Mapping Arcata Neighborhoods and Perceptions

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Abstract

People inhabit and tend to associate vernacular names with ill-defined neighborhood boundaries, resulting in socially bounded geographic spaces with unique characteristics and identities. These spaces are more the products of "mental" or "cognitive" maps created by the everyday citizen rather than true administrative boundaries. This research attempts to locate the boundaries of neighborhoods in Arcata, California, in order to understand how neighborhood spaces across the community are perceived due to various social, cultural, and geographic factors. Such factors include temporal dichotomies, demographics, and economic characteristics highlighted by low-income housing and commercial chain stores. This study uses innovative participatory mapping techniques that enable Arcata citizens to define the geography of neighborhoods in the community and provide insight into the perceptions associated with them. Several map products, derived from the collection of citizen renderings of the community, show an overlapping topography of bounded spaces, vernacular names, and perceptive characteristics that highlight the unique spatial characteristics of community spaces and challenge our ideas about the ways in which residents imagine their city.
Keywords: mental maps, cognitive mapping, neighborhood mapping, neighborhood perceptions, GIS, cartography

Introduction

Neighborhoods are commonly argued, in both lay vernacular and larger bodies of literature pertaining to urban geography (Park et al. 1967; Coulton et al. 2001; Stow et al. 2010), as being neatly defined spaces that abruptly end at defined boundaries and harbor distinct cultures and identities that are embodied by their inhabitants. Neighborhood spaces evoke an assortment of specific practices and emotions in their inhabitants and visitors, which can shift dramatically when one crosses the intangible edges and individually constructed boundaries into other neighborhood spaces. The way we perceive and personally interact with neighborhood spaces, however, often stands in stark contrast to the institutional or top-down

organization of cities, where neighborhoods are neatly defined containers and their boundaries are clearly delineated, named, and are distinctly unique from one another (Figure 1).

Figure 1.—Neighborhood map of San Francisco. (Nathaniel Douglass map; source: SFgov.org)

The primary issue with understanding urban space within this top-down organization of cities is that perceptions of where neighborhood boundaries start and end vary greatly from person to person, creating a disconnect between institutional conceptions and human perceptions of space (Coulton et al. 2001). This research contends that neighborhoods have ambiguous boundaries, associated vernacular names, and distinct perceptual identities which are products of cognitive or mental maps created by everyday citizens. Developing a better understanding of perceptions of neighborhood boundaries can help alter views and shift decision-making responsibilities to the people who inhabit these spaces. Conceptualizing neighborhoods as fluid, overlapping, and constantly shifting spaces allows citizens and planners to conceptualize how to create connections between seemingly discrete units, how to think about spaces of concordance and discordance in the urban structure, and how to create a sense of place and community in more holistic ways. Understanding the naming of these places is as important as understanding the boundaries (Alderman 2010). A vernacular name often refers to a popular name that exists "as part of popular folk culture" and "is a product of the spatial perception of average people" (Jordan, 1978, 293) and, ultimately, the responsibility of naming is appointed to the "minds of the untutored" (Zelinsky, 1980, 1). Denevan (2009) illustrates the slippery nature of boundaries, citing the famous definition of boundaries presented by geographer Carl Sauer (1936): "Almost all boundaries other than political ones are anything but lines, yet the whole business of studying areal differentiation suffers because of the simplification of the concept due to the political map" (169).

Drawing boundaries and naming spaces embeds particular identities, perceptions, and sets of behaviors for the people who inhabit and move through the space (Newman and Passi 1998). San Francisco, for example, has a rich array of neighborhoods, each harboring uniquely distinct sociocultural identities, social dynamics, and spatial practices. Neighborhoods such as Presidio Heights and South of Market might identify as places of affluence, while the Castro identifies as being an inclusive space for the LGBTQ+ community. With over forty distinct neighborhoods, San Francisco demonstrates how the division of cities into bounded spaces might impact the people who live in them and, in turn, how the people who live within a neighborhood might influence the nature of the neighborhood.

The lines of where one neighborhood begins and the other ends are not as clearly defined as they appear on a map. Two people will often have different opinions as to the extent of a neighborhood's boundaries. Furthermore, the same two people may refer to this area with different names, providing additional inconsistencies in identifying these spaces. The perceived spatial and vernacular boundaries of neighborhood spaces shape the cultural topography of the urban experience in ways institutionally defined administrative neighborhood maps fail to capture (Coulton et al. 2001). The purpose of this research is to contribute to theoretical debates in urban geography by developing an approach for measuring and cataloging individual perceptions of neighborhoods in Arcata, California. This approach uses a participatory mental mapping exercise to extract from citizens spatial data about perceived boundaries and vernacular names of neighborhoods. The research will ad-

dress three main questions: (1) How do people individually define and name neighborhood boundaries?, (2) How do perceptions of these boundaries influence positive and negative associations with spaces in the city?, and (3) What does this collection of individual perceptions and associations indicate about the city as a whole?

In order to address these questions, the paper presents an in-depth explanation of the study area, detailing the importance of this research to a small community such as Arcata. Next, the paper reviews past works regarding mental maps, vernacular names, and neighborhood perceptions to provide context for the conceptual framework. Following this, the study details its methodology, which utilizes participatory mental mapping techniques to extract, georeference, and analyze perceptual data from the research participants. Finally, results are analyzed and produce a range of cartographic visualizations to illustrate how individually defined neighborhood boundaries and their emotional connotations rearrange the spatial order of Arcata and brings to light a deeper sense of place within the community.

Study Area

Arcata is a small, college town with a population of approximately 17,600 people located on the coast of Humboldt County, 275 miles north of San Francisco (US Census 2015). Arcata has a level of activity higher than its population, however, including approximately 8,000 students (Humboldt State University 2017), a growing tourism industry, and a high number of Humboldt County residents who live in the rural parts of the county and irregularly come to town for goods and services or work-week lodging. Additionally, there is a large, non-resident workforce that moves through the city seasonally, primarily driven by the cannabis industry. As a result, the number of people occupying the private spaces and moving through the public spaces of Arcata is considerably higher than population numbers indicate, which has a considerable effect on how residents perceive and interact with particular neighborhoods in the city.

This indicates that Arcata is highly in-flux and that the neighborhoods in the city are constantly transforming, expanding, shrinking, being renamed, and changing identities at a rate not reflected in official city maps and planning documents.

Preliminary research shows that there are twenty-seven distinct, predetermined, vernacular neighborhood names in the city of Arcata (Table 1), despite its relatively small population and physical size. Existing neighborhood

names were gathered from observing sources such as Google Maps, the City of Arcata, and Nextdoor.com (https://nextdoor.com/), a website designed to connect residents to their neighbors and also provide a listing of other neighborhoods in the area. These sources provided the entry point for the research, providing the base spatiality of vernacular areas that currently exist.

Table 1.—Number of neighborhoods retrieved from each source (duplicate records included).

Source	# of neighborhoods listed
Google Maps	6
City of Arcata	16
Nextdoor	12

Figure 2.—Locator map of Arcata in Humboldt County. (Nathaniel Douglass map)

Each neighborhood is unique, with a distinct sense of place created by the citizens of Arcata. With an increasing population mostly due to an influx of students, the contrast in perceptions of various neighborhood locations may differ greatly between new and longtime residents and also may change over time. Organizations such as city government, Realtors, and property managers rely on the culture and characteristics of particular neighborhoods for a variety of financial, redevelopment, and planning purposes. This research aims to add nuance to these decisions and give insight into how Arcata residents perceive the places they inhabit.

Definition of Terms

Mental Maps

Mental or cognitive mapping is the product of a series of psychological processes that work to synthesize spatial and nonspatial information that is retained from our everyday life (Downs and Stea 1973). Mental maps are models of the environment and surroundings, which are built up over time in the minds of individuals (Sarre 1973). The mental images are expected to change from person to person, creating unique personal perceptions and constructions of the exterior world. Rarely are these images ever communicated, but they can be utilized to collect data about the environment and the way in which people think about space (Lynch 1960). Further research suggests that individuals utilize these cognitive maps to make decisions about their spatial environment, which then dictate their actions and perceptions (Kitchin 1994). Academics in the field of geography and psychology have conducted qualitative research to reveal the spatial images inside people's minds by having participants communicate the environment with pencil and paper. In the most practical sense, mental maps are hand-sketched maps drawn by participants to provide images of an area that indicate individually defined and personally relevant features and landmarks (Kitchin 1994). Others ask subjects to participate in "free-recall" sketches, where the participants are invited to draw a map of the city in question as if they were trying to show a stranger things they "ought to see." In doing this, we are able to view what the subjects were most focused on and how their spatial images differed from one another (Pocock 1972).

More recently, cognitive maps have been used in research projects to understand everything from individual spatial narratives (Boschmann and Cubbon 2013) to segregation in cities (Raan and Shoval 2014) to measuring transnational territorial conflicts (Reuchamps et al. 2014). Using mental maps as a research method has long been a tool used by geographers to acquire a range of individual spatial information and continue to this day on the forefront of innovative geographic methods. Acquiring personal spatial data regarding territory and emotional perceptions has become possible through sketched mental-mapping activities (Raana and Shoval 2014). Advancements in geospatial technology have significantly increased opportunities to exploit mental maps in research projects, as researchers can now create front-end products to allow participants to map interactions and movements through the environment, or create back-end programs to georeference analog mental-mapping activities into a spatial database. In this capacity, digital mental mapping approaches are one of the stronger mixed-method approaches available to geographers, allowing researchers to gather and analyze a range of personal geographies quickly and efficiently.

Vernacular Names

A vernacular place name refers to a popular, or everyday, name that exists within the lay-person vocabulary to describe a particular area or region (Jordan 1977, 293). A corporate or government entity may attempt to redefine and rename neighborhood spaces, as is the case with many urban redevelopment projects, but how the space comes to be known is ultimately a creation in the "minds of the untutored" (Zelinsky 1980, 1). Jordan (1977) delves into how spaces are known through administering surveys to students to measure and map regional locations and their vernacular names, illustrating how a study using a simple base map and mental-mapping activities can reveal the perceptual regional vernacular of local participants. Zelinsky (1980) conducted his famous work on mapping the North American vernacular regions, using hundreds of directories to search for common vernacular names referring to major areas of the United States. Rather than asking individuals to share their mental images or where they perceive these regions to be, Zelinsky argued that these regions are already in place by the masses and can be identified by enterprise names in various directories. Zelinsky further proves that qualitative, distinctive regions across the country are rather apparent and locating them is as simple as recording common terms already present in popular culture.

While Zelinsky acquired far more terms and names, Jordan's approach allowed him to find the most localized vernacular uses in a necessarily qualitative fashion. Both methods provide a foundation for how mental maps can be used to map cultural phenomena on the state- and country-wide level. In more recent practice, Brennan-Horley (2010) conducted research on mapping the creative hotspots in the city of Darwin, Australia, through qualitative mental mapping. Drawing from Jordan, interviews were conducted with a base map-provided activity for participants to locate creative regions of the city. Utilizing GIS technology allowed the research to be conducted in a calculated fashion where maps could be analyzed and stored digitally. Brennan-Horley's research provides a methodology using qualitative GIS processes that aid in acquiring individualized spatial data, which can then be analyzed with an assortment of visual, qualitative, and geo-statistical techniques.

Neighborhood Perceptions

Unlike geographic classifications like states, counties, or census tracts, neighborhoods lack a formal governmental demarcation and are more often social constructions of a particular physical environment (Lee and Campbell 1997). Thus, each resident's definition and delineation of a neighborhood will differ based on their personal experiences and individual perceptions of their city. Raban (1974) suggests this perceptual variation is best conceptualized as the softness of the city, stating, "A city forces a person into complete anonymity within it, while also exposing a 'softness' of the city that awaits a cultural or emotional imprint. The city invites its residents to remake it and consolidate it into a shape you can live in," (Raban 1974, 11). Lee and Campbell (1997) suggest that people define their neighborhood through three unique dimensions. The first is referred to as the demographic dimension, referring to factors like race and income level. The second dimension is symbolic identity, and this refers to the neighborhood's name, if there is one, and to what extent the residents agree upon the name. The final dimension is the physical, which can be seen as a cultural or physical landmarks that might define the area (Lee and Campbell 1997). This suggests that each neighborhood will be perceived differently through the eyes of each resident, and perceptions will vary based on whether the area is one's own neighborhood or an adjacent neighborhood. Furthermore, the way in which a resident classifies a neighborhood through these dimensions is often perceived as having positive or negative connotations.

Jordan (1977) capitalized on this idea of perceptions by categorizing the most commonly used names for regions in Texas, as being negatively or positively derived. He found that words and phrases such as "Big," "Golden," and "Sun Belt" made reference to some uplifting undertone and suggests a positive self-image of the area, while phrases such as "Barren Wasteland," "Tornado Alley," and "Brown Belt" were negatively connotated and hinted at some perceptually less-than-favorable physical or racial image (Jordan 1977, 301–302). Descriptions like these not only help us understand the attitudes and perceptions harbored by those in individual neighborhoods, but they also aid in creating a broader understanding of how the city, as a whole, is constructed and the internal tensions that may be at play.

Methods

In order to identify vernacular neighborhoods in Arcata, 118 adults were surveyed within a two-week period during March of 2017. Surveys were administered to student residents in university classrooms as well as to non-student residents at local functions such as the Chamber of Commerce. The survey began with introductory questions designed to gather information on participant's age, gender, occupation, and time of residence in the area (see Appendix). Humboldt County residents were targeted for the survey, assuming that they were familiar with the city of Arcata. If a participant currently lived in Arcata, he or she was prompted to write the name of his/her neighborhood, in order to provide a preliminary list of vernacular names. Rather than asking participants to draw neighborhoods from scratch, like many mental-mapping activities, a basemap was provided to allow subjects the chance to focus on identifying boundaries and outlining. The map extent covered all of Arcata and was printed on 11 x 17-sized paper, providing participants with enough detail to read street names and various landmarks such as the downtown Arcata Plaza, local hospital, Humboldt State University, marsh, etc. (Figure 3). The base map was created in QGIS, an open-source GIS software package, utilizing geographically accurate data

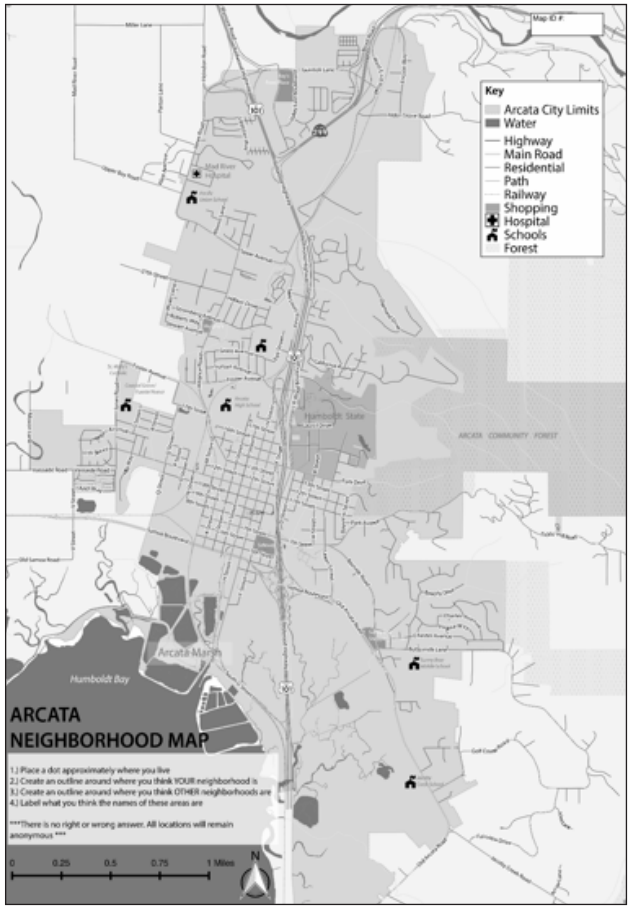

Figure 3.—Example of blank base map printed for participants to outline neighborhoods. (Nathaniel Douglass basemap)

so that the acquired answers could be easily georeferenced and digitized for later analysis (Brennan-Horley 2010). As other research shows, the size and shape of the paper map can affect the type of results a researcher will receive (Pocock 1972, 120). For the present study, the map was printed at a large-enough size and scale to allow subjects to use common streets and physical features as indicators for neighborhood boundaries. Participants were given a black-and-white copy of the map and were asked to first mark where they lived and then outline their own neighborhood in addition to subsequent ones (Figure 4). Since the survey was anonymous and no personal identifying information was recorded, participants were able to mark their location knowing that their privacy was being considered. Additionally, as surveys were completed, the administrator immediately filed the survey to ensure that data could not be associated with each participant. By introducing the map early on in the interview and asking spatial questions, participants were oriented with the map and encouraged to think and respond spatially for the rest of the questionnaire (Brennan-Horley 2010, 39).

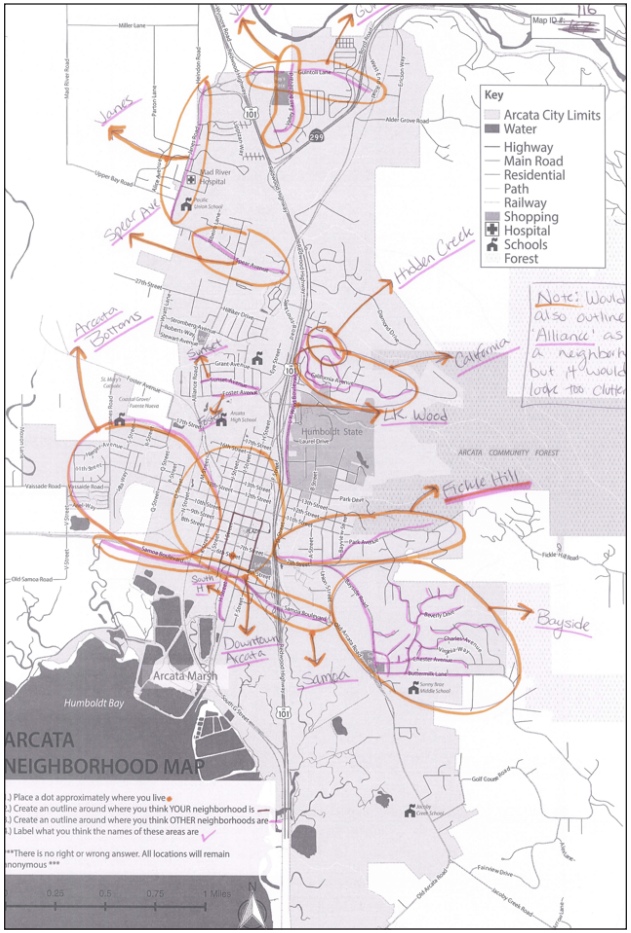

Figure 4.—Example of completed mental mapping activity. (Nathaniel Douglass basemap)

The next section introduced the list of twenty-seven common neighborhood names, previously discussed, in order to jog participants' memories. This section was also used to determine which of the twenty-seven neighborhoods were recognized by residents and if their neighborhood appeared on the list. Jordan (1977) demonstrates the importance of a survey such as this being conducted "under controlled conditions designed to prevent prior discussion or suggestion of 'correct' answer," (293). Similarly, introducing common neighborhood names after having subjects participate in a mapping exercise ensures that the first set of mapping-related questions are the participant's true, unbiased answers. However, it is important to note that subjects were also given the opportunity to make any changes to their map after being exposed to new information. This allowed for participants to not feel restricted to a specific list of neighborhoods, but also gave residents an opportunity to use neighborhood names that might not have been easily recalled. Additionally, participants were asked to cross out any of the neighborhoods that they didn't recognize, providing a list of what neighborhoods were commonly referred to by residents.

The last section of the survey included a table for participants to list neighborhood names and write a series of words or phrases that might be associated with that neighborhood or that best describe it. An example was given (Downtown: "community," "energetic," "family oriented") to give participants an idea as to what the question was asking. Answers were categorized as being positive, negative, or neutral descriptive phrases. Following the col-

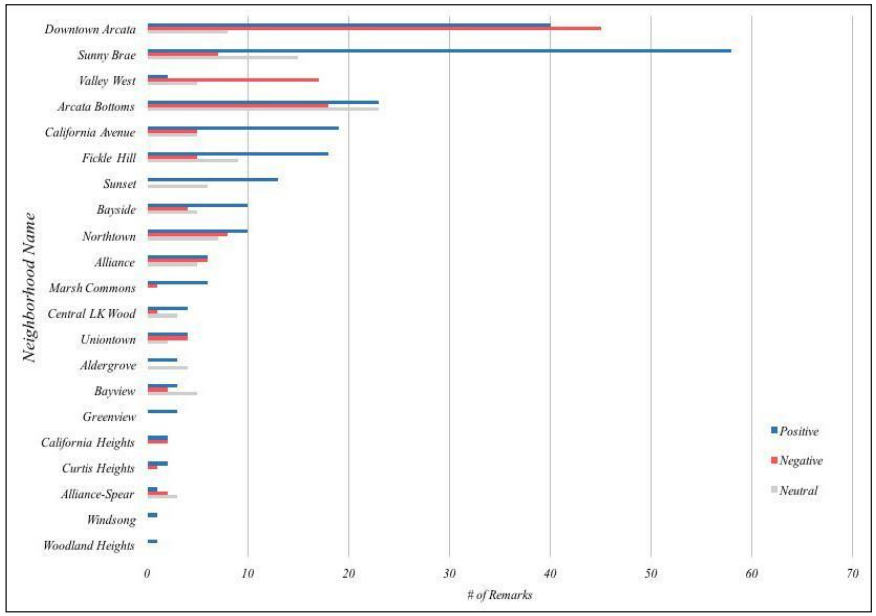

Figure 5.—Graph depicting the count of positive, negative, and neutral responses for each neighborhood.

lection of survey data, answers were logged and each map was scanned, programmatically georeferenced, and converted to individual digital images (Brennan-Horley 2010). Once every map was correctly georeferenced, the outlines were digitized and categorized by neighborhood to provide a visual display of the varying boundaries.

Results

Results from the survey questionnaire show variations in vernacular names and neighborhood boundaries in Arcata. Section one of the survey questionnaire found that most of the participants had lived in Arcata for fewer than five years and were primarily students. Due to the present availability of participants, this study primarily focused on perspectives from students and their perceptions of Arcata neighborhoods. The following will discuss three distinct results from this study: analysis of neighborhood names, variability in neighborhood boundaries, and qualitative neighborhood perceptions.

Neighborhood Names

The initial analysis from section three (see Appendix) of the survey shows a disconnect between the names that government entities and redevelopment projects assign to neighborhoods and those that are actually used by Arcata's residents. Neighborhoods such as Central LK Wood, Pacific Manor, and Alliance-Spear were recognized by more than 70 percent of participants, while neighborhoods such as Woodland Heights and Windsong weren't recognized at all by participants. Subjects were then asked if their neighborhood was present on the list of twenty-seven names presented to them earlier. From this, 52 percent said "yes," 35 percent said "no," and 12 percent marked "N/A" since they currently didn't live in the city. The 35 percent of participants who answered "no" were still asked to write the name of their neighborhood, which generated twenty-nine new neighborhood names that differ from the original list. This finding shows a series of vernacular neighborhoods that are not recognized by the City of Arcata or corporate entities such as Google Maps and Nextdoor.com, highlighting how vernacular place names are a product of the spatial perception of average people and, ultimately, the responsibility of naming of places is appointed to the citizens of a city. These twenty-nine additional neighborhood names provide insight into the disconnect between government-appointed names and those given by residents, as well as how residents perceive the spatial orientation or formation of these neighborhoods.

Neighborhood Boundaries

After neighborhood outlines were compiled, categorized, and overlaid onto individual maps, the variability in neighborhood boundaries revealed that participants harbor conflicting mental images as to where various boundaries start and end. Each set of boundaries was categorized by the name given by participants. The Downtown, Valley West, and Sunny Brae neighborhoods were most commonly represented (Figures 6–8). In these maps, each neighborhood boundary was overlaid onto one another in order to show the most commonly agreed-upon location for each boundary. The lightest color represents no overlap in a participant's neighborhood outline, while the darkest color indicates areas where five or more outlines overlapped. In essence, these maps depict the ever-ambiguous nature of neighborhood boundaries by outlining the spatial consensus between participants' answers, as well as outlying areas of disagreement.

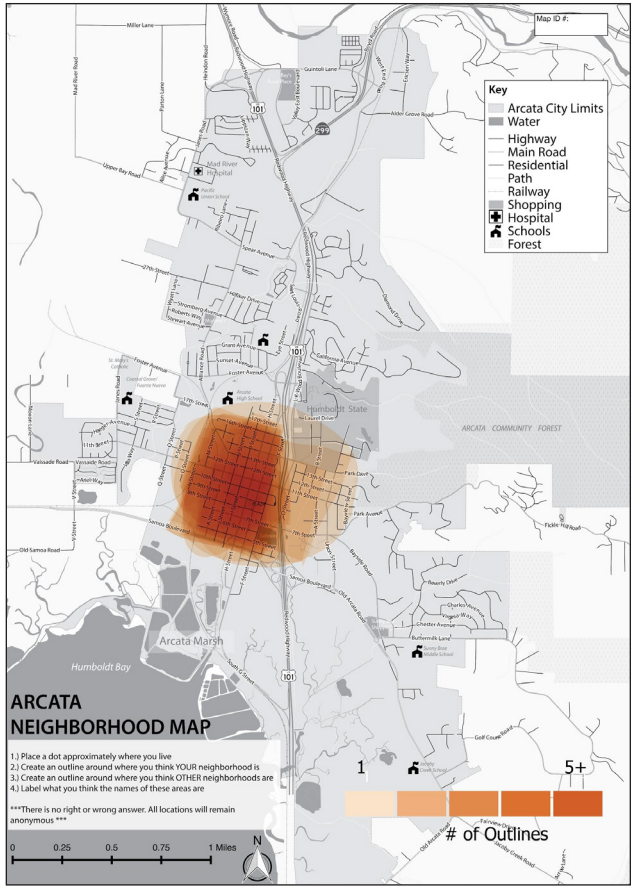

Figure 6.—Map showing the varying outlines for the Downtown neighborhood. (Nathaniel Douglass map)

The borders that define these spaces can be explained by certain structural urban landmarks and are often influenced by local businesses and services. For example, in the context of the Downtown neighborhood (Figure 6), the primary identifying feature is the plaza square that is located in the heart of Arcata. In all outlines given by participants, the plaza is within each outline and can be agreed as being in the Downtown neighborhood. Additional-

ly, this portion of the town relies on a grid street pattern using numeric and alphabetic street names and the majority of these streets also appear as being part of the Downtown area in participant outlines. Looking at Figure 6, with the exception of three outlines, most participants agree that the Downtown area spans north to south from 17th Street to Samoa Boulevard and west to east from N Street to F Street. It is possible that many participants view the Downtown section as being only this specific portion of the grid street pattern due to the major highway that passes through the middle of the town, the railroad tracks that parallel the highway on the easternmost side of the town, and the busy Samoa Boulevard that runs east to west. These urban features may act as cultural dividing lines, where the landscape and resident perceptions change once crossed. In regard to the Sunny Brae area (Figure 8), multiple physical and urban landmarks were identified within the participants' agreed-upon boundaries. These landmarks include Sunny Brae Middle School, Sunny Brae Church, Sunny Brae Forest, Sunny Brae Animal Clinic, and the Sunny Brae Shopping Center. These organizations and well-known features and contain the neighborhood's name, providing strong correlates in constructing a perceptive boundary

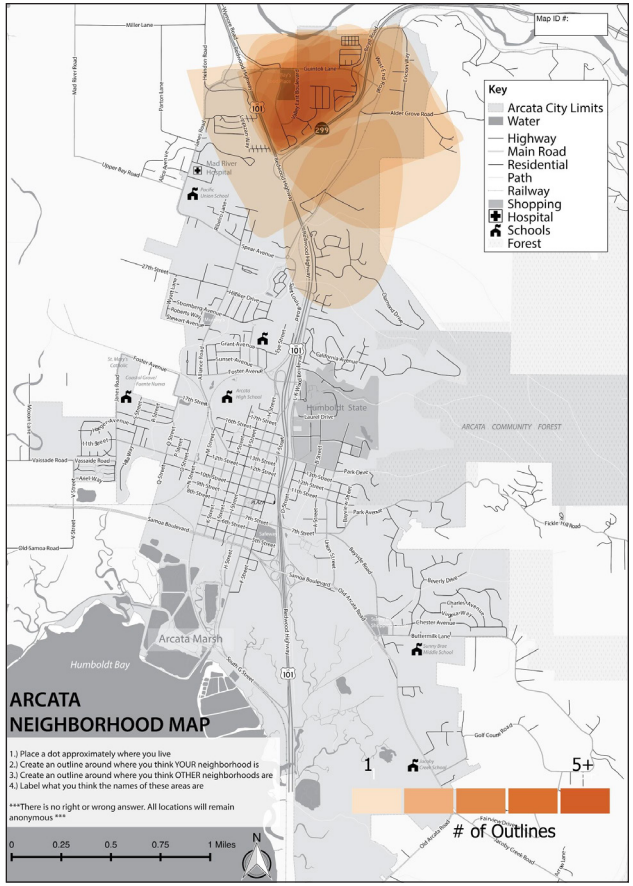

Figure 7.—Map showing the varying outlines for the Valley West neighborhood. (Nathaniel Douglass map)

for residents and influencing other local businesses to further define themselves based on the neighborhood's place name. This suggests that as businesses and services continue to incorporate the names of these vernacular landscapes, they will further encode and solidify where these boundaries begin and end, and how they are perceived by residents.

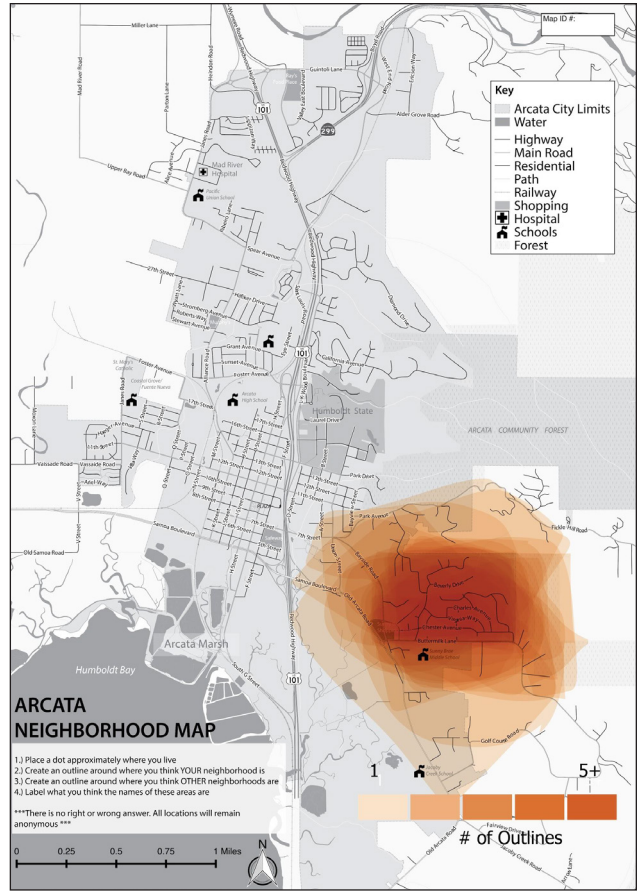

Figure 8.—Map showing the varying outlines for the "Sunny Brae" neighborhood. (Nathaniel Douglass map)

Neighborhood Perceptions

The final portion of the survey involved asking participants to list a series of descriptive words and phrases that best illustrate various neighborhoods. These phrases were categorized into positive, negative, and neutral connotations (Table 2). This classification immediately became a difficult task, as not all answers were overtly positive or negative. Rather, answers were subjective in their interpretation. For example, if a participant used remarks such as "community oriented," "expensive," and "rural" to describe the neighborhood, the first would be categorized as positive, the second remark would be negative, and the third remark, "rural," would be categorized as neutral since it was simply referring to characteristics of the physical environment. In most cases, categorizing phrases erred on the side of being neutral to ensure that the most accurate representation would be witnessed in how people perceived these areas.

Table 2.—Examples of positive, negative, and neutral remarks given to describe some of the neighborhoods in Arcata.

Positive	Negative	Neutral
"Nice"	"Aggressive"	"Apartments"
"Lively"	"Noisy"	"West of Campus"
"Family Oriented"	"Homeless People"	"Steep Hills"
"Peaceful"	"Dirty"	"Rural"
	"Transient"	"Flat"
	"Cheap"	
	"Run Down"	

Four maps were produced from this classification showing neighborhoods with an equal number of positive and negative remarks (Figure 9): those with a higher number of neutral remarks (Figure 10), those with more negative remarks (Figure 11), and those with more positive remarks (Figure 12). The Downtown, Valley West, South Arcata, and Valley East areas were perceived more negatively, with the Downtown neighborhood receiving forty-five negative remarks, more than all other neighborhoods (Figure 5). It is important to mention that these maps do not take into account the ratio of positive to negative results. For example, while Downtown received forty-five negative remarks, it also received forty positive remarks, meaning that the Downtown area is almost as equally perceived positively as it is negatively. This was an interesting finding and could be attributed to a temporal dichotomy that is witnessed in between the day and night of the plaza and Downtown area. During the day, there are often events taking place and residents shopping at local businesses. The Arcata Farmer's Market resides in the heart of the town and can be, as many participants wrote, a "lively" and "friendly" place to be. However, this attitude changes at night when the local bars become the center of the neighborhood, attracting "transients" (i.e. impermanent residents that typically inhabit public spaces) and "aggressive activity." Similarly, the Valley West neighborhood was another instance of high negative comments with seventeen remarks and only three positive remarks. Many people commented on the economic and demographic characteristics of this neighborhood with remarks like "cheap," "fast food," "gross," and "white trash." This trend of negative comments could be explained by the presence of low-income housing, commercial businesses, fast food restaurants, and low-starred hotels in the Valley West area, factors that some consider to be undesirable in regard to a location.

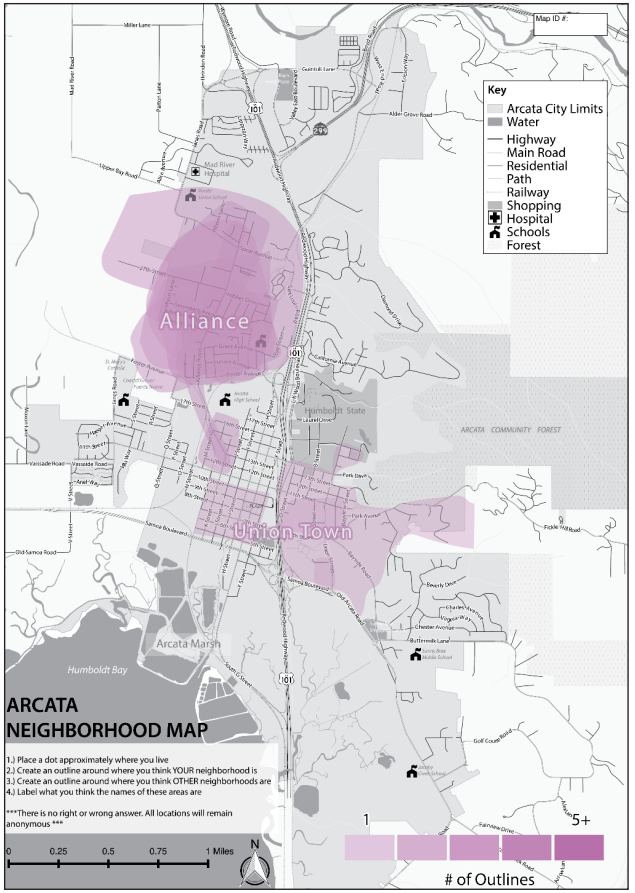

Figure 9.—Map of neighborhoods that received an equal number of positive and negative remarks. (Nathaniel Douglass map)

On the other end of the spectrum, fourteen neighborhoods received more positive remarks than negative remarks by participants. Of these neighborhoods, Sunny Brae received fifty-eight positive remarks, with fewer than ten negative remarks. Sunny Brae is a predominantly suburban area, with only a handful of businesses and a significant number of houses for student and non-student residents. With little connection to the busier Downtown area and less traffic passing through this section of the town, it is understandable why participants wrote phrases such as "family oriented," "peaceful," and "community" for Sunny Brae. These phrases were reiterated throughout many of the neighborhood descriptions. From this it can be posited that Arcata is seen as being more positively perceived by the participants than negatively (Figure 5).

A final map product was created that illustrates the participants' perceptions of Arcata as a whole. This was done by incorporating the perceptive data collected for each neighborhood and overlaying it all on a single basemap (Figure 13). Red outlines represent neighborhoods with more negative remarks made by participants, blue outlines represent predominantly positive re-

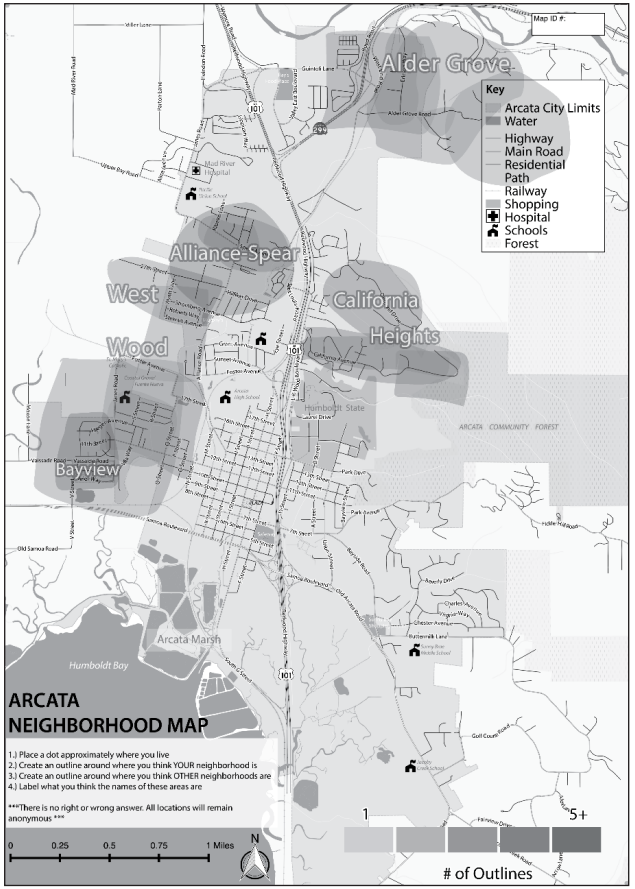

Figure 10.—Map of neighborhoods that received predominantly neutral remarks. (Nathaniel Douglass map)

marks, purple outlines represent an equal number of both positive and negative remarks, and grey outlines represent neighborhoods with more neutral remarks. In this representation, the lighter shades of each hue still represent less overlap in participants' answers during the mental-mapping portion of the survey. Darker shades in the center of each neighborhood don't necessarily represent areas that participants perceived as more negatively or more positively; rather, these outlines show the varying consensus of neighborhood boundaries. Additionally, the map shows where varying boundaries collide and blend with one another and how these boundaries are hardly ever clean and/or neatly defined. This map presents a lens through which the complex image of Arcata neighborhoods can be visualized, where emotional perceptions are presented in a spatial manner.

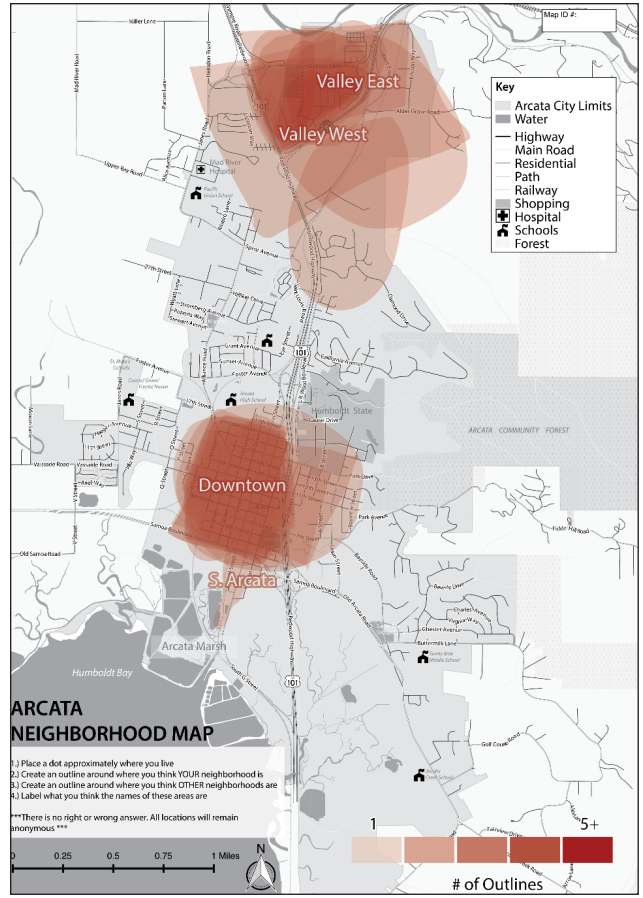

Figure 11.—Map of neighborhoods that received predominantly negative remarks. (Nathaniel Douglass map)

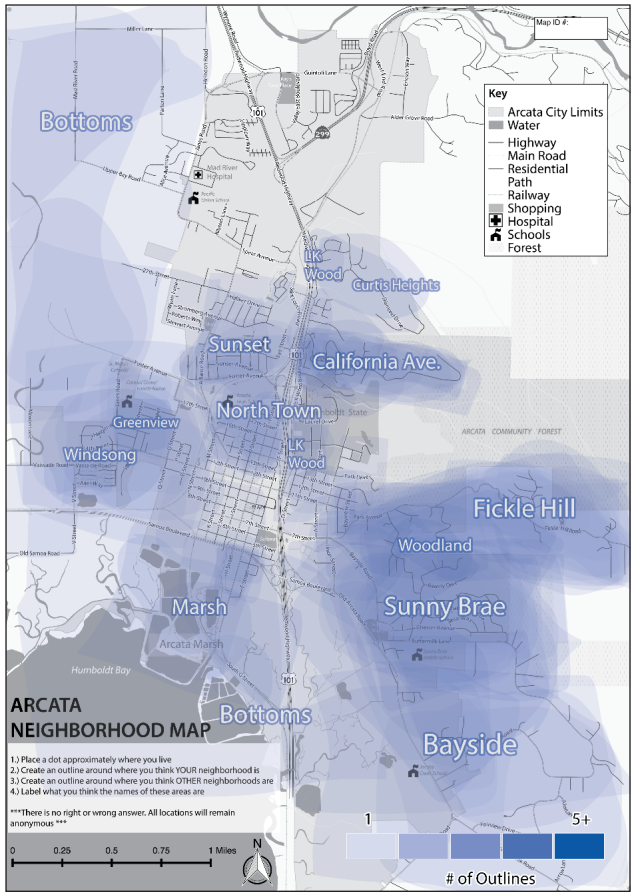

Figure 12.—Map of neighborhoods that received predominantly positive remarks. (Nathaniel Douglass map)

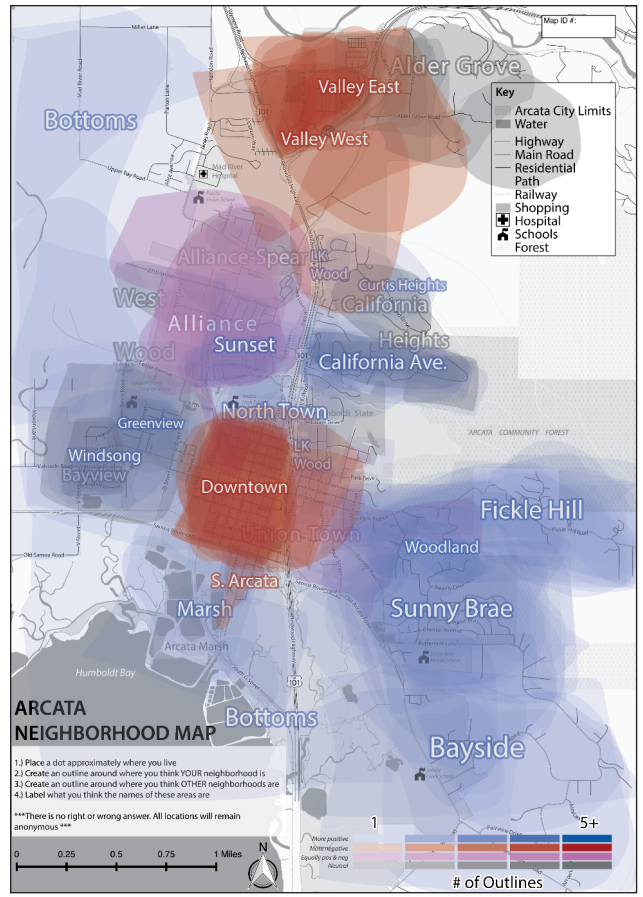

Figure 13.—Map compiling all neighborhoods and their perceptive rankings. (Nathaniel Douglass map)

Discussion

The findings from this research suggest that the use of a mental-mapping technique in which participants can draw individual spatial knowledge and perceptions onto a blank base map can be an effective tool to gather rich perceptual information and highlight discrepancies in the way many people think about and define neighborhood delineations. In addition to collecting qualitative spatial data that reaffirms the highly variant nature of neighborhood boundaries, the research also collected non-spatial data regarding emotional attitudes associated with certain demographics and quality of housing and residency. As Kitchen (1994) explains, cognitive maps are often utilized by residents to make informed decisions about their environment (1). The varying perceptions in each resident's mind paint an even more complex image of the city, in which each individual harbors specific judgments and emotional opinions toward particular spaces, thus influencing individual spatial behaviors and collective perceptions. Specifically, this research draws a direct link between spatial perception and attitudes, and we can begin to understand in more depth how resident perceptions influence behaviors such as which route to walk, which restaurant to eat at, which school to enroll a child at, or where to purchase a house.

As stated, twenty-nine additional neighborhoods were generated through the survey results. Forty-four percent of the neighborhood names recorded correspond to major street names present in the referenced neighborhood. This would suggest that residents associate vernacular names with neighborhoods based on primary streets they live on. For example, one participant highlighted significant streets that made up the neighborhood in question, in addition to outlining the neighborhood itself (Figure 4). While not all participants highlighted the roads within each neighborhood, many named and referenced neighborhoods using common street names, suggesting that the road network in the town dictates much of the cognitive mapping and vernacular naming done by citizens. Other features referenced in naming particular spaces included well-known local establishments (stores and markets) as well as the physical environment (notable creeks and the local marsh). Mental-mapping techniques like this can be used not only to locate spatial trends within an area, but also to formulate theories about how people visualize, name, and perceive spaces.

The research also found that despite the few instances of overwhelmingly negative perceptive remarks about the Downtown and Valley West areas, Arcata as a whole is perceived in mostly positive terms by its residents. While the goal of this research was to attempt to locate the boundaries of Arcata neighborhoods, an additional significant finding is the range of individual responses given by participants. Creating a map that averaged out all of the overlapping boundaries would have muted the individual voices of the 104 people who took part in the mapping activity. Instead, this research focused on highlighting the individual differences and worked to create visualizations that amplified, rather than normalized, the unique voices and perceptions of the citizens of Arcata. The maps produced through this research provide a salient mental image of how Arcata is perceived through the eyes of some of its residents, where the borders are ambiguous and continuously overlap, and the spaces that harbor positive and negative associations. This research provides an opportunity to observe neighborhoods not as neatly bounded spaces, but as spatially fluid, socially contested, and perceptually rich.

Conclusion

This study extracted spatial data that not only aided in locating neighborhood boundaries in Arcata, but also illustrated an understanding of how these spaces are perceived by their residents. Neighborhoods are commonly depicted on maps as neatly defined spaces that end at defined borders. The primary issue with this depiction of neighborhood spaces is that it gives neighborhoods a sense of homogeneousness and largely ignores the perceptions and experiences of the people living within these neighborhood spaces. Providing participants with a canvas to clearly articulate their individual perceptions of neighborhood spaces allows for the accumulation and encoding of a range of unique spatial information.

This study used an innovative participatory mapping technique that enabled Arcata citizens to define the geography of neighborhoods in the community and provide insight into the perceptions associated with them. Utilizing a simple base map for the mental-mapping exercise allowed participants to outline and highlight neighborhoods that were familiar to them. Utilizing a simple base map for the mental-mapping exercise allows participants to outline and highlight neighborhoods that were familiar to them. These maps were then scanned, georeferenced, and digitized in a GIS to create comparative map products that visualized the varying neighborhood boundaries of Arcata. Survey questionnaires helped acquire data pertaining to vernacular neighborhood names and perceptions by giving participants the opportunity to provide written neighborhood names and descriptive remarks on each. This data was categorized, logged, and visualized to create a collection of maps that show the perceptual and vernacular landscapes of Arcata.

This project provides a detailed method for conducting similar research in the future. Due to the sample of residents available, this research primarily focused on students who have lived in Arcata for less than five years. For a more-balanced residency sample, non-student residents who have lived in the area for more than five years should be in even proportion with that of student participants. Utilizing both quantitative and qualitative data collected from participants allowed for an in-depth study of spatial patterns regarding neighborhoods and their perceptive qualities.

The primary argument of this study was that neighborhoods have associated vernacular names, ambiguous boundaries, and distinct perceptual identities which are products of cognitive or mental maps created by the everyday citizen. The results of this research showed there to be (1) a disconnect between neighborhood names collected from government and corporate entities versus those listed by residents; (2) conflicting mental images as to where various boundaries start and end, reaffirming the highly variant nature of neighborhood boundaries; and (3) an even-more-complex image of the City of Arcata, in which each individual person harbors specific judgments and emotional perceptions toward certain neighborhoods, yet as a whole the city is more positively perceived by its residents. These results provide a deeper understanding of how cities, their boundaries, and the boundaries' associated vernacular names are shaped by residents and how the social construction of neighborhood spaces impact the attitudes and behaviors of residents. More importantly, understanding perceptions of neighborhood boundaries and how neighborhood spaces are defined and negotiated by citizens allows for greater empowerment and increased bottom-up decision making on issues such as housing policies, social services, and neighborhood safety by the people who occupy particular spaces. Additionally, this research shows that there is importance in understanding the citizen perceptions of neighborhood spaces in building stronger, inclusive, and more resilient communities moving forward.

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Appendix: Survey Questionnaire

Section 1.

1. What is your age range?
18–24
25–34
35–44
45+

2. Gender:
Female
Male
Other: _____
Prefer not to answer

3. What is your occupation?
Employed for wages
Self employed
Student
Retired
Other: _____

4. What town do you live in?
Arcata
Eureka
McKinleyville
Other: _____

5. How long have you lived in the area?
Less than 1 year
1–2 years
2–5 years
5–10 years
10+

Section 2. *(Skip question 9 if you are NOT an Arcata resident)*

6. *Please take a minute to study the map attached, and attempt to locate your residence* ***(Use colored dot)***

7. *Please locate and outline where you think the boundary of your neighborhood exists* ***(Use same color outline)***

8. What is the name that your neighborhood is most commonly referred to as?

_____

9. *Please locate and outline where you think the boundary of any other neighborhood exists* ***(Use different colored outline)***

Section 3. *(Below is a list of common neighborhood names in Arcata)*

10. *Place an 'X' or cross out any neighborhood names you have* ***NOT*** *heard of before:*

Aldergrove	*Central LK Wood*	*Pacific Manor*
Alliance	*Curtis Heights*	*Southeast Eddy*
Alliance-Spear	*Downtown Arcata*	*Sunny Brae*
Arcata Bottoms	*Fickle Hill*	*Sunset*
Bayside	*Greenview*	*Uniontown*
Bayview	*Korblex*	*Valley West*
Brookwood Drive	*Marsh Commons*	*Westwood*
California Avenue	*Northtown*	*Windsong*
California Heights	*Pacific*	*Woodland Heights*

11. After going through this list, could you locate and outline some of the similar sounding neighborhoods and their boundaries?

Yes

No

If no, why not?:

12. *Please take a moment to return to the map and outline/ label anymore neighborhoods, after reviewing the list of names* ***(Use different colored outline)***

***Note: Only outline neighborhoods you feel capable of outlining. You are not being tested on your knowledge of these boundaries, nor are you obligated to define each one listed above**

Section 4.

13. *Please write a few words or phrases that best describe some of the neighborhoods in Arcata.* ***(If you live in Arcata, start with your neighborhood)***

Neighborhood	***Words or phrases***
Ex: Your Neighborhood	*"Energetic" "Family oriented" "Community" etc.*

14. *Do you have any additional comments for the researcher?*