
CARTOGRAPHY AND GEOGRAPHIC INFORMATION SYSTEMS

VOL. 25, No. 2

APRIL 1998

AN OFFICIAL JOURNAL OF ACSM DEVOTED TO THE ADVANCEMENT
OF CARTOGRAPHY IN ALL ITS ASPECTS
(ISSN 1050-9844)

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CARTOGRAPHY AND GEOGRAPHIC INFORMATION SYSTEMS

Published by the
American Congress on Surveying and Mapping
5410 Grosvenor Lane, Suite 100
Bethesda, MD 20814-2144
Phone: 301/493-0200 • Fax: 301/493-8245
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- Requests for advertising information should be directed to Barbara J. Woodward, Advertising/Marketing Manager, ACSM, 5410 Grosvenor Lane, Suite 100, Bethesda, MD 20814-2144. Phone: 301/493-0200 ext. 111. Fax: 301/493-8245. E-mail: <barbacsm@mindspring.com>.
- Subscription orders and inquiries should be directed to Rob E. Holland, Fulfillment Coordinator, ACSM, 5410 Grosvenor Lane, Suite 100, Bethesda, MD 20814-2144. Phone: 301/493-0200 ext. 104. Fax: 301/493-8245. E-mail: acsmbooks@mindspring.com. Subscriptions are \$40 per year (members), \$85 per year (non-members, U.S. addresses), and \$95 per year (nonmembers, foreign addresses). Back issues are \$10 per copy (members) and \$20 per copy (nonmembers) plus shipping and handling.
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How and Why Community Groups Use Maps and Geographic Information

William J. Craig and Sarah A. Elwood

Introduction

Strong neighborhoods make healthy cities. The obvious questions, then, are what makes strong neighborhoods and what can be done to build that strength? People who have access to GIS (geographic information systems) have come to feel they might have a resource that could help neighborhoods by providing maps and geographic information. In fact, because of the complications and expense of using GIS, community groups have often gone to a GIS expert to get the resources they need. This relationship is documented in an earlier paper by the senior author (Sawicki and Craig 1996). When that earlier work was about to go to press, the two authors asked themselves, "What do community groups do with this information?" They provided a few general answers, but had no overall framework to present. To answer the question about community use of information, new research was undertaken; the results of that effort are presented in this paper.¹

Cities are Social Organisms

Individual neighbors affect one's quality of life and thereby one's sense of the quality of the city (Jacobs 1961). But equally important is the neighborhood as a whole, and especially neighborhood and community organizations. The city is a social cauldron where different groups struggle to define the nature of that particular place as well as of their society. Castells (1983) argues that grass-roots organizations are a critical part of that struggle, documenting their influence across many cultures. Only by organizing can individuals have the impetus to participate in the traditional power structure. In order to be effective, community groups need to inspire others to appreciate their situation and proposed solutions. The

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power base of a community group comes from the size and commitment of its membership. Its success is measured by how many resources it has and how much positive change it is able to bring to its community. Accordingly, there are two types of audiences who must be inspired: the community itself (internal) and those who control the resources (external).

Maps and geographic information can play an effective role in the success of a community group. Durrance (1983) argues that information is the key to successful community organizations; they gain credibility by providing it to their members, the public, and policy makers. More than that, information can make the community groups internally more efficient and can act as a critical resource in buying a role for the group in any external coalition building.

How and Why Do Community Groups Use Maps and Geographic Information in Their Work?

To answer this question in detail, we reviewed literature from many fields: planning, political science, communications, social movement, social psychology, and community development. And to balance theory with practice, we interviewed community leaders who use maps and geographic information. Our goal was to develop a conceptual framework for

¹ This article uses the following terms interchangeably: grassroots, community and neighborhood organizations. All terms imply a citizen-driven voluntary organization that seeks the betterment of a subgroup of society. Community and neighborhood are often used interchangeable, but a service club is an instance of a community organization that could be spread across several neighborhoods. Only neighborhood organizations are defined by geography, but all tend to have a relatively compact spatial distribution.

the use of information which could be a useful guide to GIS specialists and community groups seeking to enhance the social, political, and economic situation of their neighborhoods. Geographic information thus becomes a tool for empowerment.

Nature of Community Groups

Community groups have become important in American politics for a number of reasons.² From a philosophical perspective, Americans generally believe that power comes from individuals and that organizations of individuals add to that strength.³ From a practical perspective, planners have come to realize that people in the community know more about local problems and, when properly mobilized, are quite effective at bringing about positive change (Jones 1990). From a political perspective, the decline of monolithic sources of power, such as the political party, has led to the rise of pluralism, where many groups have a role in the power base (Judge et al. 1995). In this era of pluralism, coalitions of diverse groups are formed to gain a common goal.⁴

The political role of community groups is of particular interest to us. Dye (1973) reported on the role of community groups in local politics, the main locus of neighborhood group interest and activity. Pluralism opens the door for many groups (from the wealthy bankers to the elected officials to community groups) to participate in local decision making. Dye quotes Wildavsky in saying, "The roads to influence... are more than one; elites and non-elites can travel them and the toll can be paid with energy and initiative as well as wealth" (Dye 1973, p. 361). So it is not necessary for community groups to have money to be influential, but it is necessary that they have significant focus and energy.

From a political perspective, neighborhood groups are one type of "interest group" (Grant and Omdahl 1993). Interest groups are valuable because they actively represent their constituents in the policy process and provide a second opportunity for representation. Interest groups play an important role in government by monitoring programs and providing feedback to policy makers. Because there are many interest groups representing the establishment, it is important that grassroots organizations participate

in the political process to provide a balance of power. Coalitions of interest groups can be quite powerful, but membership requires that each participant brings resources to the partnership.

Community groups bring to these coalitions knowledge, expertise, and power based on the size of their membership. Maps and geographic information help provide these resources. They provide vital information about the neighborhood and spatial relationships within the city. The demonstrated capability to utilize the technology to deliver such products enhances the organizations' credibility and prestige. These factors, and a sizable and committed membership, are the key resources a community group can bring to any partnership. To the extent the community group is able to transform raw data into products that reflect the values and priorities of its community, maps and geographic information help build membership, thereby adding to the viability of the organization.

Individuals participate in these new power relationships through membership in community organizations. The social movement literature offers numerous reasons why individuals join groups and become convinced that the organization can accomplish goals important to them. Maps can entice prospective members by documenting issues in ways which resonate with individual concerns. Access to geographic information can help make the participation interesting and fruitful.

Community groups have multiple ways of compensating for lack of status, money, and geographic coverage. One of them is their ability to effectively present information to coalition partners or to officials with key resources. The most significant resource, however, is the group's membership. The number of members a community group has is important because size provides a basis for public opinion on issues and votes at the poll (Grant and Omdahl 1993). Equally important are the commitment and cohesiveness of the membership, for these attributes provide the energy to act. Maps and geographic information can help develop these internal and external relationships. We now turn to the question of what tactics a community group might use to develop and exploit those relationships.

² Fainstein and Hirst (1995) argue that context is critical and the American grassroots organizations are in a much better situation than in other parts of the world. Castells (1983) takes the counterview that all cultures have successful grassroots organizations.

³ Community groups do not always represent all people in the community well. Research has documented deliberate and accidental exclusion of renters and people of color (e.g., Fisher 1994; Smith 1984; Fainstein and Hirst 1993). Other research has argued that gender-based power differences can play an important role in shaping internal dynamics of community organizations (Stoecker 1994). This paper will set aside these issues until the end, looking at community groups in their best light and looking at the ways they can use maps and geographic information to improve their strengths.

⁴ Such coalitions can be transitory or relatively stable; stable coalitions are termed regimes by political scientists.

Guidelines for Success

Available literature offers some guidelines for an organization seeking to gain the power and resources from external sources necessary to win the internal support of its own community. The basic steps are: describe the problem, identify possible actions, pick the best action, and take the chosen action (Zander 1982). The first two steps attempt to determine what the group should do and are, therefore, strategic; the last two steps are tactical, i.e., determine where and how to do it. We are most interested in how maps and geographic information are used within these steps.

The literature can illustrate the value of information, show where to find data, and teach how to do research. However, there is little written to provide any general guidelines for actually using information to achieve success. Most of the existing literature can be grouped into three clusters: individual community action success stories (e.g., Egan and Nauer 1995; Medoff and Sklar 1994; Sherr et al. 1973); how to find relevant data (e.g., Noyes c. 1978; CUAPR 1988; Dumhoff 1969); and guidebooks on how to do research (e.g., Reynolds and Sponaugle 1982; Simons and Jablonski 1990; Williams 1996)

The literature also provides examples of possible actions. For example, the *Corporate Action Project* (1974, pp. 67-74) lists tactics for convincing a company to change its ways in a more confrontational time, such as picketing and boycotting. Other authors (e.g., Mesch and Schwirian 1996) list actions that are more acceptable in today's political climate, e.g., present research results on technical information; organize or participate in public hearings; form coalitions; contact public officials; contact media; and alert membership and have them contact officials.

All of these actions require significant communication skills. Oaks (1977) points to the need for non-profit groups to communicate better with those with power and resources, the public, and with both members and potential members. Literature on information-presenting strategies which seek to gain compliance and social influence is emerging from communication studies. O'Keefe (1990) cites a number of strategies in Chapter 12 of his book *Persuasion*. Some of the most relevant for community groups include:

- ♦ Rewards (Join us, you will be rewarded.)
- ♦ Moral appeal (It's the right thing to do.)
- ♦ Positive self-feeling (You'll feel better about yourself.)
- ♦ Altruism (We need your help badly.)
- ♦ Coercion (If you don't, bad things will happen.)

⁵ One organizer we spoke with had worked in Chicago as well as Minneapolis, and we include information from his experiences in Chicago.

- ♦ Reason (It makes sense.)
- ♦ Expert influence (If she says so, it must be true.)

The community development literature tells us the value of building a local research capacity to process information. Donohew and Springer (1980) argue in favor of internal research to seek solutions to problems, because collective problem solving has value for the community. Wicker and Somer (1993) and Chow and Coulton (1996) likewise argue for a resident capacity, because insiders have more informed judgments about problems and methods. One organizer we interviewed argued that he needed GIS in-house because city mapping officials have never understood his needs. Shiffer (forthcoming) comes closest to describing community use of information to our satisfaction. He presents three uses of information: building community networks, supporting collaborative planning, and presenting the community proposal to the outside world. We shall see these themes reappear in expanded form in our investigations with community groups in the Twin Cities.

One of the most complete sources about how to use information to be successful is Saul Alinsky's *Rules for Radicals: A Pragmatic Primer for Realistic Radicals* (1972). This book contains an entire chapter on tactics, many of them focusing on using information to defeat an enemy. Alinsky is quite confrontational; today's activists would be more inclined to work within the establishment (Fisher 1996). Nevertheless, there are lessons to be learned from his writings about tactics.

Community Groups in the Twin Cities

To gain a broader perspective of how community groups use maps and geographic information to achieve their goals, we decided to meet with a number of groups from the Minneapolis-St. Paul metropolitan area. We interviewed organizers and staff members from 50 community groups. The vast majority of the people we talked to were members of Minneapolis neighborhood groups or St. Paul planning councils.⁵ We also identified contacts in other non-profit organizations, such as social service agencies, community development corporations, YMCAs, and churches. We did this by obtaining customer lists from the various information providers in the Twin Cities (for a provider list, see Sawicki and Craig 1996); sending electronic and postal mail to community groups; and asking each person interviewed to identify others who had used maps. Open-ended interviews were conducted with the participants in

which we asked them to relate stories of how their organization had used maps. Most of the interviews lasted approximately thirty minutes and were conducted by telephone. For organizations which had used maps extensively, interviews were conducted in person and lasted approximately one hour.

The ability of community groups to obtain and use geographic information and maps is shaped, in part, by the attitude of government toward including these organizations and their views in local decision making. In the Twin Cities area, local governments have a relatively progressive attitude toward community groups. Minneapolis is particularly noteworthy in its commitment to neighborhood-based planning, as seen in the city's Neighborhood Revitalization Program (NRP). The program is intended to involve neighborhood residents directly in planning and implementing changes with respect to issues such as economic development, housing, environment, safety, and transportation. The program provides neighborhoods with financial resources—\$20 million per year for 20 years—as well as a role in setting the agenda for local government agencies.

In addition to encouraging participation of community groups in planning processes, both Minneapolis and St. Paul have taken steps to ensure these groups have access to maps and geographic information. Two non-profit organizations and the University of Minnesota map library also provide mapping services to the groups. In this relatively progressive and information-rich context, community organizing in the Twin Cities area may be more cooperative and less confrontational than it is in other places.

Exemplary Cases of Using Maps and Geographic Information

We use three inner city neighborhoods in Minneapolis (Figure 1) to demonstrate exemplary use of maps and geographic information. Later we will categorize these different uses as **strategic**, which help define the problem and solutions; **tactical**, which attempt to implement solutions; **administrative**, which support the administrative tasks performed by the organization; and organizing uses which build the size and strength of the organization.

In Seward, a Minneapolis neighborhood, the neighborhood group and a neighborhood-based non-profit community development corporation work together to address neighborhood problems and plan for economic and community development. Maps and geographic information support their activities in all of the four areas mentioned above. In recent years, the neighborhood has

allocated approximately \$2.1 million received through the Minneapolis Neighborhood Revitalization Program, and it has used maps heavily in planning and implementing programs using these funds. They have used maps strategically, focusing on housing conditions, values, and tenure to determine an area in the neighborhood that is in particular need of assistance. In the planning phase of the NRP, maps were used as tools for facilitating discussion among residents. Organizers felt that maps generated particularly insightful and productive discussion by enabling residents to examine the neighborhood as a whole.

Seward planned a housing improvement program using information gathered to determine which part of the neighborhood was most in need of assistance. They began a program offering loans to property owners to rehabilitate their properties, loans which must be repaid only if the current owner

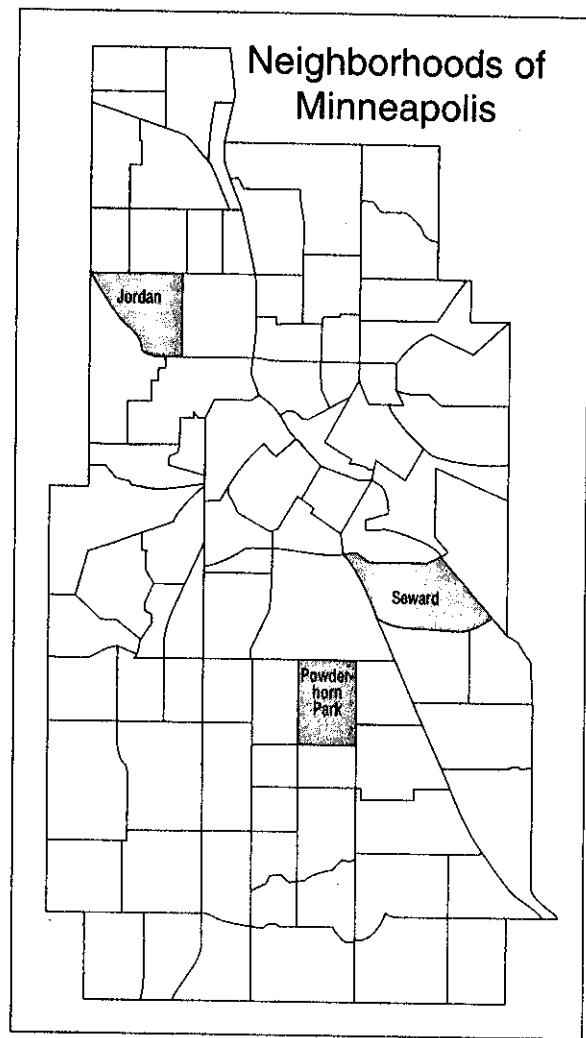


Figure 1. Map of official neighborhoods of Minneapolis highlighting three neighborhoods discussed in text as exemplary users of maps and geographic information.

sells or moves out in less than five years. The neighborhood has used maps for organizing, tactical, and administrative purposes related to this program. A map showing the owners of neighborhood properties and their addresses enabled program staff to mail loan applications and information about the program to owners in the target area who did not participate in the program. More recently, the neighborhood group has created a computerized database of property information, which includes information on ownership, property values, and lot and structure sizes. This information was extracted from the City of Minneapolis's data files, and it is used for administrative purposes; loans are secured by mortgage on the home which program staff are able to prepare using legal description and other information contained in the database.

Another Minneapolis neighborhood, Jordan, used maps and geographic information to assist in efforts to improve the quality of rental housing. They began this endeavor by using maps strategically to investigate how Jordan's rental properties compared to those in Minneapolis as a whole. Maps of changing property values and areas with high concentrations of rental housing revealed that Jordan indeed had a high number of declining rental properties. Having identified the problem, a committee of neighborhood people decided to address it through a program they called the "Dirty Thirty Campaign." The campaign was intended to identify the 30 worst rental properties in the neighborhood and then, through pressure from the neighborhood group, residents, city officials, and media, force the property owners to improve the properties and manage them better. Block clubs nominated properties and the community organization mapped the nominations to ensure a relatively even distribution across neighborhood. The cleanup campaign was announced at a major public meeting, to which public officials and the press were invited. Maps were used in the press kits and throughout the life of the project to monitor progress. In the end, 23 of the Dirty Thirty buildings were cleaned up—a 77 percent success rate. Organizers in Jordan used the momentum from the effort to band together with other neighborhoods and pressure the city to institute a rental licensing program through which landlords would be required to have a city license that could be revoked if the landlord proved to be negligent.

The Jordan neighborhood now has funds through the Neighborhood Revitalization Program to improve its housing stock. Its many 2-bedroom houses are considered too small in today's housing market, and the lots are too small to allow expansion. A committee of neighborhood residents uses maps to focus their housing investments. Maps, and

the information on the maps, guide the committee's strategic and tactical decisions. A two-bedroom home might be spared if it is on a block dominated by three-bedroom homes. In another part of the neighborhood, some houses must be demolished to make room for expansion by their neighbors. Committee members work with large-scale maps showing parcel dimensions and building footprints. The map is laminated, so they can write comments and tentative decisions with dry-markers, as they work to create the redevelopment plan for a particular block (Figure 2).

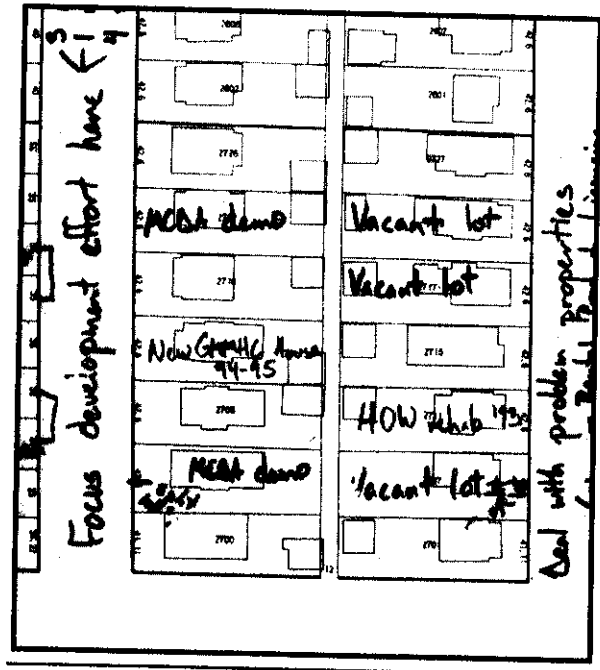


Figure 2. Detail of an annotated planimetric map used by the Jordan Neighborhood Housing Committee. People update city-supplied maps with local knowledge, other data sources, and committee recommendations.

Housing was also the focus of activity in the Powderhorn Park neighborhood. When the neighborhood was creating its NRP action plan, participants decided that maps and geographic information about the neighborhood were crucial to revitalization efforts. Thus, some of the neighborhood's NRP money was earmarked for purchasing GIS software, training staff members to use it, and developing a database of information about the neighborhood that could be used with the GIS. The neighborhood negotiated with city officials to receive inspections and rental licensing information from the city's database. They contracted with a low-cost computer company to design a database tailored to the neighborhood's information needs. Now, they are applying the information in the database for a range of

administrative, strategic, tactical, and organizing functions.

Similar to housing improvement efforts in Seward, Powderhorn Park used maps strategically to target areas of the neighborhood in most need of assistance. Based on maps of vacant and boarded structures, property values, conditions, and tenure, combined with a walking survey of the neighborhood, they decided to focus the bulk of their NRP funds on the northern portion of the neighborhood. Having formed their overall priorities for improvement of neighborhood properties, they use maps in the tactical and administrative aspects of planning and implementing projects which further these goals. Using the neighborhood database, staff members can keep a history of particular properties. This information is forwarded to various committees which may select particular problem properties on which to focus their efforts. Staff members generate maps from the database to bring to meetings. They say that when they can display information visually at a meeting, people are more involved in the meeting as they correct, add to, and discuss what they see on the map. Organizers also felt that the availability of the database and maps increased involvement in the neighborhood group. For instance, prior to the construction of the neighborhood's database, block club leaders had to contact a number of city offices to get information they might need in trying to deal with a problem property. Now, block club leaders simply contact the neighborhood association to get this information. New block club organizers can access the database to get names and addresses of owners and renters, which makes their organizing efforts much easier. Finally, the neighborhood organization is gaining more cooperation from landlords by providing a rental information service which meets the landlords' needs.

The Minneapolis neighborhood groups described above are using maps to address many different issues but, currently, some of the most notable stories are related to an improvement of housing stock and livability. Most of the activities of neighborhood groups are currently focused on NRP-related projects, and one of the foremost priorities of NRP is improvement and maintenance of housing stock in Minneapolis. Talking with organizers working in other areas, we found that they were using maps to address other issues, but like the Minneapolis neighborhoods, they were using maps for strategic, tactical, administrative, and organizing activities.

An organizer who had worked in Chicago described how a single map, charting the locations of crimes in a neighborhood over a period of several months, was used by the neighborhood for strategic and organizing purposes. Using cardboard and

colored pins, he made a map showing crimes as well as the location of block clubs. Strategically, he was able to identify areas of the neighborhood experiencing high levels of crime. This information guided his organizing efforts in the neighborhood. He placed special priority on holding block meetings in this area, taking his map to the meetings. While neighborhood residents already knew about the crimes, he found that the map drew greater attendance and resulted in more participation in discussions about the causes and solutions for crime in the neighborhood. Administratively, the map was also useful in helping the neighborhood group identify areas in which they would distribute flyers informing residents about recent crimes and suggesting ways of ensuring their safety.

Strategically, the crime map was particularly useful in identifying potential causes of crime in an area that was experiencing many property-related crimes such as theft and vandalism. Studying the map, residents and staff noticed that the crimes were focused around a neighborhood high school. Information showing that the crimes were largely committed during school hours and dropped during evenings and school vacations further supported this conclusion. Based on this information, the neighborhood group began to pressure school officials to restrict students to the campus during school hours. Thus, while the crime map had been useful in helping the neighborhood group decide upon a course of action, it was also crucial in enabling them to instigate change.

A Framework for Organizing Information Usage

This section describes the four types of information uses mentioned above. In Table 1 we provide an overview of the uses along with more detail on the nature of those uses and examples taken from our exemplary cases, from other interviews, and from Sawicki and Craig (1996). This section will describe these uses in more detail.

Administratively, community groups use maps to support the activities of their staff members. Staff obtain useful information from maps showing property parcels and their owners, as well as from textual records on problem properties and available rentals. Many community groups find a simple map showing neighborhood streets and properties to be a useful administrative tool. Staff members can use it to plan for contacting residents by door-knocking or literature drops. In meetings, the map can be used simply as a reference point in discussions about particular

I. Administrative

A. Provide information to support actions of staff members

1. Records of complaints and inspections violations about problem properties
2. Records of property information for writing mortgages for loans
3. Maps showing loans/grants given to ensure even distribution

B. Informprogramming by neighborhood group

1. Maps showing existing block clubs and other programs, areas in need of them
2. Maps showing areas to target in door-knocking efforts, literature drops

II. Strategic

A. General assessment of neighborhood needs and existing resources

1. Analysis of demographic and income data from Census to determine services needed
2. Market analysis for types of businesses needed
3. Thematic maps of housing values to determine areas in greatest need
4. Neighborhood-wide crime map to determine areas needing crime-fighting action
5. Map of existing social services and business in neighborhood

B. Search for general location of service or organization

1. Map of church members' and visitors' addresses to relocate church
2. Map showing residential location of Hispanic youth to locate education program

C. Evaluate the success of existing city and community programs

1. Map type location of neighborhood programs
2. Evaluate impact of non-profit multi-family housing developments on community

III. Tactical

A. Guide action/assistance to specific parts of neighborhood

1. Map of registered voters to determine areas to concentrate registration efforts
2. Map of housing rehab loan recipients to guide efforts at contacting non-participants
3. Map of vacant lots to search for space for community garden
4. Map documenting high number of drug arrests near a particular public phone

B. Contest maps of opponents

1. Map of airport noise showing discrepancies with official map
2. Higher resolution analysis showing greater impact of highway reconstruction on low income residents and people of color
3. Showing residents the misrepresentations in official map of road expansion

IV. Organizing

A. Recruit new members

1. Door-knock using maps showing problems the group will address
2. Providing names and phone numbers to prospective block captains

B. Facilitate meetings

1. Maps of alternative intersection redesigns to aid in conflict resolution
2. Neighbors add local knowledge about homes to laminated parcel maps using dry markers

C. Get attention and assistance from government, granting agencies, other neighborhoods

1. Maps and data included in grant applications
2. Maps of existing problems given to media at neighborhood events
3. Maps demonstrating neighborhood problems and needs, given to city government

Table 1. Uses of maps and geographic information by community organizations.

properties, to help staff members recall a property and its relative location in the neighborhood. Geographic information used for administrative purposes tends to be fairly detailed, including, for instance, owner's name, phone number, and property identification number.

Strategically, community groups use maps to generally investigate conditions and plan for the provision of services in their areas. Groups charged with doing long-term planning for community development frequently use maps of demographic and socio-economic characteristics, along with maps of existing businesses or social services in order to determine which services are needed or which businesses might be supported by their community. Non-profit development agencies use maps showing property values, tax assessments, and property conditions to determine the development potential of an area. Community groups may use similar maps to search for an appropriate location for a new business or organization in the neighborhood. Most of the maps and geographic information used for strategic purposes are relatively small scale—thematic maps at the census tract level, for example.

Once a community group has investigated a particular problem, maps can be used tactically to plan specific action around a

Table 2. Possible audiences for a community organization and how to reach them.

particular issue. A group may use maps to guide its activities or assistance to specific parts of the community, whether that means concentrating their crime-fighting efforts in a particular place, designing a housing rehabilitation program to reach a certain part of the neighborhood, or targeting voter registration efforts within a specific apartment complex. Also, when community groups are in conflict with government plans, they may create their own maps showing discrepancies between their own representation of an issue and that of their opponents. Maps used for tactical purposes tend to be large scale, e.g., parcel-level maps showing lot dimensions and housing condition.

A major component of the work done by community groups involves mobilizing residents to participate in community activities. Many groups are using maps to elicit this participation and, once residents are involved, to inform and direct their activities. Some organizers explained that maps are a highly effective way to get people interested in an issue and attend a meeting about it. Having a visual representation of an issue sparks productive discussion as residents examine the issue and begin to relate stories about their experiences at particular places. In addition, maps provide basic reference information quickly, such as on the owners of structures on a certain block, or the precise address of a problem property. Maps and geographic infor-

mation used for organizing tends to be detailed enough so residents can see the relationship between their home and the problem being highlighted.

Audiences

Implicit in much of what has been said is that information is used in different ways for different audiences. We identify five, as shown in Table 2. Two of these audiences are internal and three are

I. Internal

A. Community organization itself (us)

Our goal: We become stronger and gain resources for our community.

Value of information: Internally: educate ourselves, focus energy, support operations, measure program effectiveness. Externally: Influence others.

Method of conveying: maps in meetings. Staff members use maps and data for reference.

Nature of message: Reference, research and education.

B. People and businesses in our community

Our goal: Join and support our community organization.

Value of information: Builds awareness of issues and appreciation of our efforts.

Supports their participation.

Method of conveying: Door-to-door, neighborhood press, block club and other local meetings.

Nature of message: Rewards. Common problems can be solved working together.

II. External

A. Institutions and organizations with resources and power

Our goal: Appreciate us and be responsive to our needs.

Value of information: Demonstrates our capability. Gains appreciation of our issues and recommendations.

Method of conveying: Face-to-face, testimony in court or public hearing, grant application, letters from our members, public support, pressure from coalition members.

Nature of message: Problem is real and resources must be provided.

B. Individuals and other organizations seeking coalitions

Our goal: Build a coalition with us and act in ways to benefit our community.

Value of information: Proves we have something to offer the coalition.

Method of conveying: Meet and share our information.

Nature of message: We have the ability to analyze a situation, provide a convincing argument, and mobilize our membership to support our solution.

C. General public

Our goal: Support us and our issues through sympathy, pressure on officials.

Value of information: Increases awareness of our issues.

Increases support for our position and our organization.

Method of conveying: Story in print or electronic media; public displays such as information tables or posted signs.

Nature of message: Moral appeal, altruism, reason.

external. The table is written from the perspective of the community organization, referred to variously as "us" and "our organization." It provides guidance to what our community group wants out of various relationships, how information can help achieve that goal, how information might be conveyed to each audience, and what type of information should be transmitted.

The community organization itself can benefit from using information in all the four ways described above—administrative, strategic, tactical, and organizing. The organization wants to work more efficiently, solve problems, and grow in membership. Information can help. Membership growth can come from using information to encourage participation as described above, as well as from successes gained from external uses of the information.

We identify three different types of external audiences who, for the most part, will be presented only with strategic information about community needs and solutions. The first audience consists of institutions and organizations with resources and power, including the city council, city departments (e.g., the Police Department), and local foundations. One organizer explained that when applying for grants, an organization needs to document a problem, show that its proposed solution is the appropriate one, and demonstrate that the organization is competent to implement the solution. Community groups can use maps and geographic information in each of these steps.

A second external audience consists of individuals and other organizations who might form useful partners in a coalition. For example, this might include a local council member who wants to strengthen his or her relationship with the community, thereby increasing his or her credibility and chances for re-election. The community organization can build a relationship with this council member by providing information about what the community sees as critical issues and by acknowledging to its membership the council member's effort to solve problems.

Finally, general public support for the issues which are key to the community is important. The major approach for garnering this support is getting a story in the print or electronic media. With public support it is easier for the city council, for example, to raise taxes slightly for everyone because the voters believe it is for a good cause.

Summary and Implications

Grassroots organizations have a significant role to play in the community. In fact, they are a critical part

of the urban social dynamic. Organizations of individuals are needed to provide the critical mass of power to match that of more privileged groups. People choose to get involved when they see potential benefits that outweigh their cost of participation. With the decline of the political party and other concentrations of power, no single group can control a city and coalitions must be formed. This pluralism provides an opportunity for real democracy and is an answer to those who worry that society is run by the privileged elite. Those who wish to participate in this new power base must show they have resources to contribute. A community group has three resources it can bring to such coalitions: the size and commitment of its membership, the strength of an effective organization, and the information it can bring to the table.

Maps and geographic information can be used by community groups to improve administrative efficiency and effectiveness, to identify key strategic issues facing the community and useful ways of addressing them, to transform plans into tactical actions, and to organize members of the community. The audiences for these actions include the organization itself, its surrounding community, those with resources and power, those willing to form coalitions, and the general public. Maps and geographic information can provide general information about the community down to details about a single property.

It is important for geographic information scientists to know about community groups and their potential to benefit society. We hope the description of community groups provided in this article may help scientists in understanding their goals, while the conceptual framework and tactics may help those working with community groups to provide a more useful product. Seeing the potential of these grassroots community groups to use GIS also may prompt scientists to help educate these groups about the full and appropriate uses of geographic information and analysis.

We especially hope that the framework and tactics will be of use to the community groups themselves. The relatively broad range of geographic information uses described in this article may expand a group's thinking and help get more payoff from investment in mapped geographic information.

Much of the successful use of geographic information is based on easy access to public records. Where this is not the case, success may be much harder to find and community groups may be less successful in meeting the needs of their constituents. Society must work to keep all players on an even footing, especially those whose main resources are their brains and their hearts—not deep pockets and influential friends.

Much additional research is needed in this field to answer the following questions (and others). What is the value of maps and geographic information to community groups? Does that value justify the effort? Does current desktop GIS provide the analytical techniques and presentation options required by community groups? Can these groups afford to acquire, use, and maintain this technology? How does access to these resources change the power relationships within the community itself, and are certain individuals further marginalized? How does geographic information differ from other types of information in the way it is used by community groups? Do different means of extracting and presenting geographic information (e.g., GIS vs. traditional means, computer screen vs. paper, maps vs. text) have differential effects?

We close with a word of caution. Information is power and it is tempting to misuse power, especially by groups that are advocating for a specific outcome. Community groups are able to use maps and geographic information to support their position but, sometimes, those positions could be quite parochial or elitist.

Grassroots does not always mean, "in the best interest of society" or "representing the interest of all members of the community." Just as advertising is meant to convince people to buy a specified product, so a community organization could convince a society that it would be better off not making that purchase. Nevertheless, community groups are playing a key role in balancing power interests in the American society. Maps and geographic information are helping to support this role, for better or worse. Geographic information scientists can help direct things toward the better by being involved in this process.

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