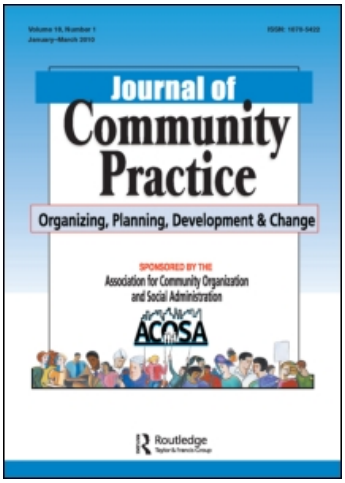

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Finding Place in Community Change Initiatives: Using GIS to Uncover Resident Perceptions of their Neighborhoods

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Finding Place in Community Change Initiatives: Using GIS to Uncover Resident Perceptions of their Neighborhoods

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The growing recognition that place matters has led to numerous foundation- and government-sponsored initiatives that attempt to simultaneously strengthen neighborhoods and address the needs of families that live there. Despite the centrality of the concept of neighborhood, these place-based initiatives have few tools to understand how residents identify with the space within their target areas. This article demonstrates how resident-drawn maps gathered in a household survey can be used to uncover individual and collective neighborhood definitions. Using data gathered as part of the Annie E. Casey Foundation's Making Connections program in 10 cities, the study finds that there is considerable variation among residents in how they define their neighborhoods, but that there are also commonly held neighborhood identities that need to be taken into account in community practice.

KEYWORDS community change, neighborhood mapping, geographic information systems, resident perceptions

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The growing recognition that place matters has led to numerous foundation and government-sponsored initiatives that address the needs of disadvantaged communities and families in tandem. Often referred to as community change initiatives (CCIs), a fundamental assumption of these place-based strategies is that residents are both the beneficiaries and cocreators of improvements in their neighborhoods and the systems that serve them. Despite the centrality of place in CCIs, defining neighborhoods as they are experienced by residents has proven challenging. However, failure to take residents' neighborhood perceptions into account impedes key elements of the community change process and limits the degree to which residents will benefit from the improvements that are made in their residential context.

This article demonstrates how household surveys can be used to ascertain residents' views of the places they refer to as their neighborhoods. Specifically, by applying geographic information systems (GIS) tools to resident generated neighborhood maps and names, CCIs' target areas are shown to consist of several unique and overlapping neighborhoods as viewed by collections of residents. This nuanced picture of CCIs' target areas as collections of places that have various constituencies and overlapping, possibly contested boundaries, can be a basis for community change strategies that are built on the complex reality of place as perceived by residents.

LITERATURE REVIEW

Why is Neighborhood as Place Important in CCIs?

CCIs' neighborhood focus is motivated by the ever growing evidence that living in distressed, disinvested, and deteriorated places has adverse effects on families and children (Ellen & Turner, 1997; Sampson, 2003; Wilson, 1987). Although researchers debate about the magnitude and mechanisms of these effects (Kling, Liebman, & Katz, 2007; Leventhal & Brooks-Gunn, 2000; Sampson, Morenoff, & Gannon-Rowley, 2002), CCIs have moved ahead with efforts to strengthen their target neighborhoods from the outside in and the inside out. CCIs select target areas for their work that are thought to have serious problems but also some preconditions for change. They vary in size and location, but are usually specified by geographic boundaries. Variously referred to as *neighborhoods*, *communities*, *sites*, *subdivisions*, or some other nomenclature, the assumptions about the meaning of these locations to local residents and institutions often go unexamined during the selection process. Although the exact role of place may differ, depending on the initiative's goals and strategies, there is usually an expectation that residents of the target areas will be involved in and affected by the ensuing action.

CCIs employ participatory strategies as a preferred method of producing neighborhood change (Kubish et al., 2002) and often begin with visioning exercises that draw on residents' knowledge of, and aspirations for, their neighborhoods (Auspos, Brown, Sutton, & Kubisch, 2008). However, the expectation that residents' interests may converge into an agenda presumes some commonality of understanding regarding the place they live. Moreover, CCIs anticipate benefits for both individuals and neighborhoods by undertaking collective action (Chaskin, 2001; Chaskin, Joseph, & Chipenda-Dansokho, 1997; Saegert, 2006), but such community participation requires (and perhaps fosters) some degree of local identity with place (Uzzell, Pol, & Badenas, 2002). The centrality of the neighborhood identity to community building is reflected in the following words of practitioners:

> It works by . . . neighbors learning to rely on each other, working together on concrete tasks that take advantage of new self awareness of their collective and individual assets and in the process creating human, family, and social capital that provides a new base for a more promising future. (McNeely, 1999, p. 742)

And in the admonition against ignoring the reality of neighborhood identity: "Institutions that cover larger areas ... need to keep the differences between their component neighborhoods in mind ... and recognize that those components need to develop their own sense of identity if social and human capital is to be built successfully" (Kingsley, McNeely, & Gibson, 1997, p. 7).

Some evaluations of CCIs have found disappointing results with respect to community engagement aspects of the work and these poor outcomes may relate to failure to properly understand the complexities of place and space (Kadushin, Lindholm, Ryan, Brodsky, & Saxe, 2005). Oftentimes, CCIs do not recognize that residents have differing experiences of the spatial aspects of their neighborhood than do outside stakeholders who are typically brought into the community building process (Lepofsky & Fraser, 2003). Without the ability to relate to the place as they see it, residents can become disconnected or even resistant to the process (Fraser, Lepofsky, Kick, & Williams, 2003). This is not to say that the space, as defined by residents, is the only scale for CCIs' action. Indeed, an adept CCI will scale up or down as needed to achieve community goals (Sites, Chaskin, & Parks, 2007). However, CCIs that rely on fuzzy or arbitrary boundaries, rather than a deeper understanding of how people construct meaningful relationships to place, may inadvertently undermine authentic resident involvement and control.

The Complexity of Neighborhood as Place

Although CCIs typically establish geographic boundaries for target areas, many do not raise the question of whether these actually comprise

neighborhoods from an individual or collective point of view. However, the fact is that neighborhoods are not merely territory, but "social constructions named and bounded differently by different individuals" (Lee, Oropesa & Kanan, 1994, p. 352). Individuals have agency with respect to neighborhoods (Entwisle, 2007) and, as they move through their residential surroundings, they carve their own activity space, which does not map onto arbitrary geographic boundaries (Sherman, Spencer, Preisser, Gesler, & Arcury, 2005). Moreover, individuals construct their sense of place and how place fits into their social identity (Stedman, 2002). Neighborhood boundaries, as lived, are not static, but often dynamic and contested, and social interaction shapes the meaning of places for individuals and groups (Gotham, 2003). Residents can either embrace surrounding space or disavow parts of it (Gotham & Brumley, 2002).

Even when they live in geographic proximity, it cannot be assumed that all residents experience the place similarly. In particular, relative position in the social structure, often dictated by age, race, class, or gender, may affect neighborhood evaluations (Campbell, Henly, Elliott, & Irwin, 2009; Charles, 2000; Krysan, 2002; Sampson & Raudenbush, 2004). Moreover, neighborhoods, themselves, may differ in the degree to which they are identifiable, such as whether they have naturally occurring boundaries, demarcations, or neighborhood names (Taylor, Gottfredson, & Brower, 1984).

Discovering Place Identity in CCIs

Recognizing the complexity of neighborhoods as places is only the beginning. If existing definitions of neighborhood boundaries are inadequate for CCIs engagement with residents, what are the alternatives? For CCIs to appreciate residents' neighborhood identities, it is necessary to develop tools for uncovering their perceptions. Although it is important to keep in mind that neighborhoods operate at differing scales depending on the quality or process that is of interest (Galster, 2001), with respect to the meaning of the concept to residents, the scale may be smaller than most CCIs would presume (Cuba & Hummon, 1993; Sastry, Pebley, & Zonta, 2002).

Because CCIs engage in place-based work, they can benefit from understanding how residents' perceptions of their neighborhoods map onto the geography of their target areas. However, this is not a simple task. The relationship of individuals' mental imagery of a place to actual space is not straightforward, and cognitive maps differ from cartography (Lynch, 1960). Studies show that many factors are involved in individuals' knowledge of their environments and their ability to represent it spatially (Downs & Stea, 1973; Lloyd & Hooper, 1991). Nevertheless, despite individual differences in cognitive maps of a place, community mapping projects have been successful at revealing conflicting perspectives, as well common ground in place identity (Crouch & Matless, 1996).

Although sense of place and mental maps are phenomenological, as experienced by individuals, the work of residents in CCIs is collective. Community engagement often centers on a vision of shared space associated with the concept of neighborhood. To be informed about collective perceptions, CCIs require a method of determining the degree to which residents have commonly held views of what constitutes their neighborhood and the general parameters of its location. A methodology for using resident-drawn cartographic maps to identify the common spaces that residents include in neighborhood definitions was successfully implemented in a sample of small areas in Cleveland (Coulton, Korbin, Chan, & Su, 2001). This method is now applied in 10 more cities that were part of a multisite CCI.

METHODS

This study was carried out as part of the Making Connections (MC) initiative, a program of the Annie E. Casey Foundation that seeks to improve outcomes for disadvantaged children by strengthening their families, improving their neighborhoods, and raising the quality of local services. The MC work takes place in selected target areas of 10 cities (Denver, Des Moines, Hartford, Indianapolis, Louisville, Milwaukee, Oakland, Providence, San Antonio, and Seattle/White Center). The MC target areas were chosen through a deliberative process involving the foundation and local representatives. Early in the initiative, local MC leaders specified the geographic boundaries of the target areas, taking into account historical, political, and organizational factors. Local leaders also determined whether the target area would be referred to by a single name or would be demarcated into several different official neighborhoods, each with it's own name. These local considerations resulted in MC target areas across the 10 sites that vary in size and whether they are made up of a single or multiple official neighborhoods. Nevertheless, the question of how these places were perceived by residents was pertinent to the community mobilization and social network agenda set in all of the sites.

Sample Selection

Data for this analysis come from the first wave (2002–2003) of household surveys conducted in the MC target areas in the 10 cities. The data were collected jointly by the National Opinion Research Center (NORC) at the University of Chicago and the Urban Institute. The interviews were conducted in residents' homes in English, Spanish, and additional languages that were prevalent in the particular site.

The samples for MC survey were designed to give equal probabilities of selection to all households within each target area. In designing

and selecting the samples, NORC used the procedures it developed for list-assisted probability sampling of households using as a basis the United States Postal Service (USPS) master list of delivery addresses (Iannichione, Staab, & Redden, 2003; O'Muircheartaigh, Eckman & Weiss, 2002). Geocoding software was used to map the addresses, and field checks were made to confirm the validity of the lists. The sample design was directed at obtaining a representative sample of households and children in each target area. In households with children, a roster of all children in the household was compiled, and one child was selected at random; this child was designated the focal child. The selected respondent was the adult most knowledgeable about the selected focal child. In households without children, an adult was chosen at random. A total of 7,498 households completed interviews, representing a response rate of 69 percent.

Data Collection and Measures

The MC survey asked respondents questions about their households and neighborhoods. In this article, we focus on the portions of the interview that asked respondents about their neighborhood identity, including their drawings of neighborhood maps and the names that they supplied for their neighborhoods. Each of these queries is described in the following.

Mapping task. The interviewer presented each respondent with a GIS-generated map that covered an area somewhat larger than the MC target area. The maps were printed on paper and displayed selected streets and key landmarks. To orient the respondent to the task, the interviewer pointed to the location of the respondent's home and read the following statement:

> By neighborhood, I mean the area around where you live and around your house. It may include places you shop, religious or public institutions, or a local business district. It is the general area around your house where you might perform routine tasks, such as shopping, going to the park, or visiting with neighbors. Please take a look at this map of the area. Study it for a moment and use this pencil to draw the boundaries of what you consider your neighborhood.

Most respondents (83%) successfully completed the mapping task. A total of 6,224 maps were used in the subsequent analysis. The paper maps drawn by respondents were digitized by tracing the boundaries using GIS tools. The digitized maps were saved as shapefiles. Using GIS, each shapefile was overlaid with a block layer to determine which blocks (or parts thereof) were included within each respondent's map.

Neighborhood names. Another way that people identify and demarcate their neighborhood is with a name. Therefore, the MC survey asked respondents, "Does your neighborhood have a name?" If they answered yes, as did

70% of the respondents, they were asked to provide the neighborhood name and the interviewer recorded the answer verbatim. These were clerically reviewed to correct misspellings and minor variations. A standardized table of names was created and name codes were appended to the respondent data file and to each respondent's digitized map.

Analysis of Resident Perceived Neighborhoods

The ultimate goal of this analysis was to use the maps and names provided by residents to uncover how residents in the MC sites perceived their neighborhood space and identity. This research rested on an assumption that there would be some type of collective definition that would emerge from the views of households that lived in proximity to one another.To search for these commonly identified spaces, we applied GIS tools that had been successful in identifying the core space of Cleveland neighborhoods (Coulton et al., 2001). We began by overlaying the digitized respondent maps to determine how many respondents included each block in the MC target area within their own neighborhood boundaries. This resulted in a matrix of residents by blocks, making it feasible to quickly calculate for any collection of maps the number and percentage of residents that included each block in their maps.

The resident mapping matrix was used in subsequent efforts to uncover collective neighborhood identities and spaces, referred to in what follows as endorsed neighborhoods. We began the search for endorsed neighborhoods by assuming that we would find areas of consensus among residents who lived within the official MC boundaries. After grouping resident maps according to MC official neighborhood boundaries, we calculated the percentage of maps that incorporated each block. We experimented with various thresholds (from a high of 75% to a low of 25%) for considering a block to be part of the endorsed neighborhood area. However, the maps drawn by residents within most of the official neighborhoods proved to be too disparate to find any blocks that reached these thresholds.

Next, we decided to explore for commonalities in the maps of respondents who provided the same neighborhood name, whether or not it was the official one. For practical reasons, this analysis was limited to neighborhood names provided by at least 10 residents. However, this criteria left out a number of resident maps that could not be grouped because the respondent either provided no name for their neighborhood or the name they offered was not shared with at least 10 other residents. We suspected that if these maps clustered together spatially, they could still reveal some consensus about common space, even without name consensus. Thus, we also used spatial clustering methods to identify additional groupings of maps. (See Appendix A for details on the spatial clustering method used here.)

FINDINGS

Characteristics of Respondents

The socio-economic profile of the total sample is consistent with the demographics of the types of neighborhoods that are typically involved in CCIs. As shown in Table 1, most of the respondents come from low income households, and a large percentage is comprised of renters, rather than home owners. The racial and ethnic composition of the sample is quite diverse, with African American and Hispanic respondents being the most numerous but also a sizable representation of Asian respondents. Non-Hispanic Caucasian respondents are a minority. Additionally, a sizable percentage of the respondents were born outside the United States.

It is also important to note that the socio-economic profiles of respondents in this analysis differ markedly across the 10 cities. This, too, is consistent with the reality that CCIs are, indeed, carried out in a variety of contexts and in places that are unique in many respects. For example, with respect to racial and ethnic composition, the Oakland target area is quite diverse, with sizeable proportions of African American, Hispanic, and Asian respondents. In contrast, the target area in Louisville is primarily African American, in San Antonio it is largely Hispanic, and Des Moines has a large proportion of non-Hispanic Caucasian respondents. Similarly, there are cross-site differences in housing tenure, ranging from Oakland and Hartford where more than 80% of the respondents are in renters, to San Antonio and Seattle/White Center where nearly 60% are owner occupants. And although all of the target areas' respondents are disproportionately low income, they range from a high of 87% in Louisville, where the target are a includes a sizeable amount of public housing, to a low of 42% in Seattle/White Center where housing is decidedly mixed income. Thus, these target areas and

TABLE 1 Description of Respondents That Provided a Map (Unweighted %)

Target area	Household income less than $30,000	Foreign born	Non-hispanic white	Non-hispanic black	Hispanic[1]	Non-hispanic asian	Renter
All sites	73.48	25.19	24.37	34.83	27.98	7.32	62.45
Denver	75.45	18.11	27.63	18.05	42.48	5.64	70.84
Des Moines	71.90	11.95	53.55	26.92	8.97	3.76	44.22
Hartford	81.29	43.74	4.96	52.13	36.88	1.06	85.16
Indianapolis	76.90	5.68	39.24	49.26	6.73	1.81	52.57
Louisville	86.88	2.01	15.30	79.13	2.63	0.62	75.08
Milwaukee	77.11	14.05	11.78	68.90	6.22	10.97	66.01
Oakland	69.63	57.45	11.23	23.53	29.06	32.62	82.38
Providence	71.95	56.71	14.45	24.20	46.89	4.71	74.96
San Antonio	82.07	18.87	6.13	1.57	84.88	0.14	40.83
Seattle/White Center	42.31	30.15	54.63	7.56	14.51	14.66	42.94

Note. [1]Hispanics can be of any race.

respondents are representative of the settings in which community change work is being done and serve as a reasonable sample for testing methods to uncover residents' perceptions of neighborhood identity.

Resident Maps and Endorsed Neighborhoods

Table 2 describes the responses to the mapping task for each MC target area. The median square miles in respondents' neighborhood maps (Column 1) is .35 for the total sample, but it ranges from .09 square miles in Hartford to 1.2 square miles in San Antonio. The interquartile ranges (presented because the data are skewed) confirm that there is considerable diversity of neighborhood scale within MC target areas, as well. In fact, the variation within is larger than the variation between target areas, suggesting that individuals in the same vicinity have very different senses of neighborhood scale. Comparing the size of respondents' maps (column 1) with the square miles of the MC target areas (column 2) confirms that, in all cases, the respondents' maps are considerably smaller that the target areas designated by the initiative. On average, respondents' maps are slightly less than one-fifth the size of the MC target areas. However, there is a moderate correlation (.55) between respondents' map size and target area size. This suggests that there is some degree of similarity in perceived neighborhood scale between the average respondent and initiative leadership.

Descriptive information on neighborhood names provided by respondents is also shown in Table 2. The number of different neighborhood names given by at least 10 respondents ranges (see column 3), from a high of 12 in Louisville to a low of 6 in Denver, Hartford, and Providence. However,

TABLE 2 Summary of Map and Name Analysis

	Map			Name		
Target	Median area (interquartile range)	Target area size	Number of names ($n \geq 10$)	Number of official neighborhood names	% gave any name	% gave official name
All states (average)	0.35 (0.10–0.98)	4.92	9	3	68.48	25.60
Denver	0.32 (0.11–0.67)	4.55	6	4	77.15	58.28
Des Moines	0.43 (0.11–1.15)	7.10	10	2	63.23	3.82
Hartford	0.09 (0.03–0.24)	5.28	6	7	65.76	26.39
Indianapolis	0.42 (0.12–1.21)	9.04	8	2	73.50	9.94
Louisville	0.60 (0.28–1.37)	2.65	12	4	89.19	40.40
Milwaukee	0.21 (0.07–0.59)	2.42	7	1	48.35	8.75
Oakland	0.23 (0.08–0.56)	1.95	9	1	57.68	13.34
Providence	0.17 (0.06–0.38)	3.38	6	3	72.11	33.06
San Antonio	1.20 (0.40–2.70)	24.37	10	1	48.96	12.18
Seattle/White Center	0.65 (0.21–1.38)	6.16	11	2	89.02	47.22

this belies considerable disagreement on neighborhood name within the sites. As shown in column 5, a high percentage of respondents provided an idiosyncratic name (i.e., one not shared with at least 10 other respondents), and with the exception of Denver, only a minority of respondents identified with the official target area neighborhood names chosen by the initiative. However, agreement with official names tended to be higher in sites where the leaders designated more than one official neighborhood within their target areas. Milwaukee, Oakland, and San Antonio each adopted only one official name to refer to their target areas, and these sites show the lowest percentage of respondents identifying with that name. Indianapolis and Des Moines utilized two neighborhood names, and they, too, show low agreement with the official names. However, respondents in the Seattle/White Center target area, with only two official names, show relatively high concurrence with the official names. Providence, Denver, and Louisville utilized three or four official neighborhood designations, and these sites show relatively high levels of endorsement for these official names. Hartford is an outlier in designating seven official neighborhood names at the outset of the initiative, but having only about one-quarter of respondents indentifying with any of those names.

Finding Residents' Perceived Neighborhoods

Using the GIS tools described in the Methods section of this article, we undertook further analyses of the maps and neighborhood names to identify the spaces that residents perceived in common, referred to here as *endorsed neighborhoods*. A summary of these explorations appears in Table 3. It can be seen that the sites vary in the number of endorsed neighborhoods uncovered using these tools, but in all locales there are more endorsed neighborhoods than official neighborhoods. The sites also differ in the

TABLE 3 Endorsed Neighborhoods by Target Area

Target area	Number of endorsed neighborhood	% overlap	% area not endorsed
All sites (average)	9	9.59	23.39
Denver	7	11.78	52.32
Des Moines	9	7.92	23.21
Hartford	10	1.25	63.81
Indianapolis	11	4.67	13.66
Louisville	11	24.44	0.37
Milwaukee	8	7.23	3.02
Oakland	7	18.75	20.39
Providence	6	3.53	20.78
San Antonio	9	1.48	33.87
Seattle/White Center	9	14.81	2.47

degree to which there was spatial overlap among the endorsed neighborhoods, ranging from a high of 24.4% overlap in Louisville, to a low of only 1.3% overlap in Hartford. The proportion of the target area that did not fall into any endorsed neighborhood also varies by site, and again Louisville and Hartford represent the extremes.

The endorsed neighborhoods uncovered through these methods were shown on maps prepared for all of the MC sites. Landmarks, streets, and other identifying information were also added to the maps. The findings were discussed with key informants to get a sense of whether the patterns were consistent with local knowledge and to explore some of the underlying social, physical, historical, and economic factors that might be responsible for them.

We present several of the site maps to illustrate some of these patterns. San Antonio (see Figure 1) is the largest MC target area (24.37 square miles) of all of the sites and had, therefore, the lowest density of respondents per square mile of any of the 10 sites. In the San Antonio target area, there was one official neighborhood name, West Side. Even though the typical respondent map in San Antonio was the largest of any of the 10 sites ($Mdn = 1.2$ square miles), there is relatively little overlap among endorsed neighborhoods. Moreover, endorsed neighborhoods cover only about 2/3 of the target area in San Antonio. Another factor affecting the mapping in San

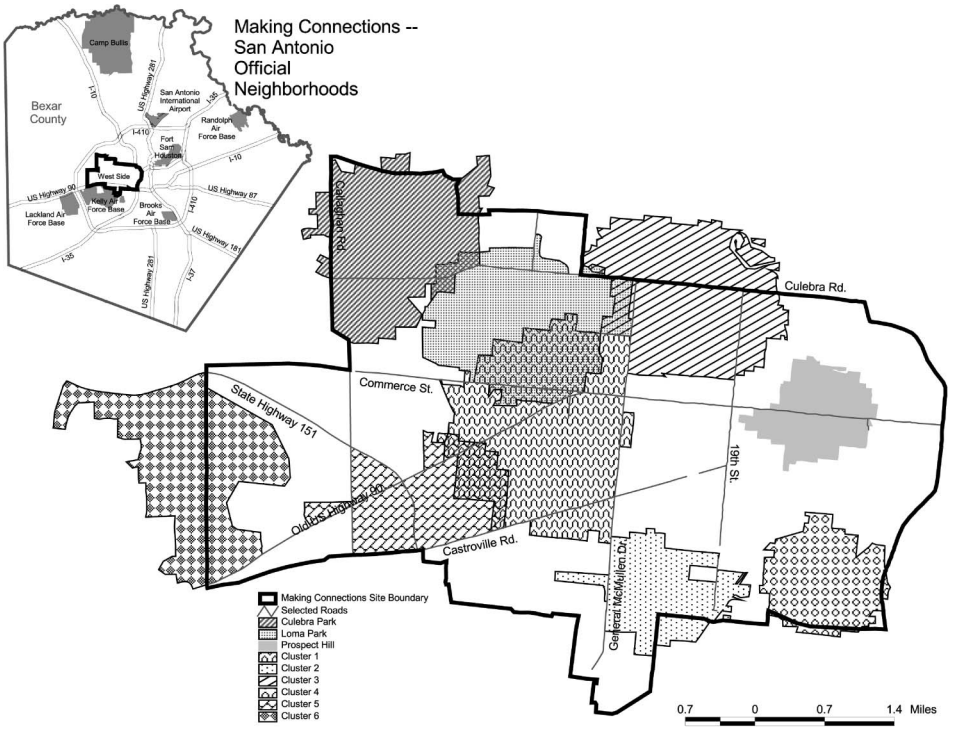

FIGURE 1 Resident endorsed neighborhood boundaries, San Antonio.

Antonio was the relatively low number of respondents that provided any name for their neighborhood (48.96%), and the fact that only 10 neighborhood names were agreed upon by at least 10 respondents. Therefore, San Antonio's endorsed neighborhoods were found more often using the hierarchical clustering method, rather than relying on named neighborhoods as an organizing principle for grouping respondents' maps together. Comments from a local expert on the San Antonio endorsed neighborhoods suggest that the pattern revealed by this mapping exercise was informative and consistent with local knowledge:

> A key factor that seems to affect neighborhood identity on the West Side of San Antonio is that we have two separate school districts. You see clustering of neighborhood identity around schools. But it is not surprising that there are few neighborhood names that generate support or endorsement from a lot of residents. This space has been more fluid and has not had a history of formal neighborhood demarcation.

Another illustrative map from Providence is shown in Figure 2. The Providence MC target area was relatively small at 3.38 square miles, and respondents there drew among the smallest maps of any site ($Mdn = 0.17$ square miles). The Providence site designated three official neighborhood

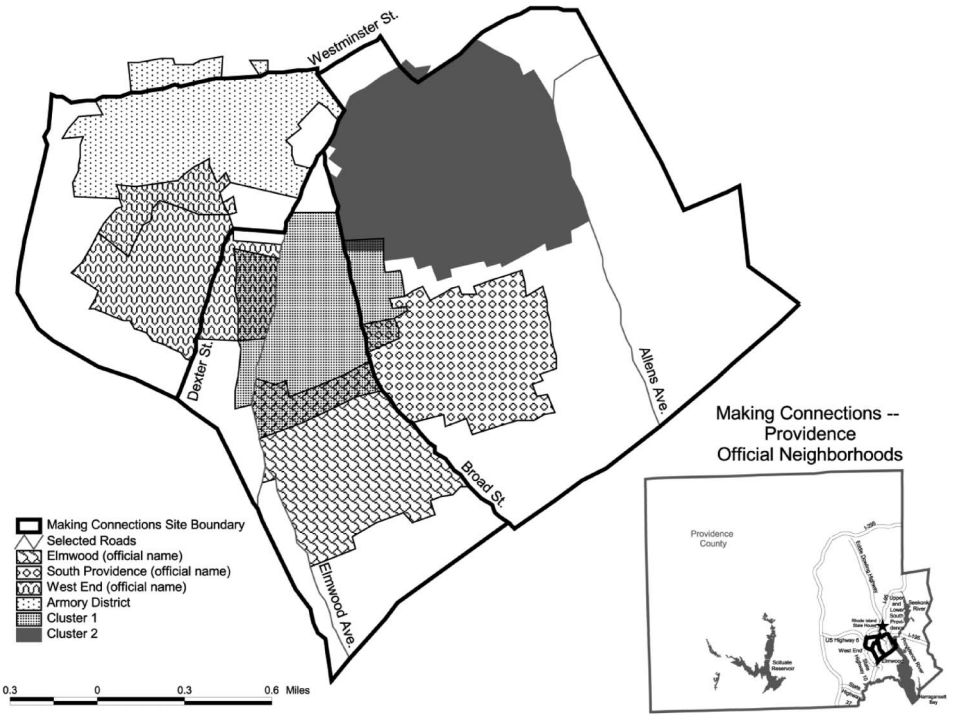

FIGURE 2 Resident endorsed neighborhood boundaries, Providence.

names, and each of these was endorsed by quite a few residents. There were also three other neighborhoods that showed resident consensus on boundaries. However, two of these additional places were identified based on spatial clustering rather than agreement on a neighborhood name.About one-fifth of the Providence target area (20.8%) was not endorsed by sufficient numbers of residents to identify a common area. Commentary from a local expert on Providence suggested that these results were meaningful and useful:

> Residents seem to distinguish the Armory district from the rest of the West End, and the line they draw reflects the gentrification north of the boundary. South of the boundary is primarily a Latino neighborhood, and the mapping results suggest these residents identify with a place that they refer to as West End. It also appears that a cadre of residents is beginning to have personal identity with an area of growing employment opportunity around the hospital district, labeled Cluster 2 in the map. This is an area where we are making concerted efforts to link people with jobs, and it is encouraging to see that there may be an emerging place identity that we can leverage in the future.

Figure 3 displays the endorsed neighborhoods in Louisville. The neighborhood identities here are so overlapping that they are difficult to

FIGURE 3 Resident endorsed neighborhood boundaries, Louisville.

display on a single layered map. And virtually every part of the Louisville MC target area is identified as a neighborhood by one or more groups of residents. The succeeding and overlapping neighborhood identities in Louisville are understood by local key informants as being consistent with some of the history of public housing in the area and the more recent changes introduced in these neighborhoods as a result of Hope VI redevelopment. Not surprisingly, long term residents and successive waves of newcomers see their neighborhoods differently both in terms of the name and the space they consider to be in the core of what they think of as their neighborhood.

Although not determinative, the contrasting patterns in these three sites present potentially quite different environments for CCIs' work in resident engagement. In sites such as Louisville, for example, it would be important to understand the evolution of the highly overlapping neighborhood identities and the degree to which residents who relate to the overlapping areas share common or competing interests. It might be necessary to address longstanding conflicts over these spaces before trying to engage residents in a common agenda. A contrasting situation is seen in San Antonio, where much of the target area is not included in any collective neighborhood identity. It is possible that resident engagement strategies could begin in those areas where neighborhood identity is clearer and gradually build out into the undesignated areas around them. In the large undesignated areas, efforts to engage the population may have to begin without reference to place but on other dimensions of common interest. Additionally, it might be necessary to redraw the target area, so that there is an ability to achieve greater focus on areas with which residents already identify. In Providence, the fairly strong tradition of neighborhood identity and relatively high endorsement of the official neighborhood names suggest that these may be ready anchors for further engagement of residents in their communities. As these illustrations suggest, the information on endorsed neighborhoods provides a deeper and more nuanced understanding of how residents relate to the concept of neighborhood and how that might play out within the target areas designated for CCI work.

DISCUSSION

This study found that even among residents living in close proximity to one another, there were a number of divergent opinions about neighborhood names, sizes, and boundaries. Nevertheless, there did emerge common spaces that were seen as part of the neighborhood by a cadre of residents. However, the identified places were often overlapping and seldom comported with predefined target areas set forth by the MC sites. Using the mapping data from the survey respondents, it was possible to produce a map for each MC site that showed the location and names of the resident defined neighborhoods. By overlaying streets and landmarks, these maps can be

used to inform local resident engagement and other neighborhood-based work of the MC initiative.

Several methodological issues have influenced the data used in this report and might bear on the conclusions that were drawn. Not all survey respondents were able to complete the mapping task and the amount of missing data differed by site. It is not known whether the missing data reflects the difficulty of completing the task for some individuals or the fact that the concept of neighborhood resonated less in some sites. Sampling density also varied across sites because the sample sizes were relatively constant but the square miles of the MC target areas varied. In the least densely sampled areas, the number of cases per neighborhood may have been too small to detect some agreed-upon boundaries or neighborhood names. Additionally, it should be recognized that the study results are based on respondents' perceptions of neighborhood as elicited by the MC survey question. However, individuals may actually hold a nested set of neighborhood perceptions (Kusenbach, 2008), so the results may have differed if the survey questions had prompted respondents to think about a smaller or larger scale.

Despite these methodological limitations, this analysis demonstrates that neighborhood maps and names provided by survey respondents can be the basis for uncovering both individual and collective perceptions of neighborhoods. GIS tools allow these perceptions to be translated into physical locations on cartographic maps, along with other geographically coded information such as streets and landmarks. This translation of collective perceptions of neighborhood onto locations within CCIs' target areas holds promise as a practical tool to aid CCIs in their efforts to engage residents in strengthening their neighborhoods and building community.

IMPLICATIONS FOR PRACTICE

The findings from this study suggest that the adoption of externally imposed or arbitrary neighborhood boundaries is likely to be problematic for CCIs. First, the lack of fit with place as experienced by residents may be a barrier to authentic resident engagement. It is difficult to involve residents in efforts to improve their neighborhoods if the space is not salient to them and if the CCIs' way of communicating the concept of neighborhood does not fit with residents' mental representations. Moreover, because successful community work typically requires collective action, arbitrary neighborhood units are unlikely to bring together residents who share the kind of common purpose that comes from identification with a place and sense of its possibilities. The failure to recognize resident viewpoints can also mask the fact that some spaces are contested or excluded by many residents from their neighborhood conceptions.

Second, when CCIs have sites in several regions, it is important to recognize that the scale of neighborhoods as perceived by residents is likely to differ. Resident-perceived neighborhoods, on the average, were much larger in some of the MC sites than in others. Although the investigation of the reasons for these differences was beyond the scope of this study, a one-size-fits-all approach to the designation of CCI target areas is likely to miss the mark given this diversity.

Third, externally imposed or arbitrary neighborhood boundaries may result in a disconnection with CCIs' theories of change. CCIs typically anticipate that neighborhood improvements will exert a positive influence on residents' lives, but the power of this influence is likely to depend on exposure. If residents have no awareness, interaction, or contact with a place, the potential benefit can be questioned. This is not to say that some spillover might not occur if there is improvement in areas contiguous to residents' perceived neighborhoods. However, to the degree that the theory is built on an assumption of direct exposure, the magnitude of any impact is likely to be compromised.

Fourth, this study raises questions about the role of neighborhood as a unit of measure in the evaluation of CCIs. CCIs frequently track indicators of neighborhood change for signs that they are making progress on their objectives. Data collection is often dictated by administrative boundaries such as census tracts, zip codes, or catchment areas, but these may not match the areas that residents see as relevant to them. Instead, evaluators need to calibrate the units of measurement with residents' perceptions to the degree that it is possible.

Finally, residents' perceptions of neighborhood identity could, themselves, be important outcomes for CCIs. Community building may enhance place-based social networks and raise residents' awareness of neighborhood connections. The collective identity of place may be strengthened and extended by deliberate place-making activities such as streetscapes and signage, or by the introduction of new neighborhood venues such as family centers, shopping areas, schools and so forth. The methods of uncovering residents' neighborhood perceptions documented in this article could be used as tools for tracking whether place making strategies are working to change neighborhood identity and the relationships of people to the places they live.

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APPENDIX A: CLUSTERING PROCEDURE

To identify spatial clusters, we conducted nearest neighbor hierarchical (NNH) clustering based on the centroids of respondents' maps (Levine, 2004). Two criteria to input into the NNH clustering are the minimum number of points and the threshold distance. Although the choice of input criteria is subjective and exploratory, we used two tools to analyze the spatial structure of the data to help us determine the input criteria. First, the nearest neighbor k-function tells the degree of clustering over different nearest neighbor distances. The actual average distance between an observation and its k-th nearest neighbor is compared with the expected distance if the data were distributed randomly. For each city, the nearest neighbor index was graphed for 50 of the nearest neighbors. Points on the graph where there were steep increases or decreases, and points with the lowest nearest neighbor index values, were used to help determine the minimum number of points. Second, K-function graphs were also produced for each city. The K-function compares point density in an observation's local area to the average density in the entire study area. On the K-function graphs, the L(t) curves provide guidance as to what the minimum threshold distance could be. The point at which the graph leveled off was used as the threshold distance. The results are a series of convex hulls, which are drawn based on the point distributions of the respondents' map centroids. In choosing the final clustering solution, the total number of points covered in the hull boundaries also played a role. We wanted to make sure that as many of the centroids were included as possible, while still choosing a solution that seemed reasonable based on the input criteria generated from the k-order and k-function procedures. Once the clusters were identified, any overlapping hulls were edited so that one point could only be assigned to one hull cluster.