contacts:  
Lee Nelson Weber  
Neighborhood Initiative Director  
Dyer-Ives Foundation  
Grand Rapids, MI  
Lnweber@dyer-ives.org

Mark Hoffman  
School of Public and Nonprofit Administration  
Grand Valley State University  
Grand Rapids, MI  
Hoffmanm@gvsu.edu

(616) 454-4502  
Web site: <http://www.nicdwg.org/index.html>

This site is an interesting resource because it documents the process of developing a neighborhood indicators system. There are meeting minutes available on-line for review, especially regarding reviewing available data and selecting indicators. (<http://www.nicdwg.org/minutes.html>)

The group started meeting in January of 2002. Another section of the site details the availability of data from different agencies and organizations and the success of NICDWG in obtaining the information for use. (<http://www.nicdwg.org/sources.html>)

Currently, the Community Research Institute (CRI) at Grand Valley State University has community profiles with information about Grand Rapids neighborhoods. CRI staff has worked to gather relevant data such as crime, which must be requested directly from the police department. The City of Grand Rapids has a policy that requires individual departments to be responsible for the dissemination of information.<sup>130</sup>

As for confidentiality issues, NICDWG will aggregate the data appropriately so individual privacy rights regarding sensitive topic such as health and financial situation are protected.<sup>131</sup>

The list of available information and the agencies that have provided them are detailed below and were compiled directly from CRI's web-site. Much of the data listed is from the 2000 U.S. Census.

<sup>130-131</sup> Neighborhood Indicators/  
Community Data Working  
Group. *Meeting minutes*. <http://www.nicdwg.org/minutes.html>.  
February 19, 2003.

**City Clerk's Office**

- Voting participation rate by age

**Grand Rapids Police Department**

- Crime rate for residential areas

***Potential indicators under consideration:*****Assessors Office**

- Percent of land used for open space
- Percent of parcels that are vacant land
- Sq. ft. of retail space / person
- Percent multi-family units
- Absentee landlords
- Commercial property tax delinquency
- Percent of homes owner-occupied
- Median home sales price
- Residential property tax delinquency
- Percent vacant units

**Building Department**

- Building Permits

**Police Department**

- Crime rate
- Reported disturbances / housing units

**State Health Department**

- Teen birth rate
- Infant mortality
- Percent low birth-weight births

**Environmental Protection Agency (EPA)**

- Amount of pollution emissions

**Home Mortgage Disclosure Act (HMDA)**

- Home lending activity

**Community Reinvestment Act (CRA) data**

- Business lending activity by tract

**Other types of information**

- Use of public space (observation)
- Volunteerism (neighborhood association)
- Satisfaction of residents (survey)

## LOS ANGELES, CA

Neighborhood Knowledge Los Angeles (NKLA)

Web site: <http://nkla.ucla.edu/>

Advanced Policy Institute, UCLA

3317 Public Policy Building

Box 951656 Los Angeles, CA 90095

The NKLA project had its origins with the research program at the UCLA Department of Urban Planning. Initial funding for NKLA came from the City of Los Angeles through block grants.<sup>132</sup> The city required that the project be based out of a non-profit organization rather than at the university to ensure direct accountability to an organization that was actively dealing with housing issues. Later as the project came to rely more on the computer labs and the graduate students at the school, NKLA moved back to UCLA.

In terms of gathering administrative data sets, NKLA's strategy was to work with the individuals who built and managed each database system and identifying whether there was a need for them to obtain information from other departments.<sup>133</sup> Since NKLA also had a contract with the Los Angeles Housing Department, establishing a formal basis for the researchers to be gathering data from different city departments relating to the project. The county government's main concern there was that the site would make public a unique assessor parcel identifier that is sold to private real estate firms.<sup>134</sup> An agreement was reached to sell UCLA only a portion of the assessor's data.

The sources for the property data is detailed in this section: <http://nkla.spsr.ucla.edu/Master.cfm?Page=PropertyDataGuide.cfm>

### City of Los Angeles Department of Building and Safety

- Building permits
- Hazardous/public safety problems on property
- Building code complaints

### City of Los Angeles Housing Department

- Code violations for rental properties
- "At-risk" affordable housing (affordability agreement has run out)

<sup>132</sup> Neighborhood Knowledge Los Angeles, *The History of NKLA*. <http://nkla.spsr.ucla.edu/Master.cfm?Page=History/Main.cfm>. Accessed January 25, 2004.

<sup>133-134</sup> Neighborhood Knowledge Los Angeles. *The NKLA How-to Kit*. <http://nkla.spsr.ucla.edu/Master.cfm?Page=HowToKit/main.cfm&Page2=Political.cfm#2>. Accessed January 25, 2004.

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**City of Los Angeles Information Technology Agency**

- Property data base (addresses, zip codes, census tracts, council districts)

**Los Angeles Department of Water and Power**

- Liens on property for unpaid utility bills

**Los Angeles County Tax Collector**

- Tax delinquent properties (amount due)

**MIAMI, FL**

My Neighborhood

Website: <http://gisims2.co.miami-dade.fl.us/MyNeighborhood/home.asp>

Miami-Dade County

Stephen P. Clark Center

111 N.W. First Street

Miami, FL33130

The data are assembled from different county-level departments. The web site maps information in the following categories:

- Capital improvement projects (multiple agencies)
- Code Violation (multiple agencies)
- Crime Incident (Miami-Dade Police Department)
- Land Use Information (multiple sources)
- Sales Information (Miami-Dade County Property Appraiser)
- Sexual Offender/Predator (Florida Department of Law Enforcement—state agency)
- Transportation Improvement (links to the Miami-Dade Metropolitan Planning Organization)

## **MILWAUKEE, WI**

### COMPASS

Community Mapping and Analysis

Web site: [http://www.milwaukee.gov/compass/public\\_applications.html](http://www.milwaukee.gov/compass/public_applications.html)

809 N. Broadway, Suite 400

Milwaukee, WI 53202

Metadata page: <http://compass.ci.mil.wi.us/metadata/metadata.htm>

### **City of Milwaukee Assessor's office**

- Assessed value of residential property for each parcel

### **Department of Community Development**

- Building inspection requests
- Neighborhood boundaries

### **Milwaukee Fire Department**

- Reported fires

### **City of Milwaukee Health Department**

- Births
- Percentage births to teens
- Percentage low birth weight
- Percentage prenatal care during pregnancy
- Percentage smoking during pregnancy

### **Information Technology Management Division**

- Location of fire stations and police stations
- Non-owner occupied properties

### **Department of Neighborhood Services**

- Raze orders for properties
- Property violations
- Permits for construction, plumbing and electrical

### **City of Milwaukee Police Department**

- Violent crimes
- Property crimes

### **Milwaukee Public Schools**

- Community learning centers

### **Treasurer's Office**

- Tax-delinquent properties (parcel)

## MINNEAPOLIS, MN

Urban Ecology Coalition Neighborhood Sustainability Indicators Project

Web site: <http://www.crcworks.org/nsip.html>

Crossroads Resource Center

P.O. Box 7423

Minneapolis, Minnesota 55407

Seward Neighborhood Group, Inc.

2323 E. Franklin Ave. Minneapolis, MN 55406

<http://www.sng.org/>

Longfellow Community Council

2727 26th Avenue South Minneapolis, MN 55406

<http://www.longfellow.org/>

More information about specific indicators and the process of working with neighborhood organizations to develop indicators can be obtained from the Neighborhood Sustainability Indicators Guidebook: <http://www.crcworks.org/guide.pdf>

The city of Minneapolis has drafted a sustainability plan to be reviewed and adopted. In January 2004, the Minneapolis Sustainability Initiative, which includes the city's Community Planning and Economic Development office, held a recent roundtable where possible indicators were proposed.<sup>135</sup> The following list details the neighborhood sustainability indicators that were developed by the Seward Neighborhood group as key indicators for measuring long-term neighborhood sustainability.<sup>136</sup> The data for many of these indicators will come from surveys.

### Annual visual survey

- "Friendly spaces"-rate neighborhood spaces, both private and public

### Annual business and/or resident survey

- Consumption by residents at independent local stores

### Annual business survey

- Purchases from local vendors by local businesses
- Number of home-based businesses and resident-managed studio/office spaces

<sup>135</sup> Crossroads Resource Center. *Minneapolis Sustainability Roundtable: Possible Indicators*. <http://www.crcworks.org/msi/indicdraft.pdf>. Accessed April 26, 2004.

<sup>136</sup> Crossroads Resource Center. *1999 Neighborhood Sustainability Indicators Guidebook*. p. 24-25 <http://www.crcworks.org/guide.pdf>. Accessed April 26, 2004

**Annual resident survey**

- Number of residents who share skills or barter services with each other
- Number of residents who volunteer for church or community service work
- Residents who plan to stay in neighborhood for a specified number of years
- Percentage residents earning a living wage
- Percentage workers that work inside and outside of the neighborhood

**Annual count of bike riders and cars**

- Number of bicycles traveling on key routes compared to number of cars

**PORTLAND, OR**

Community Benchmarks

Web site: <http://www.portlandonline.com/auditor/index.cfm?c=27347>

Portland Multnomah Progress Board

1221 SW 4th Ave, Rm 140 Portland, OR 97204

Data notes are provided for each benchmark category. The data providers are diverse and varied because information is being collected at the city and county levels as well as for the metropolitan area. This site does not compare local neighborhoods. However, some interesting data sources have been used to identify indicators that are useful for creating policy changes.

**Portland Audit Services Division**

- Annual government performance survey (city only)
- Neighborhood safety
- Crime victims
- Emergency preparedness
- Neighborhood livability
- Street cleanliness

**Portland Police Bureau**

- Graffiti locations

**City of Portland's Office of Sustainable Development**

- Climate change
- Energy use

**City of Portland's Water Bureau**

- Water use

**Port of Portland**

- Number of metropolitan airports served by nonstop flights

**Portland-Vancouver Air Quality Maintenance Area  
Air Surveillance Network**

- Ambient air quality

**Multnomah County Elections Division**

- Voting information

**Multnomah County's Office of School and  
Community Partnerships**

- Homelessness

**Oregon Department of Education**

- Student achievement scores
- High school graduation rates

**Oregon Department of Employment, U.S. Bureau  
of Labor Statistics**

- Average annual wages (also U.S. Bureau of Labor Statistics)
- Number of jobs
- Average annual unemployment rate

**Oregon Department of Environmental Quality**

- Water quality
- Pounds per capita waste disposed in the tri-county metro region

**Oregon Department of Fish and Wildlife**

- Indicator species—counts on fish and blue heron in the region

**Oregon Department of Human Services**

- Teen pregnancies
- Healthy birth weight babies
- Early diagnosis of HIV
- Domestic violence-child abuse
- Adult alcohol and drug abuse (telephone surveys)
- Fire injuries and fatalities

**Oregon Progress Board/Oregon Department of Education**

- Kindergarten readiness (survey)

**Law Enforcement Data System, Oregon State Police**

- Domestic violence-partner abuse
- Crimes motivated by prejudice
- Reported insides of crime
- Arrests

**Oregon Department of Transportation**

- Vehicle miles traveled

**Oregon Healthy Teens**

- Student illicit drug, alcohol and tobacco use

**Oregon Population Survey**

- Volunteer activity
- Access to health care

**American Community Survey (U.S. Census Bureau)**

- Public transportation trends
- Educational attainment
- Poverty rates
- Income spent on housing
- Commute times

**U.S. Bureau of Economic Analysis**

- Per capita income (county)

**Center for Population Research and Census  
(Portland State University)**

- Population growth

**Regional Arts and Culture Council**

- Per capita government spending on the arts

## WASHINGTON, D.C.

DC Agenda  
Neighborhood Information Services  
Web site: <http://www.dcagenda.org/nis/>  
1825 K Street, NW, Ste 710  
Washington, D.C. 20006

Urban Institute  
DC Data Warehouse  
[http://www.urban.org/content/PolicyCenters/Housing\\_Communities/Projects/DCDataWarehouse/DCDataWarehouse.htm](http://www.urban.org/content/PolicyCenters/Housing_Communities/Projects/DCDataWarehouse/DCDataWarehouse.htm)

### NEIGHBORHOOD PROFILES

Sources for data used in the neighborhood profiles are provided on this page of the web site: [http://www.dcagenda.org/nis/common/Sources\\_notes.html](http://www.dcagenda.org/nis/common/Sources_notes.html)

### D.C. Metropolitan Police Department

- Violent crimes
- Property crimes

### D.C. Department of Health

- Percent low weight births
- Percent births to teen mothers

### Neighborhood Change Database (NCDB) from the Urban Institute

<http://www.urban.org/nnip/ncua/ncdb.html>

The data are available from Geolytics, Inc. and are based on the U.S. Census from 1980, 1990 and 2000. The information is remapped to fit 1990/2000 census tract boundaries. This allows for greater analysis of trend development across census tracts.

- Percent change population
- Percent change children
- Percent foreign-born
- percent different house 5 years ago
- Population by race/ethnicity
- Poverty rate
- Unemployment rate
- Percent population employed
- Percent households on public assistance
- Percent population without a high school degree
- Percent female-headed families with children
- Percent households with phones

- Percent households with vehicles
- Percent children in poverty
- Average family income
- Percent change in family income
- Occupied housing units
- Rental vacancy rate
- Homeownership rate

### **U.S. Department of Housing and Urban Development**

- Total HUD assisted units
- Percentage of public housing
- Section 8 housing units
- Section 8 certificates and vouchers

### **Federal Financial Institutions Examination Council (HMDA) Data**

- Total mortgage origination
- Home purchase loans
- Average mortgage value
- Average home purchase loan

## **DATA WAREHOUSE**

Information about neighborhood data used in building the DC Data Warehouse is found in the most recent publication of “Issue Scan.”<sup>137</sup> In collecting data for the warehouse, the Urban Institute’s Metro Center and DC Agenda have negotiated data sharing agreements with city departments such as:

- Office of Planning
- Metropolitan Police Department
- Office of Chief Financial Officer
- Department of Human Services
- Office of Income Maintenance

Other sources of information used by the researchers and writers for the “Issue Scan” are described below.<sup>138</sup>

- D.C. Department of Human Services
- Information and Referral Program
- Answers Please! Database

The database has information on services provided by the city as well as private organizations for citizens who call in seeking assistance. The data were geocoded and analyzed by the DC Data Warehouse staff.

### **D.C. Public Office of Educational Accountability**

- Achievement test scores

<sup>137</sup> DC Agenda. 2004. *Issue Scan: An Annual Report Examining Changes in Neighborhood Conditions in the District of Columbia*. <http://www.dcagenda.org/pdf/neighborhooddata.pdf>. p. 129. Accessed April 26, 2004.

<sup>138</sup> DC Agenda. 2004. *Issue Scan: An Annual Report Examining Changes in Neighborhood Conditions in the District of Columbia*. <http://www.dcagenda.org/pdf/neighborhooddata.pdf>. p. 125-126. Accessed April 26, 2004.

### **D.C. Office of Tax and Revenue**

- Real property assessment database <http://cfo.dc.gov/services/tax/property/database.shtm>

Users can use the site to search and provides online real property information

- Parcel identification
- Property sales
- Property characteristics

### **U.S. Census Bureau—Building Permits**

<http://www.census.gov/const/www/permitsindex.html#estimates>

The Census Bureau releases monthly data on new privately owned residential housing units that have been issued building permits. The data are available at the county-level and tabulate the number of buildings, the number of units and the construction costs.

### **U.S. Department of Housing and Urban Development (HUD)**

Dataset for “A Picture of Subsidized Households, 1998”

<http://www.huduser.org/datasets/assthsg/statedata98/index.html>

There are census tract summaries as well as project and agency summaries for each state. The HUD programs that are covered include:

- Indian housing
- Public housing
- Section 8 certificates and vouchers
- Section 8 moderate rehabilitation
- Section 8 new and substantial rehabilitation
- Section 236
- Other HUD subsidies
- Low Income Housing Tax Credits (LIHTC)

### **Fair Market Rents dataset**

<http://www.huduser.org/datasets/fmr.html>

Fair market rents are used to determine the eligibility of rental housing units for section 8 as well as for calculations for subsidies. HUD estimates FMRs annually for metropolitan areas. The data are downloadable in an Excel spreadsheet.

### **FFIEC Community Reinvestment Act**

<http://www.ffiec.gov/cra/default.htm>

- Small business loans data

The Community Reinvestment Act requires lending institutions

to disclose small business, small farm and community development loans. Data are available for census tracts and can be downloaded online.

## **WEST OAKLAND, CA**

West Oakland Environmental Indicators Project  
Web site: <http://www.pacinst.org/eip/woeip.html>

654 13th Street, Preservation Park  
Oakland, CA 94612

The full report “Neighborhood Knowledge for Change: The West Oakland Environmental Indicators Project” may be accessed using this link: [http://www.pacinst.org/reports/EIP\\_final\\_\(w\\_printers\\_marks\).pdf](http://www.pacinst.org/reports/EIP_final_(w_printers_marks).pdf) The appendix contains detailed information about the data sources and methodology for each indicator.

### **City of Oakland, Business Tax Division**

- Newly licensed businesses
- Business development by category

### **Office of the City Clerk**

- Percentage of population eligible, registered, and who voted

### **Community and Economic Development Agency**

- Land use conflict
- Percentage of West Oakland population living within 1/8 mile of an industrial area
- Bikeable Master Plan--total miles of streets in West Oakland with bike lanes

### **Community and Economic Development Agency**

- Oakland Housing Authority
- Publicly subsidized housing

### **Fire Department Emergency Services**

- % sensitive sites (public schools, childcare centers, parks, shelters, hospitals) that are within 1/8 mile of facilities that are at highest risk for chemical accidents

**City of Oakland Public Works Agency**

- Illegal dumping
- Tonnage removed per month & number of citations issued

**Alameda County Lead Poisoning Prevention Program**

- Number of children to have tested with elevated blood lead levels (zip code)
- Lead abatement—number of housing units that have lead clean up

**Alameda-Contra Costa Transit District**

- Accessibility of public transportation
- Average bus service miles

**Office of Statewide Health Planning and Development**

- Patient discharge database
- Number of children hospitalized and diagnosed with asthma

**Toxic Release Inventory System (TRI)—U.S. EPA**

- Air Pollution- amount of air pollutants released by large polluters
- Health risks to residents from air pollution
- Neighborhood toxic volumes

**U.S. Environmental Protection Agency**

- Superfund sites

**California Department of Toxic Substances Control, State Water Resources Control Board, and City of Oakland Emergency Services (Fire Department)**

Compile from different local, state and federal sources and geocoded

- Toxic waste sites
- Site that handle hazardous materials

**Oakland Association of Realtors**

- Multiple Listing Service sales data
- Median home prices

**Claritas, Inc.**

- Income estimates

**Homefinders, Inc.**

- Median rents

**University of California at Berkeley Dept of City and Regional Planning**

- Metroscan (parcel-level data)
- Percentage turnover of parcels by land use
- Number of parcels bought and sold within a given time period

## Appendix 2: Glossary

- **Blight** – physical deterioration that inhibits a positive response to change.
- **Census tract** – “Small geographical area established by local committees and approved by the Census Bureau, which contains a population segment with relatively uniform economic and social characteristics and clearly identifiable boundaries averaging approximately 1,200 households.”<sup>139</sup> This report uses 2000 census tract information.
- **Community health** – the overall quality of life in an area. Factors considered in the analysis of community health may include social connectedness, housing stock quality, economic strength and public safety.
- **Correlation analysis** – a statistical tool used to see the linear correlation between indicators.
- **Cluster** - a geographical area designated by the City of Detroit Planning & Development Department. The ten clusters each composed of approximately 100,000 persons were developed by the 1997 Community Reinvestment Strategy.
- **Data warehouse** – central data collection and maintenance activities.
- **Data host** – organization that handles and manages data to keep the warehouse up to date and to keep the models working.
- **Descriptive map** – all maps of a single cluster that display one variable from a single year.
- **Detection system** – a short list of indicators that work together to predict neighborhood decline or success.
- **HMDA data** – Home Mortgage Disclosure Act allows for home loan data to be publicly available for the assistance of neighborhood analysis. This leads to decision-making in regards to economic development, grant opportunities, and identifying social/political discrimination.<sup>140</sup>
- **Indicator** – a measurement that reflects the status of some social, economic, or environmental system over time. It is also a measure that helps to quantify or express the achievement and progress towards an outcome or goal.
- **Individual indicators** – the individual indicators that should be fed into the system to paint the most accurate picture of Detroit neighborhoods.
- **Key indicators** – indicators that support judgment about certain aspects of the future condition of a neighborhood. They are not directly measurable; rather, they give a general impression.
- **Leading indicators** – indicators that seek to predict the future

<sup>139</sup> A census tract is a small part of a county containing an average of 4,000 people. Source: U.S. Census Bureau. *Question and Answer Center: What is a Census Tract?* <http://ask.census.gov>. Accessed April 5, 2004.

<sup>140</sup> Home Mortgage Disclosure Act “About HMDA” <http://www.ffiec.gov/hmda/about.htm>. Accessed April 26, 2004.

value of a supporting indicator or a key indicator.

- **Neighborhood indicators** – measures that demonstrate a neighborhood’s progress toward targeted goals.
- **Neighborhood Indicators System** – computer-based information systems containing a broad variety of data on conditions and trends at the neighborhood level.
- **Outliers** – a data point that is located far from the rest of the data. Given a mean and standard deviation, a statistical distribution expects data points to fall within a specific range.
- **Predictive maps** – maps that account for a combination of indicators and more than one year of data in order to indicate neighborhood decline/improvement.
- **“Qualifying” criteria** – used to create a manageable pool of indicators for further testing.
- **Raw data** – disaggregated data that one could download into spreadsheets from the system.
- **Regression analysis** – this test uses the historical values of leading indicators to “predict” values of key indicators, and then compare the predicted value with the actual value to test the accuracy of the “predicted” situation.
- **Supporting indicators** – indicators made up of directly measurable data. They provide a fundamental data layer and, once the areas of concern or opportunity have been identified, allow the user to look back to understand where action should be taken. An example of a supporting indicator is the number of home mortgage loan applications made in a census tract in a given year.
- **Thresholds (or classifications)** – point at which neighborhood conditions change enough to be considered different. Determined by assessing simple summary statistics (e.g. mean), distribution of tracts (value vs. number of tracts), and system output (initial “descriptive” maps).
- **True cash value** – a proxy for market value.
- **Vulnerable** – vulnerable implies that an area is in a transition zone—it could be moving towards stability or decline.

# Appendix 3: Correlation Analysis

(See EDS Part II: Correlation)

## Looking at Correlations between Indicators

The pilot EDS model shown in this plan analyzes indicators that relate to physical conditions to demonstrate how statistical tests can be useful in indicator evaluation. The tests show changes in neighborhoods located in clusters 3 and 5 of Detroit. The data used for this testing came from federal Home Mortgage Disclosure Act (HMDA) data <sup>141</sup> from 1997 to 2002, City of Detroit Assessor's data from 2002, city of Detroit crime data for 2002 from Wayne State University CULMA,<sup>142</sup> geographic boundary shape files from the City of Detroit Planning & Development Department, and U.S. Census data from 2000. The numbers from the assessor's data were aggregated to the census tract level.

<sup>141</sup> The HMDA data used in the analysis was provided by the City of Detroit Planning & Development Department. The Home Mortgage Disclosure Act (HMDA) mandates that the Federal Financial Institutions Examination Council (FFIEC) compile aggregate lending data by census tract for each Metropolitan Statistical Area (MSA). The FFIEC organizes the loan information by location, age of housing stock, income level, and racial characteristics. The data are collected to "help the public determine if lending institutions are meeting the housing credit needs of their communities, to help public officials target community development investment, and to help regulators enforce fair lending laws". (Source: Federal Financial Institutions Examination Council. *History of HMDA*. <http://www.ffiec.gov/hmda/history2.htm>. Accessed April 2004. )

<sup>142</sup> Crime data for each census tract was compiled from the links provided on the City of Detroit Planning and Development Web site. The underlying data is provided by the City of Detroit Police Department from Wayne State University's Center for Urban, Labor and Metropolitan Affairs' Center for Urban Studies. (Detroit Planning & Development Department. *Census Tract 2000 Map*. <http://www.ci.detroit.mi.us/plandev/advplanning/cinfo/inter/Census/TractMap.htm>. Accessed April 26, 2004. )

Table A2 and Table A3 show the correlation analysis for this pilot EDS. Here, two sets of data were analyzed, one from 2000 and one from 2002. Table A2 uses 2002 data to show the relationships between specific tax assessor's and HMDA data. The chart using data from 2000 (Table A3) looks at the relationship between indicators from the U.S. Census and HMDA.

In Table A2, the correlation figures that are highlighted in grey show a strong relationship:

- Average true cash value – Mortgage approval rate
- Total delinquent tax – Total number of loan application
- Average delinquent tax – Average true cash value

In Table A3, the correlation table shows that the following sets of indicators are strongly related to each other. Both positive and negative relationships are present between the indicators:

- Median household income, Percent of the population below poverty, and Median amount of home purchase loans – Education and Home ownership
- Percent poverty, and Total number of loan applications – Median household income
- The total number of loan applications – Percent of poverty

The correlation values for these sets of variables are all greater than 0.6 (or in statistical terms  $R > 0.6$ ). The closer an R value is to 1.0, the stronger the relationship between two variables. This result shows that these indicators may be useful in an EDS model

because they have a strong relationship with each other.

## Regression Analysis: Two Variable Relationships

The following indicators provided the basis for the preliminary regression analysis: education, income, poverty, crime rate, and property value. These indicators were selected because of the strong relationships shown in the correlation tables and the assumptions of our model. This model demonstrates how the testing process can work and adopts some of Galster's findings—primarily, that median home purchase loan amount, number of loan applications, and mortgage loan approval rate are relevant leading indicators of Housing Type and Tenure and Status.<sup>143</sup> Despite the lack of a complete dataset for the same years for all indicators, the regression analysis yielded discernible relationships.

Table A4 shows how two of these leading indicators are associated with the key and supporting indicators.

## Property Values and Median Home Purchase Loan Amounts

The following graph (Figure A6) shows the relationship between median home purchase loan amount in 2001 and property value in 2002. The graph shows a positive relationship between property value and median home purchase loan amount. This means that a larger median home purchase loan amount for a neighborhood may indicate higher property values for a given census tract. The actual values, as shown by the dots, are more tightly clustered around the trend line when the median home purchase loan amounts are less than \$60,000. This means that once loan amounts exceed \$60,000, this indicator does not forecast property values as well. The more the points vary around the line drawn on the graph, the less loan amounts explain property values.

Overall, Figure A6 does not indicate that loan amounts predict property values well. Other variables may better explain property value, or loan amount may better predict a different supporting indicator for the key indicator "Status." Refining the ability of a regression model to forecast key indicators may entail combining indicators, which requires more advanced regression techniques such as multivariate analysis. Multivariate analysis involves analyzing more than two variables and allows the model developer to see the effect of the combination of variables on a desired indicator. This test involves analyzing the relationship between more than just two indicators and developing performance measurements for the model to account for the accuracy of the forecasts. This avenue is worth investigating, especially if

<sup>143</sup> Galster, George, Chris Hayes, and Jennifer Johnson. 2004. *Identifying Robust, Parsimonious Neighborhood Indicators*. Working Paper.

**Table A2**

## Correlations of Indicators for Census Tracts, 2002

	Mortgage Approval Rate	Total # of Loan Application	Median Amount of Home Purchase Loan	Serious Crime Rate	Average True Cash Value	Sum True Cash Value	Average Delinquent Tax	Total Delinquent Tax
Mortgage Approval Rate	1							
Total # of Loan Application	0.256	1.000						
Median Amount of Home Purchase Loan	0.224	0.174	1.000					
Serious Crime Rate	0.445	-0.113	0.102	1.000				
Average True-cash-value	0.757	0.102	0.252	0.524	1.000			
Sum True-cash-value	0.634	0.725	0.327	0.308	0.603	1.000		
Average Delinquent Tax	0.315	0.170	0.272	0.066	0.604	0.286	1.000	
Total Delinquent Tax	0.046	0.712	-0.007	-0.124	-0.026	0.479	0.308	1.000

**Table A3**

## Correlations of Indicators for Census Tracts, 2000

	Vacancy Rate	% of Owner-occupied Houses	Percent Associate Degree or Above	Median Income of Household	Percent Poverty	Approval Rate	Total # of Loan Application	Median Amount of Home Purchase Loans
Vacancy Rate	1							
% of Owner-occupied Houses	-0.665	1.000						
% Associate Degree or Above	-0.332	0.369	1.000					
Median Income of Household	-0.542	0.712	0.744	1.000				
Percent Poverty	0.596	-0.718	-0.647	-0.874	1.000			
Approval Rate	-0.405	0.284	0.276	0.411	-0.511	1.000		
Total # of Loan Application	-0.538	0.701	0.445	0.639	-0.606	0.086	1.000	
Median Amount of Home Purchase Loans	-0.246	0.133	0.789	0.596	-0.554	0.327	0.242	1.000

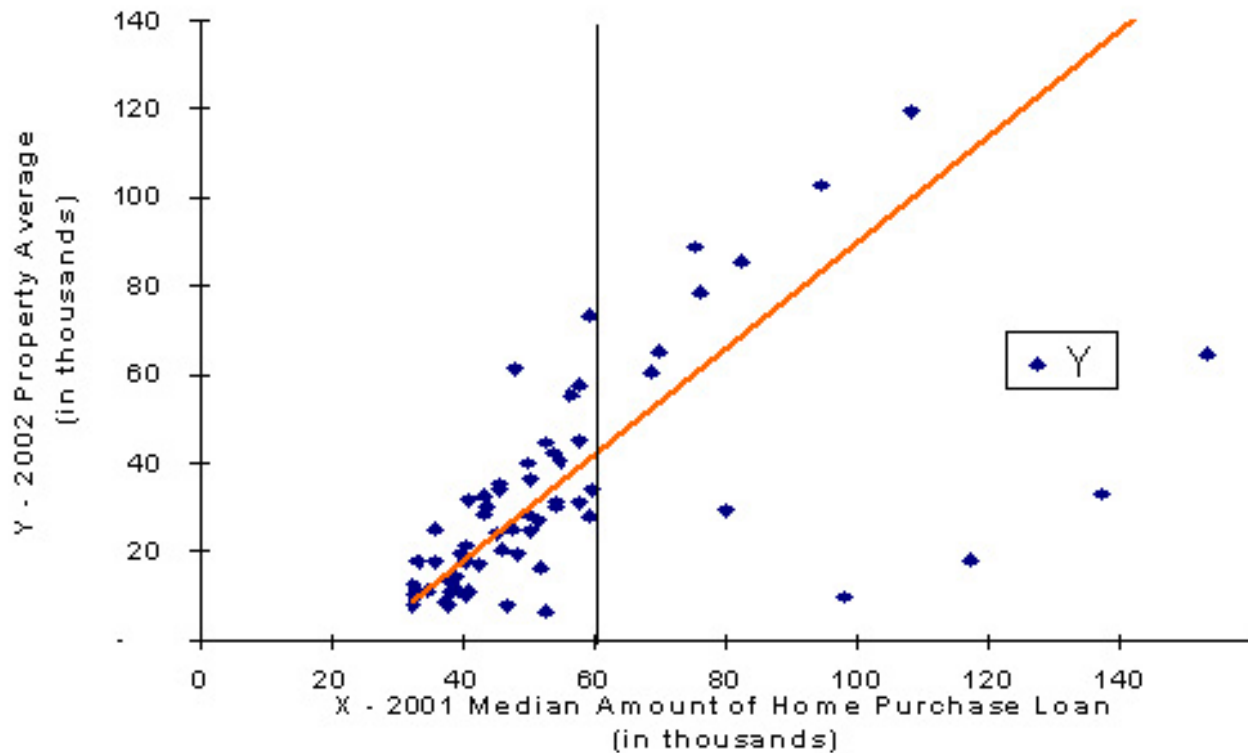
**Table A4**

## Indicators Used in Analysis

Key Indicators	Leading Indicators	Supporting indicators
Housing Type and Tenure	Number of mortgage loan applications	Home ownership rates
Status	Median amount of home purchase loans	Education; property values

**Figure A6**

Relationship between Property Value and Home Purchase Loan Amount



Source: City of Detroit P&DD, HMDA

Figure A6: Graphs the relationship between property value and home purchase loans..

the primary function for an EDS application is its forecasting capabilities.

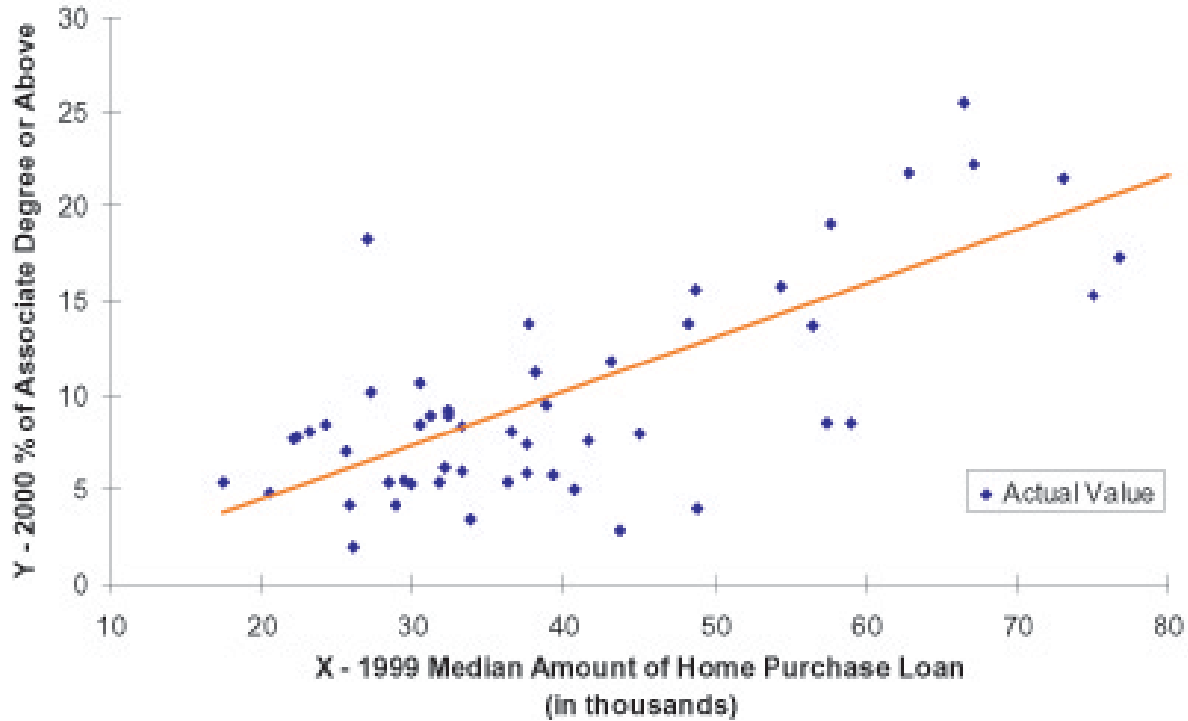
### Education Level and Median Home Purchase Loan Amounts

In Figure A7, the graph illustrates the positive relationship between education level (the percent of the population with an associate's degree or higher) and the median home purchase loan amount. A larger median home purchase loan amount for a neighborhood is likely to mean that the education level for that area is higher. Again, the actual values as shown by the dots are not tightly clustered around the trend line, which is what the predicted value would be. A trend in the relationship is definitely evident, but how well the education level for a neighborhood can be predicted by using the median amount of home purchase loans requires additional analysis.

The regression study illustrated above does not build a predictive model, but does begin to explore the relationship between leading and supporting indicators. Ideally, a predictive model consists of indicators that forecast the desired number accurately. This means

**Figure A7**

Relationship between Level of Educational Attainment and Home Purchase Loan Amount



Source: City of Detroit P&amp;DD , U.S. Census 2000

Figure A7: Shows the strong relationship between education and home loan amounts.

that the model would need to be validated based on the numbers that are forecasted and whether they indeed predict the conditions they have set out to predict (such as home ownership rates or level of education). Models are often adjusted to account for other factors and as more datasets become available, the usefulness of feeding additional information into the model should be analyzed. A predictive model should account for as many values of the predicted value as possible, using other data that are already accessible. The concern is not with the degree of causality between the different indicators, but with how to put together information that will yield a value for an indicator that is unknown.

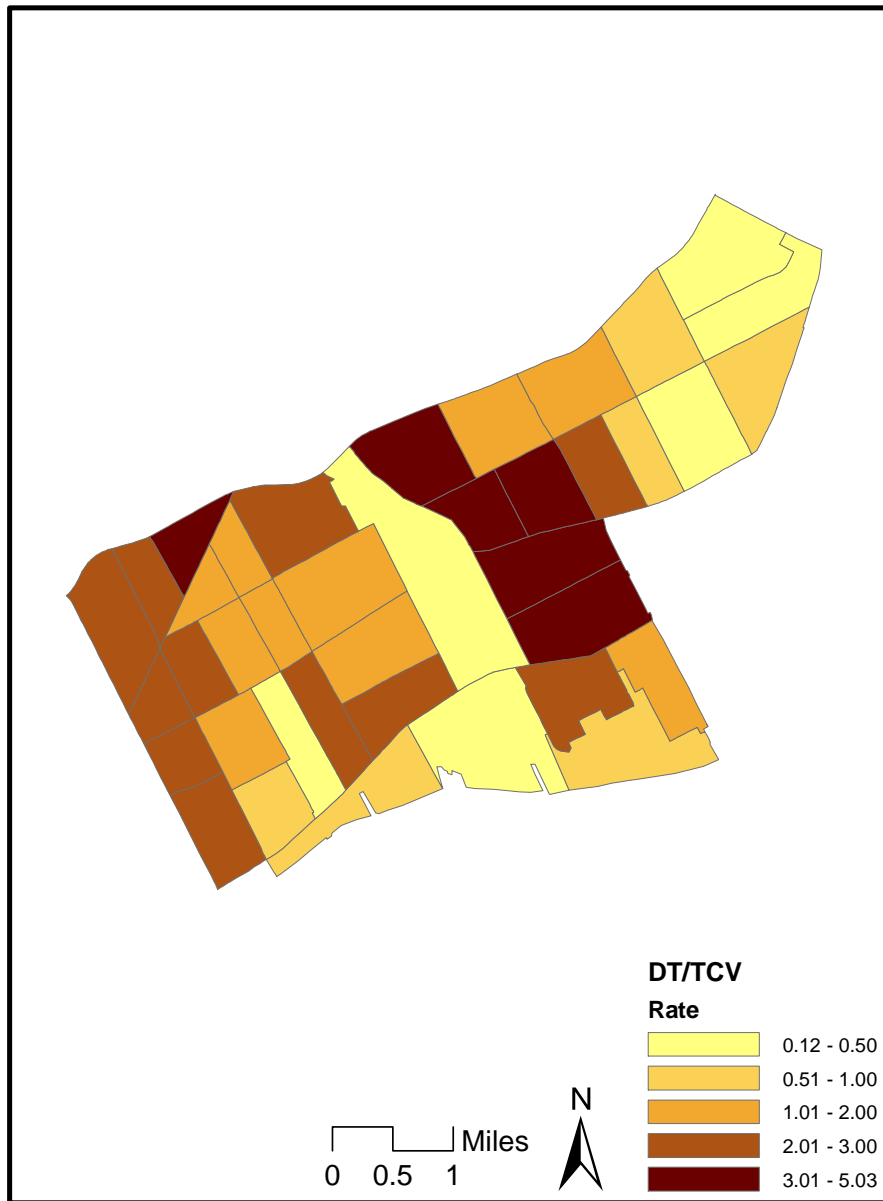


# Appendix 4: Descriptive Maps

In the process of developing the pilot EDS, the following maps were constructed to aid in system design and threshold selection.

**Figure A8**

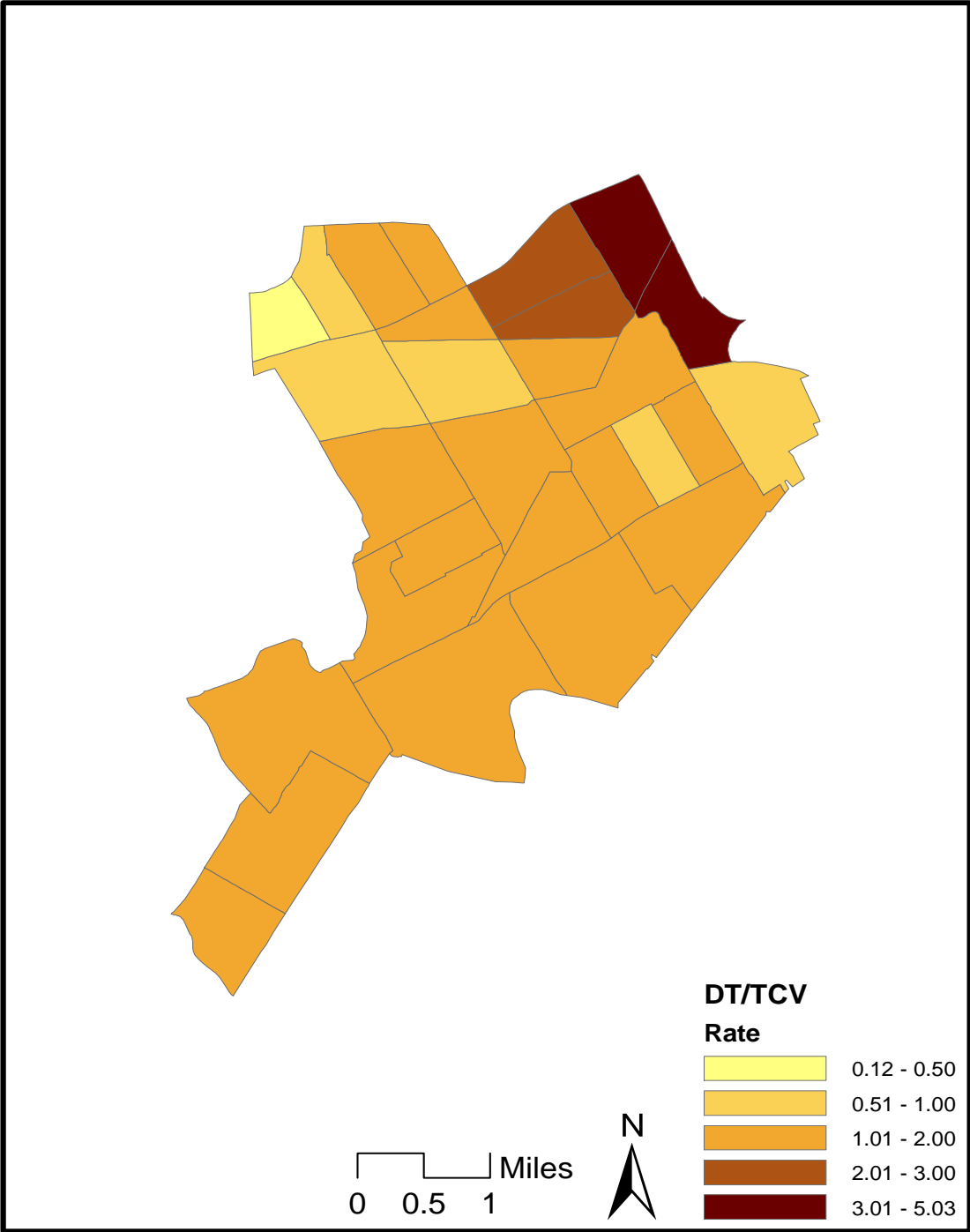
Delinquent Property Tax (DT) as a Share of True Cash Value (TCV), by Census Tract, Cluster 3



Source: U.S. Census 2000; City of Detroit Planning & Development Department; City of Detroit, Finance Department - Assessments Division data 2002  
Figure A8: Delinquent Tax divided by True Cash Value shows the share of property tax that is delinquent due to unpaid taxes.

**Figure A9**

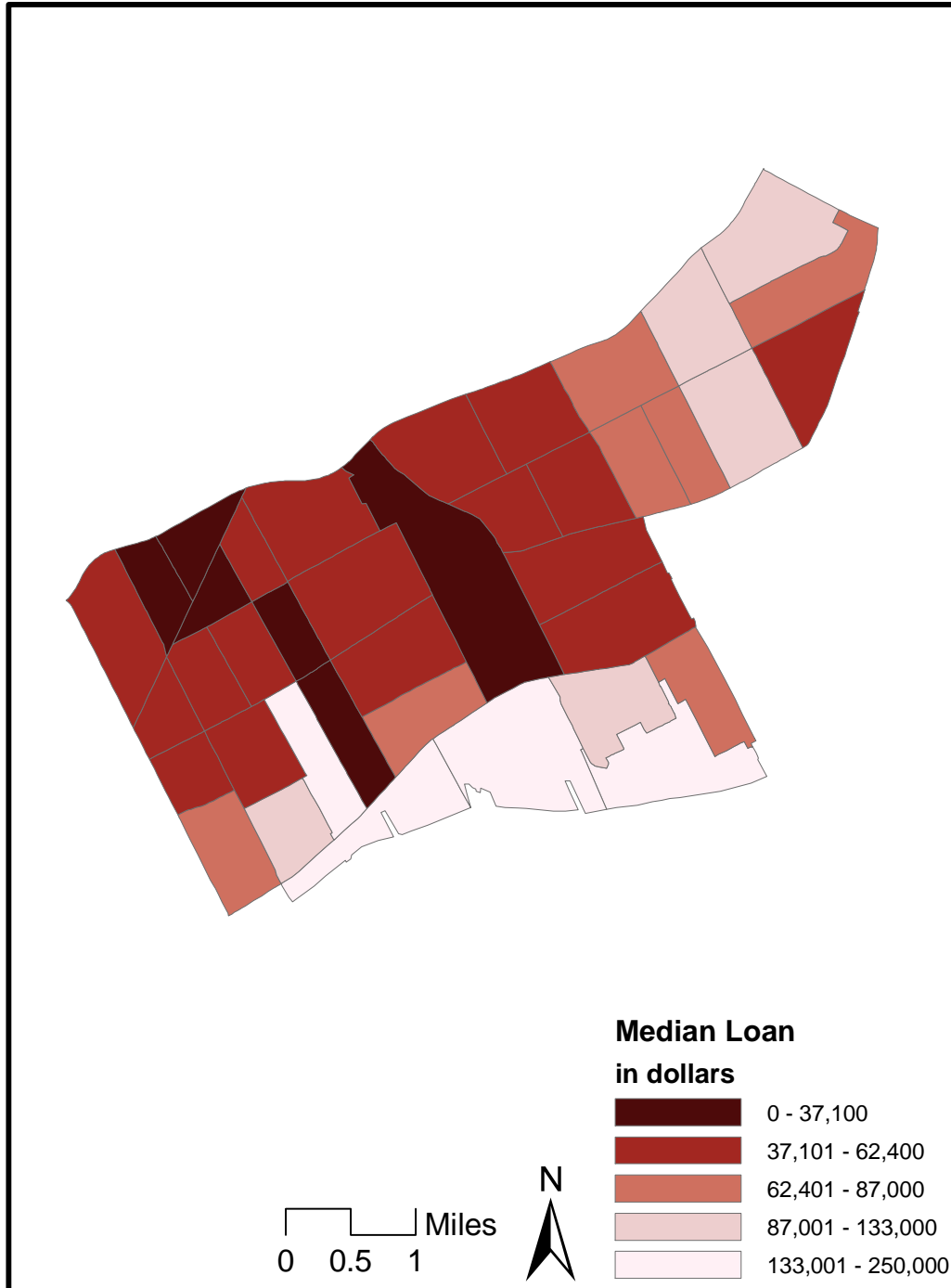
Delinquent Property Tax (DT) as a Share of True Cash Value(TCV), Census Tracts, Cluster 5



Source: U.S. Census 2000; City of Detroit Planning & Development Department; City of Detroit, Finance Department - Assessments Division data 2002  
Figure A9: Delinquent Tax divided by True Cash Value shows the share of property tax that is delinquent due to unpaid taxes.

**Figure A10**

Median Home Purchase Loan Originated, by Census Tract, Cluster 3

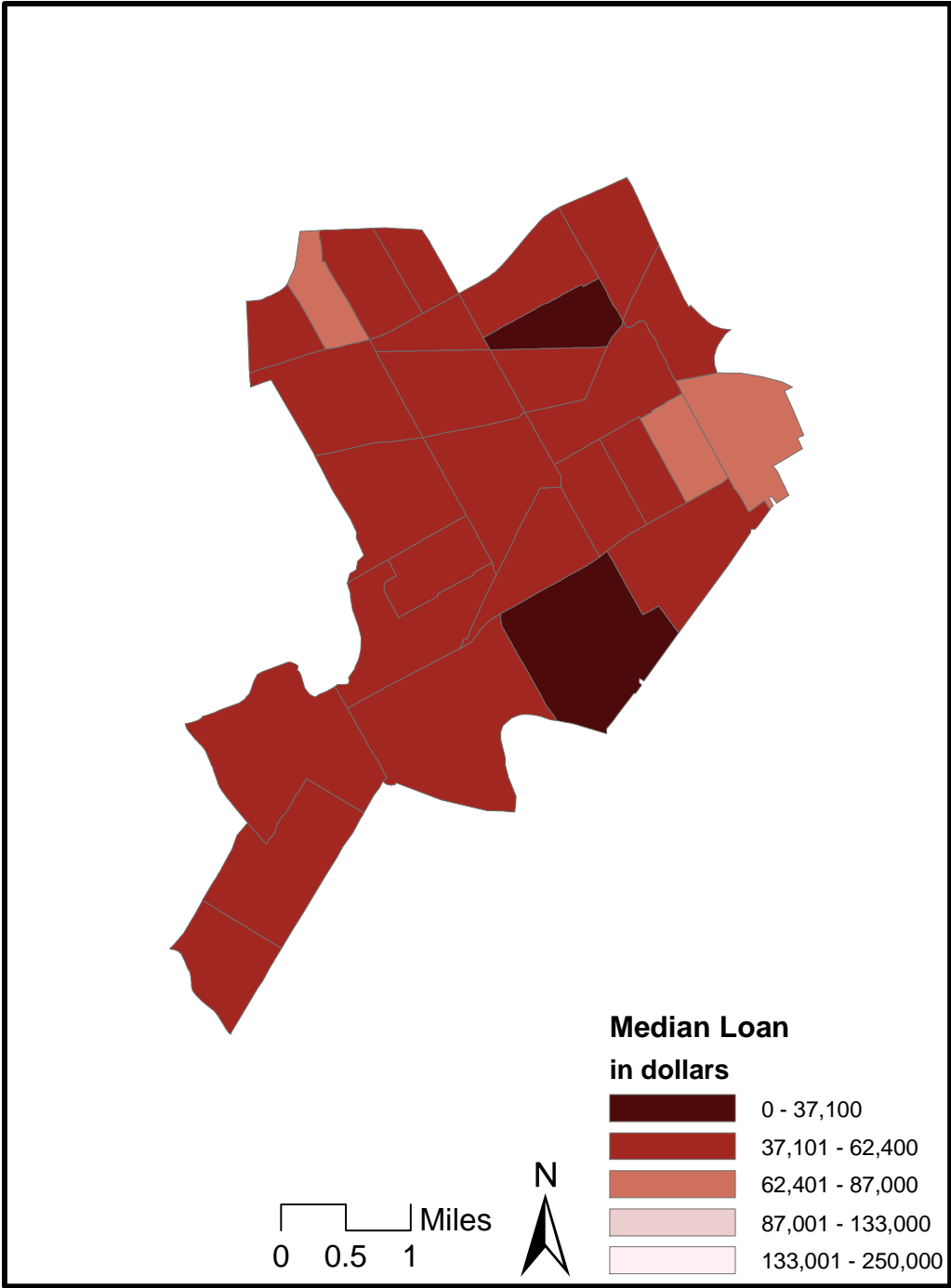


Source: U.S. Census 2000; City of Detroit Planning & Development Department; HMDA 2002.

Figure A10: Median home purchase loan originated reflects cost and value of home properties. It may also implicate economic stability in terms of ability to borrow. Note: Values have not been adjusted by number of loans originated, so high values may be misleading.

**Figure A11**

Median Home Purchase Loan Originated, by Census Tract, Cluster 5

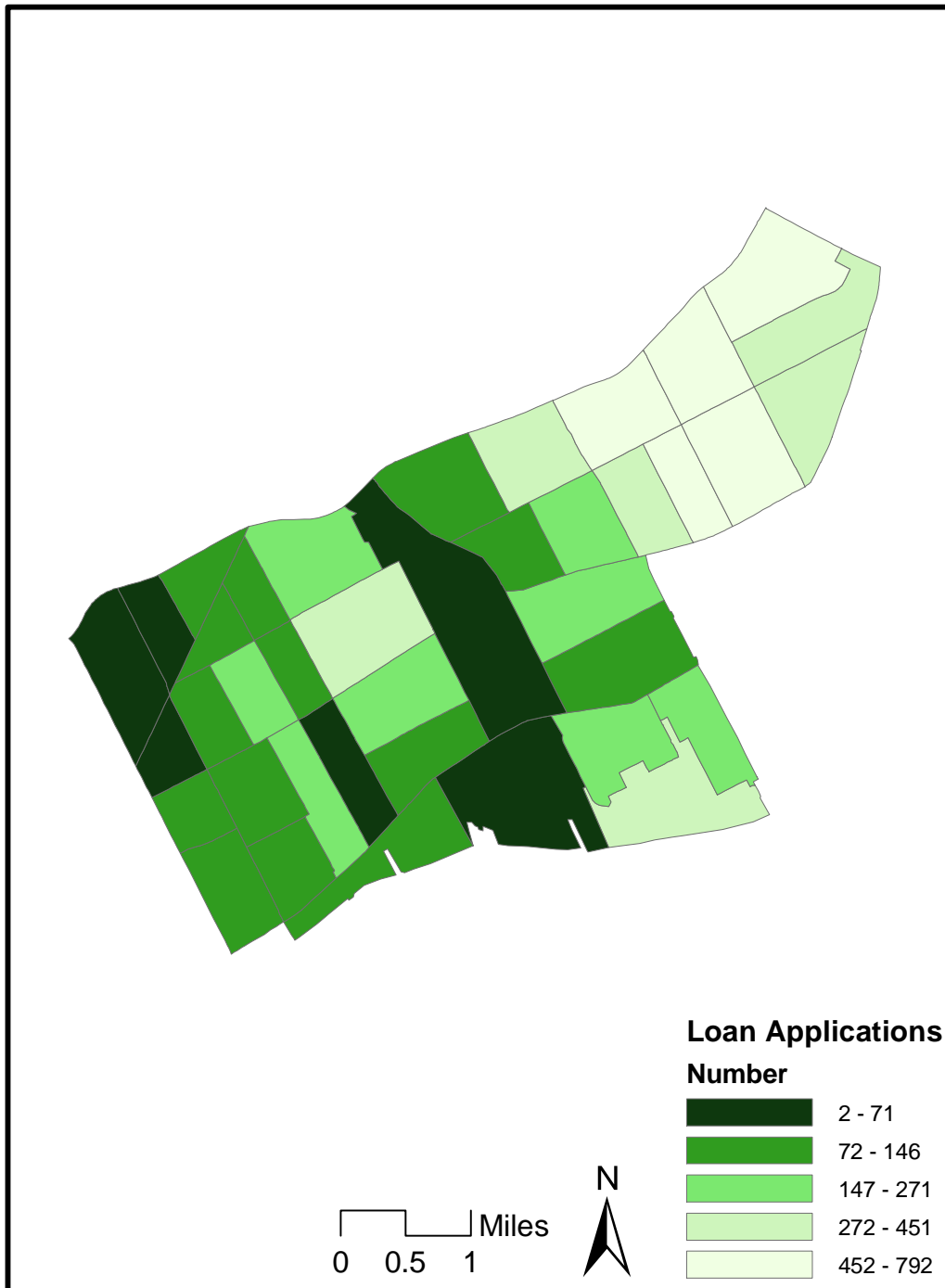


Source: U.S. Census 2000; City of Detroit Planning & Development Department; HMDA 2002

Figure A11: Median home purchase loan originated reflects cost and value of home properties. It may also implicate economic stability in terms of ability to borrow. Note: Values have not been adjusted by number of loans originated, so high values may be misleading.

**Figure A12**

Number of Mortgage Loan Applications, by Census Tract, Cluster 3

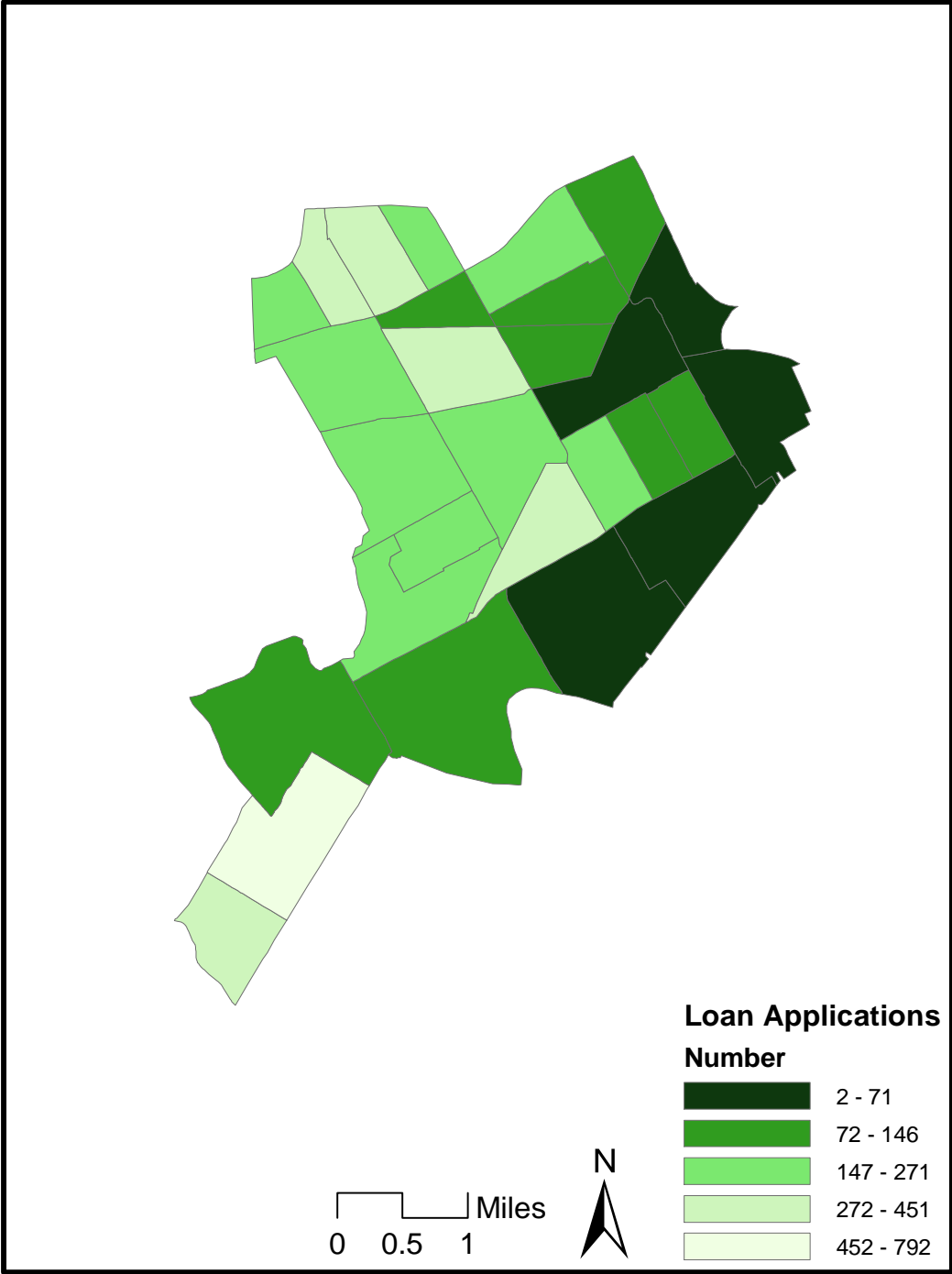


Source: U.S. Census 2000; City of Detroit Planning & Development Department; HMDA 2002

Figure A12: The number of mortgage loan applications (all types) reflects desired purchasing activity. Note: Values have not been adjusted by type of land use, so low values may reflect the presence of industry.

**Figure A13**

Number of Mortgage Loan Applications, by Census Tract, Cluster 5



Source: U.S. Census 2000; City of Detroit Planning & Development Department; HMDA 2002.

Figure A13: The number of mortgage loan applications (all types) reflects desired purchasing activity. Note: Values have not been adjusted by type of land use, so low values may reflect the presence of industry.

**Figure A14**

Total Serious Crime per 100,000 population, by Census Tract, Cluster 3



Source: U.S. Census 2000; City of Detroit Planning & Development Department; City of Detroit Police Department 2002 from Wayne State University College of Urban, Labor and Metropolitan Affairs (CULMA)

Figure A14: Total serious crime per 100,000 reflect the amount of crime in each tract projected for 100,000 people. Total serious crime includes violent and property crime.

**Figure A15**

Total Serious Crime per 100,000 population, by Census Tract, Cluster 5



Source: U.S. Census 2000; City of Detroit Planning & Development Department; City of Detroit Police Department 2002 from Wayne State University College of Urban, Labor and Metropolitan Affairs (CULMA)

Figure A15: Total serious crime per 100,000 reflect the amount of crime in each tract projected for 100,000 people. Total serious crime includes violent and property crime.

## Appendix 5: Misleading Results

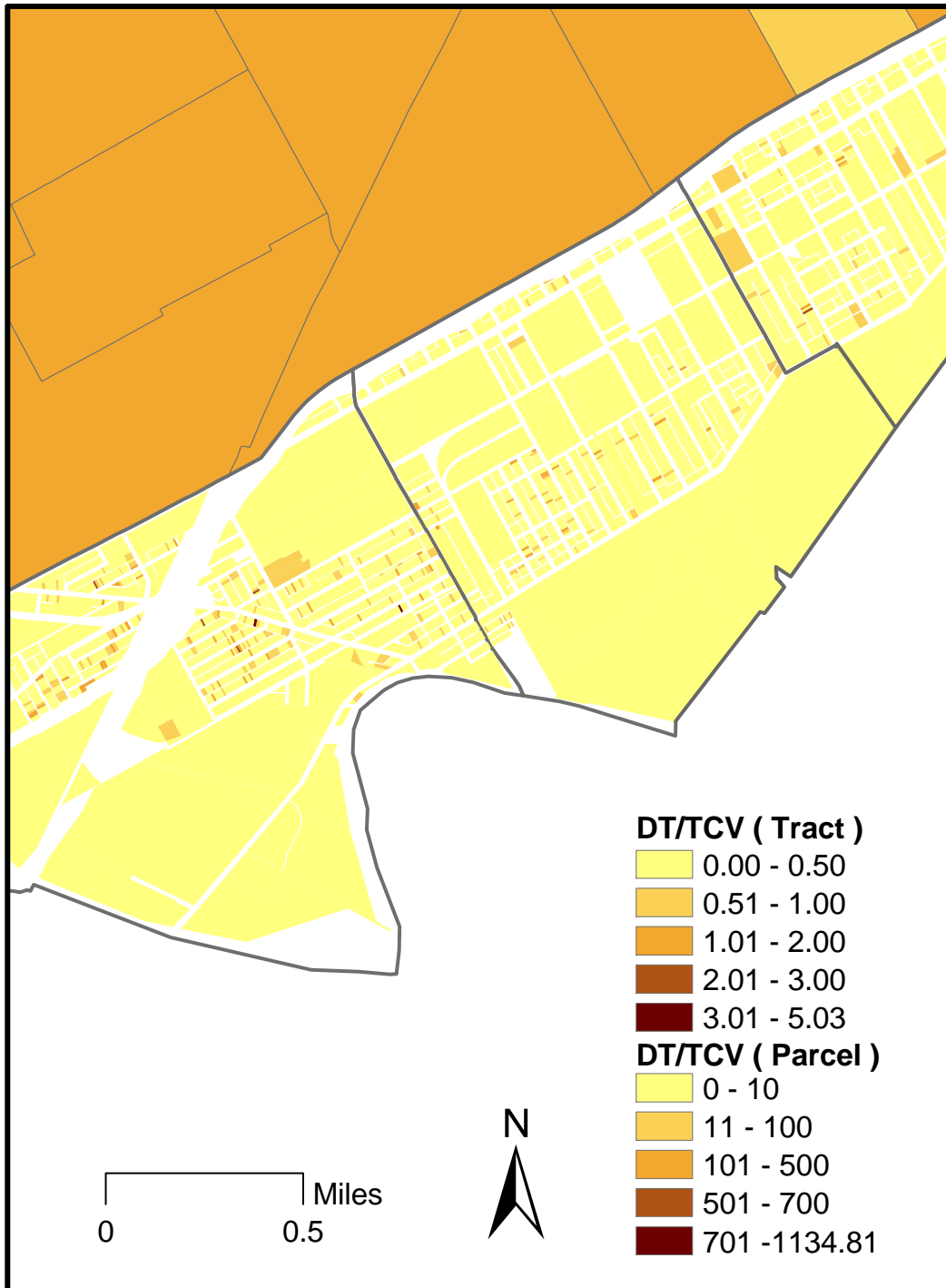
**(See APilot EDS: EDS Methods Applied; Thresholds for Neighborhood Change for reference)**

In Figure A16, the three census tracts (5237, 5236, 5235) in the Delray area of cluster 5 all show an average amount of delinquency (property value as a function of delinquent property tax) at the census tract level. This is misleading because the area has many vacant and delinquent residential properties. The parcel-level data reveal a more accurate picture of neighborhood conditions and suggest that the presence of non-delinquent industrial properties probably lowers the average value for the tract and therefore suggests that properties are in better condition than they are.

Figure A17 shows a census tract (5122) on the northern edge of cluster 3. This tract is an area with considerable vacant land and abandoned residential property and is represented as such in the model. This is misleading in a different way than the first figure. Here, an area is shown as having an unusually high rate of delinquency. This is because the tract contains a large park. Since this information is lost when observing data at the tract level, this manner of presentation may misleadingly encourage a viewer to interpret as blighted a larger area than is appropriate.

**Figure A16**

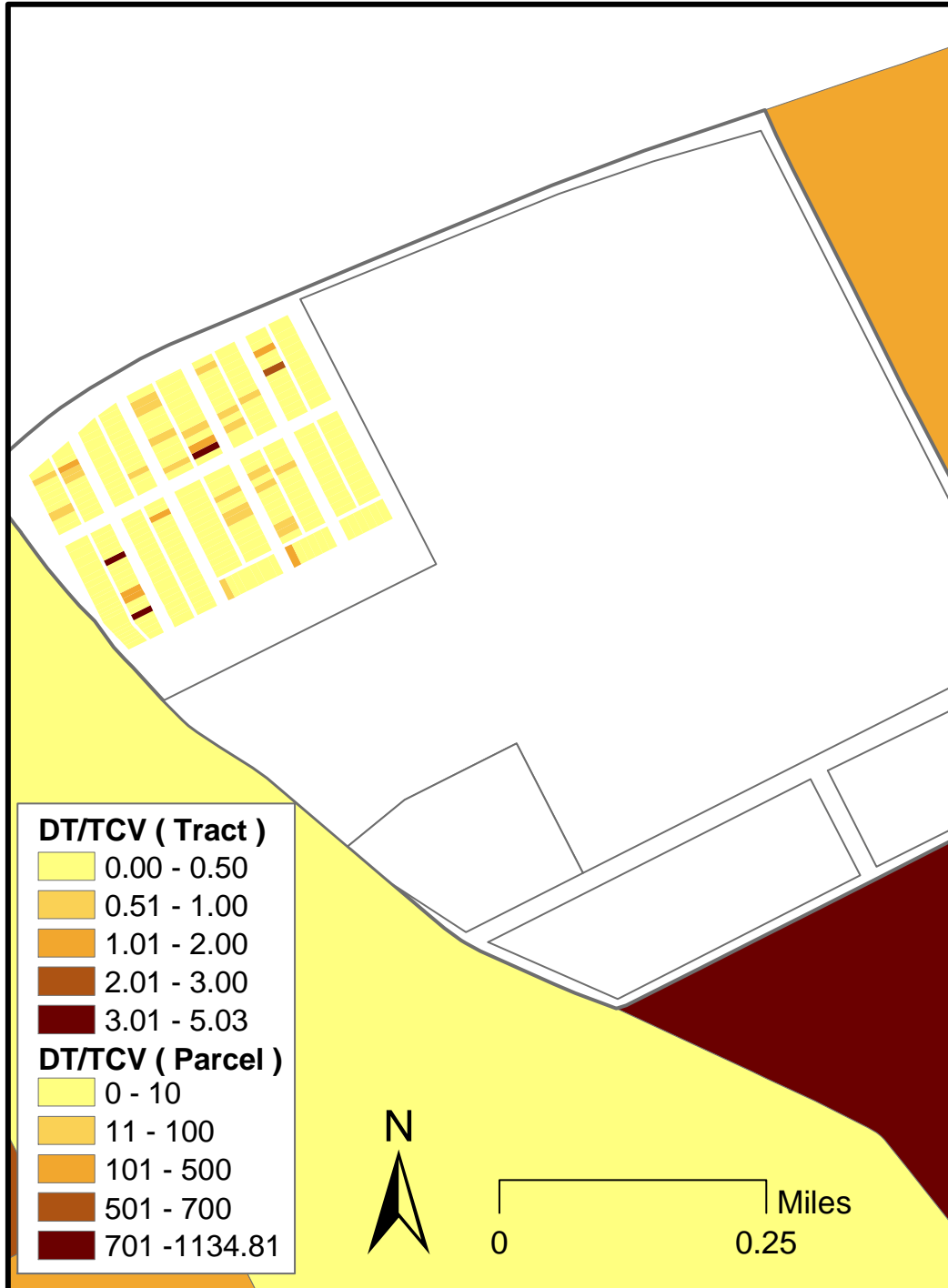
Parcel-level Data Values in the Delray Area, Cluster 5  
Delinquent Tax (DT)/Total Cash Value (TCV)



Source: U.S. Census 2000; City of Detroit Planning & Development Department;  
City of Detroit, Finance Department - Assessments Division data 2002;  
HMDA 2002

**Figure A17**

Parcel-level Data Values in Tract 5122, Cluster 3  
Delinquent Tax (DT)/Total Cash Value (TCV)



Source: U.S. Census 2000; City of Detroit Planning & Development Department; City of Detroit, Finance Department - Assessments Division - data 2002; HMDA 2002



## Appendix 6: Neighborhood Typologies

A first attempt at typology classification was based on percentages of total value. For instance, an area in good physical condition would not have over a 50% tax delinquency/true cash value ratio. This line of reasoning did not produce meaningful results (i.e. the overlay process returned no selected tracts).

Because the first categorization attempt failed to provide telling results, a second classification scheme was developed. Table A5 defines neighborhood condition by category—good physical condition, vulnerable and blighted. Definitions are shown in quintiles, which represent relative values for each indicator. This relative value can be used because actual numeric values were accounted for in defining the thresholds. The same quintiles are used for typology classifications and thresholds definitions to allow consistent spatial manipulation and compatible output. Reasoning for typology classifications is explained in Table A6.

**Table A5**

Neighborhood Typology Classification

Variable	Good Physical Condition	Vulnerable	Blighted
Mortgage Loan Approval Rate	High (top 2 quintiles)	Middle Range (middle and 2 <sup>nd</sup> to bottom quintiles)	Low (bottom quintile)
Number of Mortgage Loan Applications	High (top 2 quintiles)	Middle Range (middle and 2 <sup>nd</sup> to bottom quintiles)	Low (bottom quintile)
Median Home Purchase Loan*	High (top 2 quintiles)	Middle Range (middle and 2 <sup>nd</sup> to bottom quintiles)	Low (bottom 2 quintiles)
Delinquent Tax/True Cash Value	Less than 100% (bottom 2 quintiles)	Between 100-200% (middle)	Over 200% (top 2 quintiles)
Serious Crime per Capita	-	-	-

\*Overlap between the blighted and vulnerable categories for median home loan amount was intentional and accounts for possible errors in threshold determination. This classification scheme was adopted for purposes of example, since other schemes did not yield productive results. The thresholds should be assessed and new classifications assigned, based on a more complete knowledge of typical loan amounts in Detroit. The middle quintile includes the mean value for each variable.

Indicators may have different levels of influence in indicating blight, and this should be accounted for in the overlay process through the process of weighting. By weighting, a priority system is established that gives more value to indicators that play a more significant role in identifying neighborhood strength or decline. In this model, indicators were each given equal weight. However, if in the future some variables prove better predictors of blight than others in Detroit, an alternative weighting scheme would fine-tune the models.

**Table A6**  
Reasoning for Typology Classifications

Indicator Typology	Justification
<b>Good Physical Condition</b>	
Mortgage Loan Approval Rate (top 2 quintiles)	A relatively high approval rate can be a reflection of credit-worthiness or economic stability. The more economically stable the residents, the more residents may be able to invest, the more secure the neighborhood, and the less likely residents will vacate or allow properties to deteriorate.
Number of Mortgage Loan Applications (top 2 quintiles)	A high number of loan applications can indicate investment as a reflection of desired purchasing activity. The more investment, the more solid the economic and social base of a neighborhood and the less likely residents will vacate or allow properties to deteriorate.
Median Home Purchase Loan (top 2 quintiles)	A high median value for home purchase loans reflects a high cost of homes. The higher the value associated with property, the more residents may feel invested in the property, and the less likely they will vacate or allow properties to deteriorate. NOTE: High median loan amount may reflect a small number of high value loans and not indicate broad scale investment.
Delinquent Tax/True Cash Value (bottom 2 quintiles)	A lower ratio of delinquent taxes to true cash value reflects a higher investment in that property. The more investment, the less likely residents will vacate or allow properties to deteriorate. NOTE: A low ratio may also be present where many vacant and delinquent properties have been foreclosed. The delinquency associated with these properties will appear as zero, thereby decreasing the overall ratio and misleading the viewer. "Peeling back" the census tract and viewing parcel-level data will reveal this dilemma.
Serious Crime (removed from model)	Serious crime was pulled from the model due to its interference with model output. Inclusion of this indicator in the overlay process resulted in no selected tracts.

**Table A6 (continued)**

## Reasoning for Typology Classifications

<b>Vulnerable</b>	
Mortgage Loan Approval Rate (middle and 2 <sup>nd</sup> to bottom quintiles)	A mean or medium approval rate can reflect a potentially growing or decreasing base of credit-worthiness or economic stability. Areas with a more stable economic base may be less likely to see vacancy and physical deterioration, while those with a potentially unstable economic base may experience vacancy and physical deterioration.
Number of Mortgage Loan Applications (middle and 2 <sup>nd</sup> to bottom quintiles)	A mean or medium number of loan applications can indicate increasing or declining investment through desired purchasing activity. An area with declining desired purchasing activity may have fewer properties available for purchase or needing improvement, or may be experiencing less investment and increased property abandonment. The opposite may be true for areas with an increase in desired purchasing activity.
Median Home Purchase Loan Amount (middle and 2 <sup>nd</sup> to bottom quintiles)	An average value of homes may indicate less investment by property owners and residents. An increase in housing (and therefore property) values may indicate an increase in investment and a decreased chance that residents will allow properties to deteriorate, while a decrease in property values may suggest increasing rates of disinvestment.
Delinquent Tax/True Cash Value (middle)	A mean ratio of delinquent tax to true cash value reflects a lesser amount of investment in that property. If the percent of property value that is delinquent in taxes is increasing, this reflects abandonment and may result in an increase in physical deterioration. The opposite may occur as this ratio decreases.
Serious Crime (removed from model)	See “Good Physical Condition” (above)
<b>Blighted</b>	
Mortgage Loan Approval Rate (bottom quintile)	A low approval rate can reflect less credit-worthiness or economic stability of applicants, which may indicate less ability to invest and an increased likelihood that properties would be abandoned or allowed to deteriorate. NOTE: Low approval rates may be more reflective of a bank’s willingness to loan than the applicant’s qualifications.
Number of Mortgage Loan Applications (bottom quintile)	A low number of loan applications can indicate disinvestment as a function of desired purchasing activity. A lower amount of investment may decrease the economic and social fabric of a community and result in more vacancy or physical deterioration. NOTE: A low number of applications may also be a reflection of the number of opportunities for purchase or improvement.
Median Home Purchase Loan Amount (bottom 2 quintiles)	A low median value for home purchase loans reflects a low cost of homes. A lower level of connection to place may accompany lower property values and result in increased vacancy or physical deterioration.
Delinquent Tax/True Cash Value (top 2 quintiles)	A higher ratio of delinquent taxes to true cash value reflects a high amount of delinquent taxes or low true cash value. Not paying property taxes can represent disinvestment and abandonment, which may result in physical deterioration.



## Appendix 7: Indicators Evaluated by Criteria

(See EDS applied methods: Set neighborhood types by showing different levels of neighborhood change for reference)

This pilot model does not include serious crime because that indicator did not clearly explain or predict neighborhood condition. That is, serious crime did not meet the criterion “discrete.” After overlaying the first four indicators, inclusion of serious crime resulted in elimination of all remaining tracts. Exclusion of serious crime does not mean that the indicator is not valuable or should be ignored but that a different representation of the indicator may be more appropriate (e.g. including violent and property crime separately). With further analysis, perhaps the crime variable would provide more explanation. In this case, inclusion of serious crime data devalues rather than contributes to the model.

**Table A7**

Indicators Evaluated by Criteria

Leading indicator/ Criteria	Discrete*	Inexpensive	Reliable	Relevant	Timely	Useful	Valid**	Simple
Mortgage Loan Approval Rate	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Mortgage Loan Applications	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Median Home Purchase Loan*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Delinquent Tax/True Cash Value	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Serious Crime per Capita	No	Yes	Yes	Yes	Yes	Yes	No	Yes

\*Discrete—Indicators’ qualification as discrete largely stems from Galster’s findings. Similar studies or analysis would reveal such information about an indicator. As represented, serious crime does not meet this criterion because it does not obviously represent a clear picture of neighborhood condition.

\*\*Valid—Valid can be assessed by verifying the patterns presented in the descriptive maps (Does mapping the variable accurately depict existing conditions?). Due to errors related to aggregation, every indicator may present misleading results regarding existing conditions. See Table 7 Leading Indicators Tested in “Part II EDS Methods Applied” of main report for considerations related to each indicator. Given this, each indicator listed contributes productively to the model, except serious crime. As a result, serious crime fails to meet the valid criterion and was excluded from the final model.



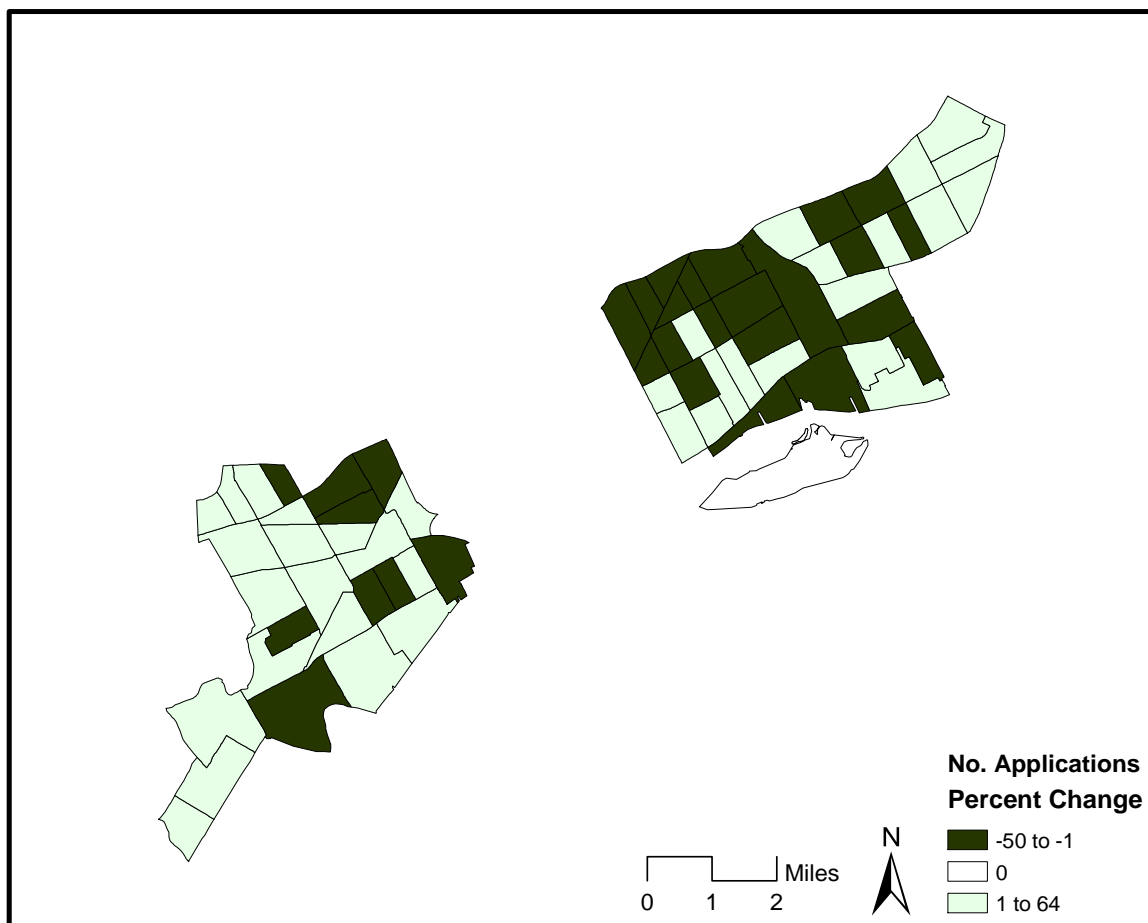
## Appendix 8: Mapping Change Over Time

Rate of change maps are similar to the descriptive maps shown earlier, except that these describe the direction of change for each indicator. The classifications for the rate-of-change data reflect a change in value between the years 2000-2002:

- less than 0% = decreased
- 0% = stayed the same
- greater than 0% = increased

**Figure A18**

Number of Loan Applications, 2000-2002, by Census Tract, Clusters 3 and 5

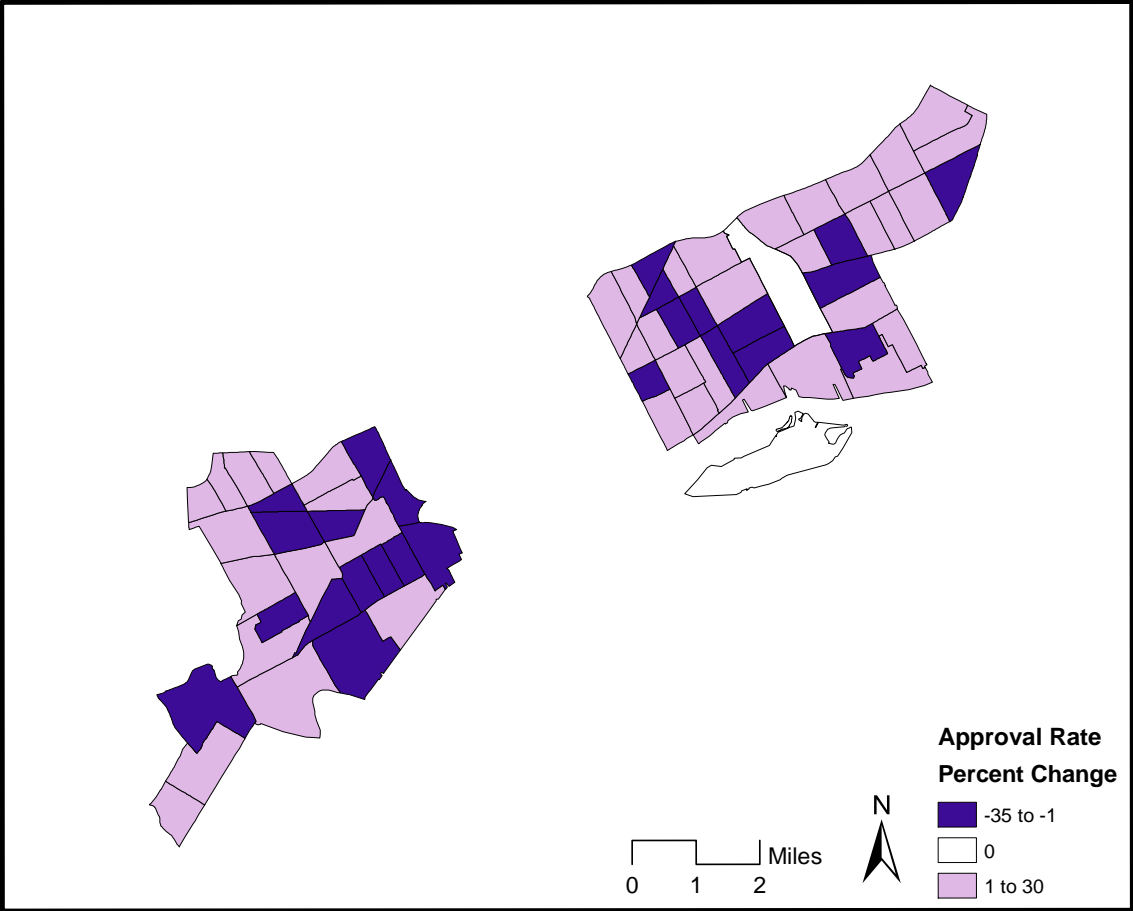


Source: U.S. Census 2000; City of Detroit Planning & Development Department; HMDA 2002; City of Detroit, Finance Department - Assessments Division data 2002

Figure A18: The number of loan applications decreased in tracts shown in dark green, and increased in those shown in light green.

**Figure A19**

Mortgage Loan Approval Rate Percent Change 2000-2002, by Census Tract, Clusters 3 and 5

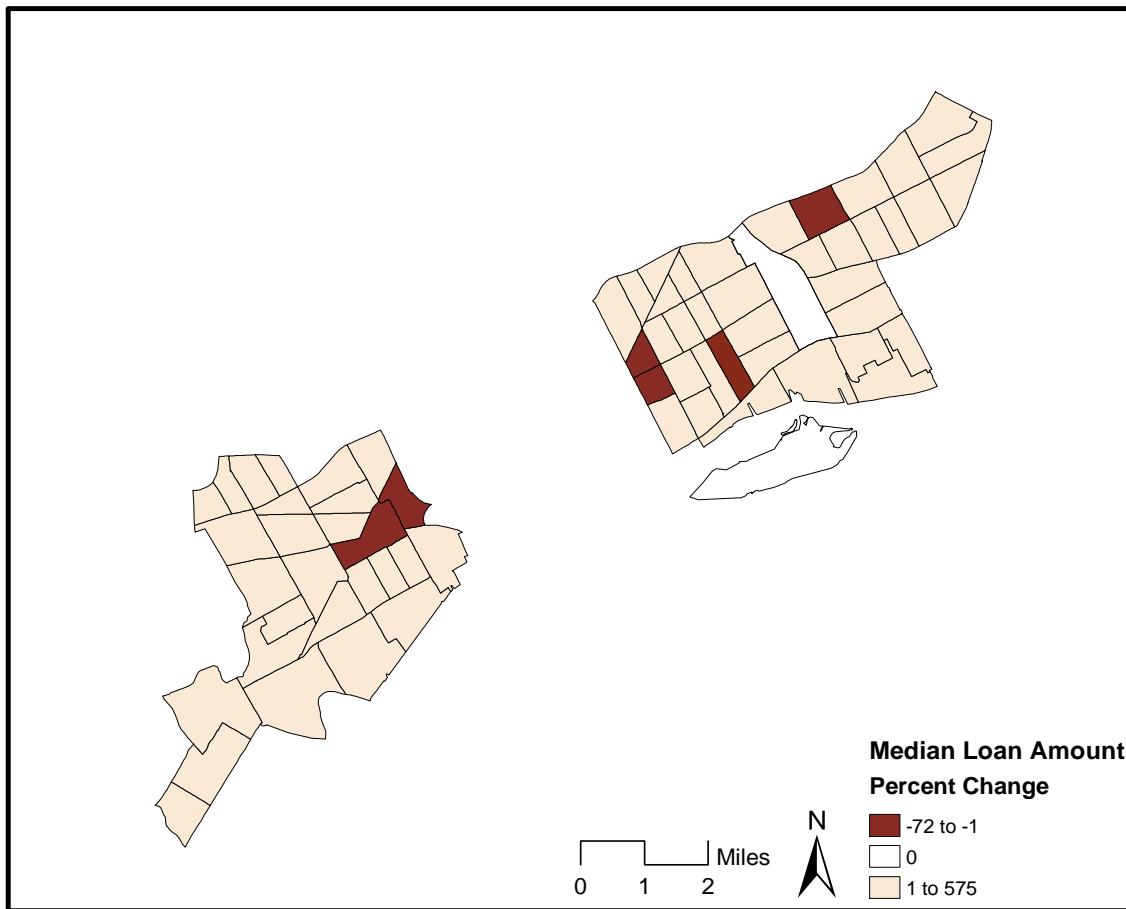


Source: U.S. Census 2000; City of Detroit Planning & Development Department; HMDA 2002; City of Detroit, Finance Department - Assessments Division data 2002

Figure A19: The approval rate decreased in tracts shown in dark purple, and increased in those shown in light purple.

**Figure A20**

Median Home Purchase Loan Amount Percent Change 2000-2002, by Census Tract, Clusters 3 and 5



Source: U.S. Census 2000; City of Detroit Planning & Development Department; HMDA 2002; City of Detroit, Finance Department - Assessments Division data 2000

The median loan amount decreased in tracts shown in dark red, and increased in those shown in light pink