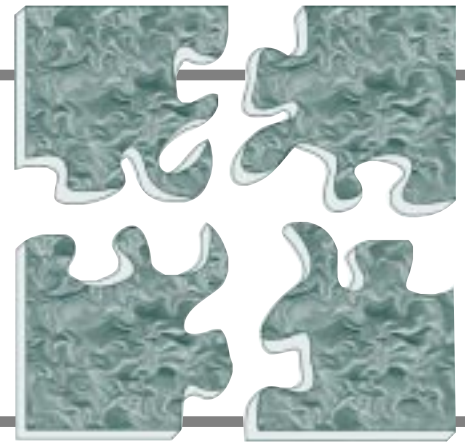# BEST
PRACTICE
BRIEFS

PUTTING THE PIECES TOGETHER

CONTEXT DETERMINES IF MAPPING IS

- geographic or
- conceptual

BEFORE YOU MAP

- know your purpose
- define issues
- know your strategy
    - set up an action committee
    - have a game plan

CONTRACT TO ESTABLISH THE BASE MAP

TRAIN A MAPPING SPECIALIST

BEWARE OF PITFALLS IN PRESENTING DATA

USE DATA TO

- provide a common understanding
- create enthusiasm

OUTREACH PARTNERSHIPS

MICHIGAN STATE
UNIVERSITY

THE SEVERAL FORMS OF "COMMUNITY MAPPING"—1

With new technology, the possibility of mapping information about communities as a basis for decision making has captured the imagination of policy makers. This BRIEF is one of two that will explore the concept of community mapping. The first outlines geographic mapping; the second explores conceptual mapping.

COMMUNITY MAPPING

Community Mapping is generally understood to mean a visual, geographic representation of community characteristics. However, the term can also be used in a conceptual sense, to mean an inventory of information with or without a visual representation. In addition to geographic mapping, the dictionary includes the following definitions: to delineate as if on a map, to survey, to locate, to plan in detail (Merriam Webster's Collegiate Dictionary). In either sense, **Community Mapping** is a tool, not an end product. Persons interested in community development, youth development, and other issues of community functioning can use **Community Mapping** to illuminate relationships and to suggest or focus strategies toward specific goals.

The term **Community Mapping** is currently being used in three ways:

- **Community Mapping** in the literal, geographic, sense refers to the presentation of data on a base map of roads, parcels, or blocks. The visual representation of data through **Community Mapping** can be a dramatic way to establish a common knowledge base among a group of diverse persons concerned with improving or changing outcomes for communities and their residents. We will reserve the term **Community Mapping** to mean visual representations using a base map. See NOTE on back.

- **Community Mapping** used conceptually refers to a process of inventorying the resources or assets available to a specified neighborhood or community. It includes inventorying of public capital and cultural resources as well as community assets for individual development. This conceptual approach will be identified as **Community Asset Mapping.**

- **Community Mapping** can also refer to an "abstract" graphic presentation of relationships that exist within a specified city or county without reference to geographic location. This visual presentation of relationships, generally known as ecomapping, will be identified as **Community Relationship Mapping.**

Things To Think About

Mapping grabs the imagination of community decision makers as a worthwhile activity that will produce answers. However, it is not a quick or easy process.

- Mapping should always be undertaken within a specific context—i.e., the question, purpose, mission, and strategy that mapping is designed to illuminate. These issues should be explored and framed before embracing the technique and embarking on the process. The context—the purpose we are trying to serve—establishes whether a spatial mapping or a more conceptual approach is appropriate.

- Mapping is only a beginning. Without thought about the purpose for the information—i.e., how the information is going to be used in furthering the well-being of the residents involved—the mapping process merely becomes another ill-fated exercise, an expenditure of energy and enthusiasm that leads to frustration.

- Mapping data can be a solitary endeavor when it is undertaken for research or for action that can be taken by a single agency. When undertaken to promote community development or improve human services across agencies, the process must involve a coalition of citizens and agency staff who will use the data as a tool to change their community.

COMMUNITY MAPPING

Community Mapping shows data relationships spatially on a geographic background. Mapping of data sets by parcel of land or block can show spatial distributions as well as relationships between two phenomena—for example, households in poverty and infant mortality. This visual representation can be illuminating, resulting in a more accurate commonly shared base of information, and it can be a springboard for community discussion and action plans.

Mapping of data sets is not a new technique. Placing dots or colors on transparencies, which can then be overlaid to identify similarities and differences in location, has been a standard tool for geographers and city planners for many years. The advent of the computer has brought expanded possibilities in this approach for illuminating relationships relevant to human services and to community

Computerized Mapping

Computerized programs for Community Mapping are either "desktop mapping" programs that use a single source of data and just create maps, or are "desktop GIS" (geographic information system) programs that have the capacity to link and analyze multiple layers of maps.

Desktop Mapping Programs, such as MapViewer, link a map or boundary file containing geographic locations with a worksheet table of data. Objects or areas on the map are linked to specific items of data contained in the rows and columns in the worksheet table. An advantage of this type of software is the ease with which the data format can be modified. Because the worksheet is a spreadsheet that can calculate statistics and perform mathematical calculations, the user can change the categories and classifications of the data, select the recalculate button, and the map is instantly changed. Another advantage is that such programs are easy to use.

Geographic Information System Programs (GIS), such as ArcInfo, ArcView, MapInfo, or Maptitude, store and analyze data in multiple layers in a relational database. The user can query the multi-layered data to establish and view previously unknown spatial relationships.

TECHNICAL ASPECTS OF COMMUNITY MAPPING

Desktop mapping or desktop GIS is a technical process requiring instruction and understanding of the sources of data and the appropriate use of visual components. A very brief summary of these technical aspects is outlined below.

The presentation of one or two variables superimposed on a base map is called a thematic map. The intent is to show spatial distribution or pattern. Base maps can come from:

- U.S. Census Bureau TIGER files that reference blocks, block groups, census tracts, townships, cities, and counties
- State of Michigan MIRIS files developed by the Department of Natural Resources that show roads, railroads, airports, soils, land use, and other topographical features
- school district boundaries

Information to be mapped can come from a variety of sources:

- socio-economic data sets from the U.S. Bureau of the Census files, organized according to geographic units
- data locally collected in the course of operations by the county, city, courts, police, social agencies, etc.
- data obtained by a specific survey, such as house-to-house questionnaires, etc.

Mapping requires decisions about presentation of the data. The actual numbers may be used, or the data may be translated so that comparisons can be made between areas. Common measures used to facilitate comparisons are rates (number per 1000 population), ratios (proportion of something to something else), or averages. Data are generally grouped into intervals. Colors, dots, or symbolic representations are used to represent the data.

In addition, the mapmaker must make decisions about such visual aspects as color, clarity, and legibility of the overall layout. A title and legend must be included to enable the viewer to know what is being presented and the source of the information. These decisions affect the quality and effectiveness of the spatial information and its visual display.

Advantages of Community Mapping

Used analytically, computerized mapping can help people to see similarities or differences in the spatial distribution of socio-economic data. It provides a different perspective on what is commonly known about an area and its physical and socio-economic characteristics. Thus it can validate the perceptions of decision-makers and residents—or it can establish factually that "commonly held truths" are misperceptions based on incomplete or mis-information, biases, or personal experience.

> *Example: Residents may perceive that their block or neighborhood is a high crime area, but this is not validated by maps of crime rates. The perception may be a function of unequal press coverage, acquaintance with a person who has been a victim of crime, or a lack of personal connectedness and relationships within the neighborhood.*

Computerized mapping can also organize a mass of data in a way that clarifies the essential features of a problem, thus enabling planners and community developers to respond with a more targeted strategy.

> *Example: School administrators concerned with the issue of student mobility mapped the information in student files. The resulting maps indicated:*
> 1) *stability of residence for people living in the area around the school;*
> 2) *the extent of movement between the school and particular neighborhoods (in three month cycles related to the ability to pay rent).*

Computerized mapping can show spatial relationships that are not readily apparent.
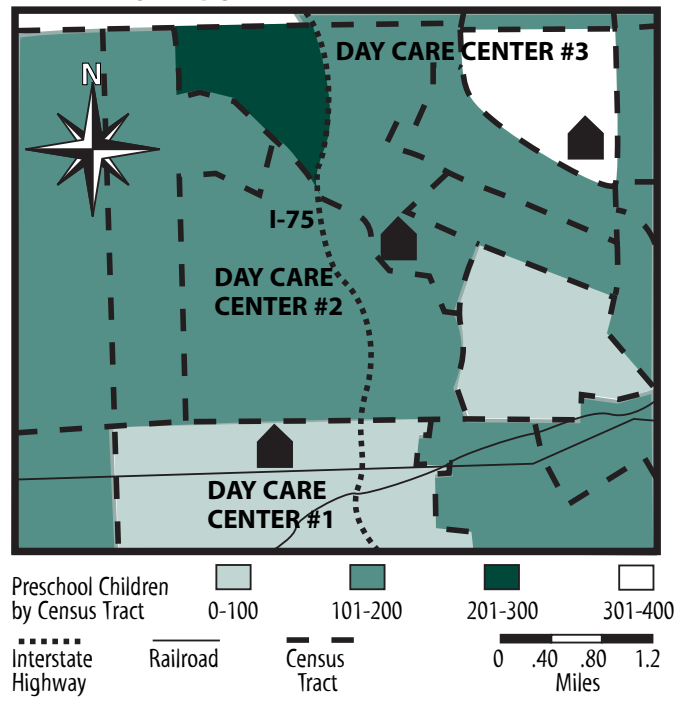
> *Example: Where the day care centers are in relation to the concentrations of preschool children.*

For human service agencies, computerized mapping can provide a visual picture of the location of the agency's customers and services, and socio-demographic characteristics of the areas served. Maps can be used to assess need for service, travel times, appropriate routes or boundaries, etc. Mapped inventories can be used to respond rapidly in referring to services.

Concerns and Constraints

Establishing a base map of ownership parcels, against which other information will be shown, is a time consuming and technical process. Information at the assessor's offices is organized differently from one jurisdiction to another and is generally not available in the format required for a computerized base map. If reformatting is required, contracting out this process is recommended.

EXAMPLE OF A GIS MAP

| Preschool Children by Census Tract | 0-100 | 101-200 | 201-300 | 301-400 |

Interstate Highway · · · · · Railroad —— Census Tract – – –
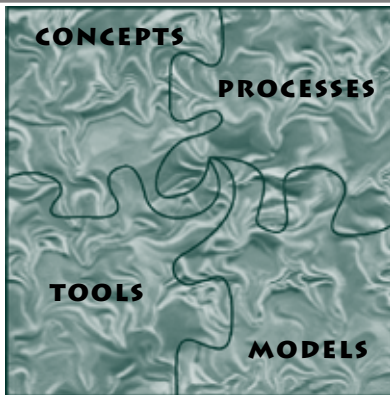
0 .40 .80 1.2 Miles

Community Mapping does not automatically result in a better understanding of communities and community relationships. As with any other statistical presentation, there are some necessary caveats. Mapping is a powerful tool that is not immune to misuse.

- Mapping data that have no significance can only lead to confusion, frustration, and wastage of resources.

- The mapping of two data sets that show congruence does not necessarily represent causality or explain what is shown.

- Technical decisions can unintentionally skew people's conclusions about what they see on the map. The choice of the data, the percentage selected to define data perceived as negative, or the color or symbol selected can lead to unwarranted judgments by viewers.

> *Examples: The selection of community data for adolescent motherhood that includes married 18-19 year olds in ethnic groups where this is the norm will overstate "the problem." Use of an inappropriate percent to define poverty, or use of individual income rather than family income, will lead to different conclusions. Use of value-laden symbols or colors (such as red or black) carries an emotional charge that can result in negative perceptions.*

COMING Next Month: No. 4 — More on "Community Mapping"

- Not all census data or economic data concerning a neighborhood need to be mapped on a geographic grid. Limit mapping to data that are likely to be unevenly distributed to show the location of clusters for more targeted planning.

  Example: It may be sufficient to have a summary figure or frequency distribution for such information as income or age of the population or age of housing stock.

Defining of data sets for mapping should always be undertaken with as much background information as possible about the phenomenon being mapped. And—we reiterate—Community Mapping should always occur within the context of a question to be answered or a hypothesis to be tested. If it is being used to generate enthusiasm, there should be a clear sense as to what the next step will be, and how that can occur.

In summary, computerized spatial mapping of data can be an effective way to access and showcase information. It is a significant addition to the tools for community development.

NOTE: Geographers use Community Asset Mapping to refer to what we have called Community Mapping.

REFERENCES

Queralt, M. and Witte, A.D. A Map for You? Geographic Information Systems in the Social Services. *Social Work.* Vol. 43, #5, September 1998.

ERRATA. **BEST PRACTICE BRIEF No. 2**
page 4 should read as follows: **Line 1:** surveys of over 300.000 adolescents; **Line 3:** assets and risky behaviors (before 1995, 30 assets and 20 risky behaviors were measured; after 1995, 40 assets and 24 risky behaviors); **Line 12:** Adolescents in 460 communities report an average of half of the assets. There is a striking drop in risky behavior for those youth who have more than half of the assets.

CONCEPTS

TOOLS

PROCESSES

MODELS