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Exploring Walkability: a Spatial Analysis of Vibrancy in New Holly, a New
Urbanist Community in south Seattle, WA

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Abstract

**Exploring Walkability: a Spatial Analysis of Vibrancy in New Holly, a New Urbanist Community
in south Seattle, WA**

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Walkability is a notion that crosses multiple fields of study including planning, real estate, and public health. Social cohesion and community ideals are equated to walkable areas. For this thesis, walkability is defined as a two-part phenomenon: accessibility and vibrancy. This thesis focuses primarily on the vibrancy half of this definition. Vibrancy refers to the intangibles of walkability, mainly the social assets associated with walkability. Walkability is a key part of the New Urbanism design movement, which aims create to livable and walkable communities. Across the United States, many redevelopment plans have used New Urbanist design guidelines to revitalize distressed public housing. To examine the vibrancy part of walkability, observations and behavioral mapping were completed in New Holly, a mixed-income housing site in south Seattle. This data was then analyzed using a four-part

vibrancy framework developed through a thorough literature review. With this vibrancy analysis, New Holly is given a relative vibrancy rating. Specific barriers to vibrancy, common to all four vibrancy factors, are identified. Finally, possible interventions are discussed and further research opportunities are recognized.

TABLE OF CONTENTS

List of Figures.....	viii
List of Tables	x
Chapter 1. Introduction	12
1.1 Walkability: A Part of New Urbanism	12
1.2 Vibrancy: A Four-Factor Component of Walkability.....	14
1.3 Document Overview.....	14
Chapter 2. Literature Review	16
2.1 Walking and Walkability.....	18
2.2 New Urbanism	27
2.3 Public Housing and Walking.....	31
2.4 Hope VI.....	35
Chapter 3. Research Methods and Methodology	38
3.1 Methods.....	38
3.2 Site Visits	42
3.3 Study Site.....	43
Chapter 4. Findings.....	46
4.1 Area Context	46
4.2 Observations of Study Site	50
4.3 Observations of Human Behavior	59
4.3.1 Quantitative Findings.....	59

4.3.2	Qualitative Findings	66
Chapter 5.	Discussion: Vibrancy in new Holly	69
5.1	Connectivity and Linkage	72
5.2	Dispersal and Variety of Amenities	80
5.3	Community Identity/Cohesion.....	86
5.4	Property/Space Pride	94
5.5	Overall Vibrancy in New Holly	99
Chapter 6.	Recommendations and Conclusion	101
6.1	Further Research	101
6.2	Walkability in New Holly.....	101
Bibliography.....		109
Appendix A:	Figure Ground of Study Area.....	115
Appendix B:	Composite Map of Adults	116
Appendix C:	Composite Map of Elderly.....	117
Appendix D:	Composite Map of Children.....	118
Appendix E:	Composite Map of Commuters from Light Rail	119
Appendix F:	Composite Map of Observed interactions	120
Appendix G:	Composite Map of Hispanic/Latino Persons	121
Appendix H:	Composite Map of Asian Persons	122
Appendix I:	Composite Map of White Persons	123

Appendix J: Composite Map of African American/Black Persons..... 124

Appendix K: Composite Map of Other Race/ethnicity 125

LIST OF FIGURES

Figure 1.1. Two components of walkability.....	13
Figure 1.2. Vibrancy rating template.	15
Figure 2.1. Conceptual framework of the literature review.	17
Figure 2.2. Walkability construct for this thesis.....	24
Figure 3.1. Study Route of New Holly.	41
Figure 3.2. Site visit days.	42
Figure 3.3. Context Map.	45
Figure 4.1. Funding for New Holly (Seattle.gov 2017).	47
Figure 4.2. Chief Sealth Trail.....	48
Figure 4.3. Empty lot on north side of the study area. (source: Author)	49
Figure 4.4. A clear divide in housing when comparing structure footprints.	51
Figure 4.5. Houses along 39th Ave S (source: Author)	52
Figure 4.6. New Urbanist style porches along 39th Ave S (source: Author).	53
Figure 4.7. Study area houses not along 39th Ave S (source: Author).	54
Figure 4.8. Alley between 39th Ave S and Rockery Dr S (source: Author).....	54
Figure 4.9. Fire hydrant in sidewalk, creating a path obstruction (source: Author). ...	56
Figure 4.10. Play structure on southern end of Central Park area (source: Author)...	57
Figure 4.11. Public transit access around study site	58
Figure 5.1. Conceptual Framework.	70
Figure 5.2. Small, paved play area within study area (source: Author).....	74
Figure 5.3. Study site assets related to Connectivity/Linkage.	78
Figure 5.4. Green space locations in the neighborhood.....	82
Figure 5.5. Amenities and destinations in neighborhood.	84
Figure 5.6. Balconies and Porches along 39th Ave S (source: Author).	90
Figure 5.7. Porch stairs and second-story stairway with noticeable tear and wear (source: Author).	91
Figure 5.8. Examples of shared porches in study area (source: Author). Error! Bookmark not defined.	

Figure 5.9. Study area signage.93

Figure 5.10. Unkempt community assets: missing net and inaccessible p-patch garden
(source: Author).97

Figure 5.11 Study area photos representing the observed pattern of litter and materials
found on the perimeter of the New Holly development (source: Author).....98

Figure 6.1. Barriers to vibrancy..... 102

LIST OF TABLES

Table 4.1. Total persons seen during site visits	59
Table 4.2. Racial/Ethnicity breakdown of observed subjects	60
Table 4.3. Age classifications of subjects observed.....	61
Table 4.4. Gender groups of observed subjects.....	61
Table 4.5. Details for Walking Purpose	62
Table 4.6. Details for Domestic Work.....	63
Table 4.7. Details for Observing/Roaming.....	64
Table 4.8. Details for Activity Behavior.....	64
Table 4.9. Observed Interactions.....	66
Table 5.10. Four facets of Vibrancy.....	71
Table 5.11. Connectivity and Linkage Rating for New Holly	73
Table 5.12. Dispersal and Variety of Amenities & Destinations Rating for New Holly	80
Table 5.13. Community Identity/Cohesion Rating for New Holly	86
Table 5.14. Racial/Ethnic makeup of observed subjects by percentage	87
Table 5.15. Property/Space Pride in New Holly.....	95
Table 5.16. Domestic work observed and noted as a proxy of property care	95
Table 5.17. Vibrancy in New Holly	99

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Chapter 1. INTRODUCTION

Walkability has become a buzzword. A term commanded by various sectors and professionals. Public health has claimed it to be a key element in combating twenty-first-century health problems. Real estate professionals have responded to a growing desire for dense, urban lifestyles by selling 'walkable' communities. Millennials value walkability as both utilitarian and trendy. Politicians and city officials hail walkability as a cure for deadened neighborhoods and public spaces. In crossing multiple sectors and professions, walkability has become a universal term applied to numerous ideas.

One of the many applications of walkability is within the New Urbanism design movement. This late twentieth-century design ideology has been implemented across the United States. New Urbanism emphasizes walkability as an essential part of livable communities. New Urbanists strive to revitalize communities and reclaim the livability of cities. With these ambitions, New Urbanism has been applied to public housing re-development.

1.1 WALKABILITY: A PART OF NEW URBANISM

The main inquiry for this thesis centers on walkability as a part of New Urbanist design. Walkability is a tool for community building and social vibrancy in housing developments. In this thesis, I define walkability as two component phenomenon; a definition based on the expansive literature available concerning the concept of walkability. This multi-disciplinary literature includes public health, urban design, sociology, housing policy, environmental

studies, history, transportation, social sciences, and urban affairs. The two distinct components of walkability, as I define them, are accessibility and vibrancy. See Figure 1.1. Given my interest in the social and behavioral aspects of walkability, I further focus my study on the vibrancy portion of walkability.

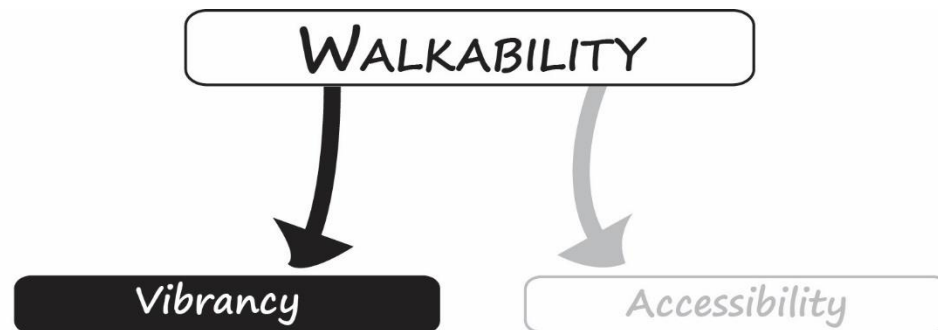


Figure 1.1. Two components of walkability

This focus is tested in New Holly, a mixed-income housing site in south Seattle. Throughout ten site visits, I collected information about the built environment, people, and happenings. Data were gathered using behavioral mapping, observations, and photographs. This information was examined and analyzed. Using both quantitative and qualitative methods, these findings were then studied as a part of the vibrancy component of walkability. This vibrancy component is further divided into four factors. These four factors were generated by summarizing the findings of relevant literature as well as my own understanding of walkability. The information gathered in New Holly is applied to these factors. This detailed, four-part framework of vibrancy was developed through my literature study of walkability, New Urbanism, and public housing.

1.2 VIBRANCY: A FOUR-FACTOR COMPONENT OF WALKABILITY

As stated above, I have defined walkability as a two-part notion: accessibility and vibrancy. For this thesis, I am concentrating on the vibrancy piece. To better study vibrancy, I have composed a four-factor framework of vibrancy. These four factors are connectivity/linkage; dispersal and variety of amenities & destinations; community identity/cohesion; and property/space pride. I study the vibrancy portion of walkability by interpreting field findings through this four-factor framework. These factors are explained in chapter two and utilized for an analysis of New Holly in chapters five and six.

1.3 DOCUMENT OVERVIEW

Following this introductory chapter, I explore walkability, New Urbanism, and public housing through a review of current writings and understandings of these topics. This literature review is the second chapter. In this initial review of literature, I discuss the definition and application of walkability within the New Urbanism framework. I also expand upon the four-factor framework of vibrancy that is later applied to my findings. In the third chapter, I introduce my study site (New Holly), discuss my field work and the methods used. The fourth chapter provides both a quantitative and qualitative review of the findings. The fifth chapter applies the field work findings to the four-factor vibrancy framework identified through the literature review. This investigative discussion utilizes the field findings and available literature to rate the vibrancy of New Holly. The rating results in a general score of positive (+), negative (-), or neutral (0) for each of the four factors in the vibrancy framework. For each factor, a positive (+), negative (-), or neutral (0) score is given for both the study site

and the larger area or neighborhood. See Figure 1.2 for an example of the rating template. This chapter concludes with an overall vibrancy rating of the site.

VIBRANCY FACTOR	Rating
In Study Site	+ , - , 0
Within Neighborhood	+ , - , 0

Figure 1.2. Vibrancy rating template.

Lastly, in chapter six I summarize the writing by acknowledging the limitations and shortcomings of this approach and suggest some steps to further explore vibrancy and walkability. I combined the previously stratified facets of vibrancy back to the concept of walkability. In this section, I will show that the prescribed ambitions and aims tied to walkability within the New Urbanism framework overemphasize the role of design in social cohesion. I suggest that multiple tools are necessary to fulfill the ideals of social vibrancy. A vibrancy suggested by the lofty social, design, and policy ambitions surrounding walkability. I identify specific needs of the study area that have limited or reduced the vibrancy of New Holly. Specific interventions or suggestions to remedy the gaps identified are also briefly discussed.

Chapter 2. LITERATURE REVIEW

This chapter summarizes the available literature and research relating to this thesis. In the first section (2.1), I begin with a review of walking and walkability. Building on this study, I define the concept of walkability for this thesis and introduce a framework to study the idea of walkability. The next section (2.2) provides an overview of New Urbanism, a design movement focused on livable and walkable communities. Framing walkability within New Urbanism focuses the analysis of this thesis. In the third section (2.3), I review public housing and its connections to New Urbanism. In the last section of the literature review (2.4), I discuss HOPE VI, a public housing revitalization program developed and administered by the Department of Housing and Urban Development (HUD). Sections 2.3 and 2.4 provide context to the selected study site, New Holly. New Holly is a south Seattle mixed-income housing development that was revitalized with HOPE VI funding and developed with New Urbanist designs. See Figure 2.1 for a visual representation of the literature review construct.

WALKABILITY

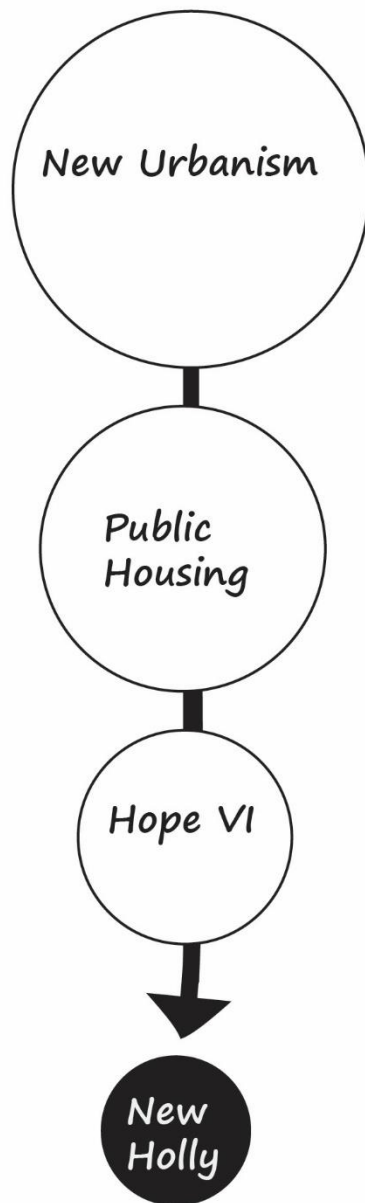


Figure 2.1. Conceptual framework of the literature review.

2.1 WALKING AND WALKABILITY

The word walkability is often referenced and rarely explained. Four conditions comprise the general theory of walkability: useful, safe, comfortable, and interesting (Speck 2012, 11).

But there is no universal or standard understanding of walkability. Walkability clearly originates from walking and multiple ideas are tied to walking. Numerous factors affect walking but the interaction between these factors is unclear (Alfonzo 2005). How these varying definitions and applications of walking tie into walkability is also uncertain.

Walking has become a proxy for livability and is more than a mode of transit. In fact, walking has developed into a desired commodity or concept (Carr, Dunsiger, and Marcus 2010; Southworth 2005). Walking is affordable and increases health and social well-being (Boyle et al. 2003; Litman 2014). For many, walking is not consciously seen as a mode of transport or utility but rather as a leisure activity or form of recreation (Southworth 2005). However, the contrast is seen in an increase in the active transportation movement, a movement particularly prevalent among millennials. The perception of walking not being a mode of transport is perpetuated by the vehicle and road emphasis of most transportation planning of the second half of the 20th century. Walking, while available to more people than any other mode of transportation, is not equally valued or emphasized by transportation planners (Litman 2014).

According to a publication in the *American Journal of Epidemiology*, the most walkable urban form exists in the neighborhoods of the most educated as well as the most disadvantaged (King and Clarke 2015). This reiterates the idea that walking is both a utility

and a commodity. Well-educated individuals often live in desirable urban areas associated with high property values, areas in which walkability is a commodity (Speck 2012). Older neighborhoods are found to also have higher walkability, a fact attributed to shorter blocks and less open space (Litman 2014; King and Clarke 2015). Specifically, a grid layout of streets helps to increase walkability. These findings reiterate the dual nature of walking: a choice driven by need or a trendy social good tied to community.

Not emphasizing walking in transportation planning has decreased the social value of walking (Boyle et al. 2003). Walking is not new; thus the correlations made to walking, in other words walkability, are not original. Despite walkability's deep roots, the definition and implementation are not exact or clear. Per Ann Forsyth, walkability can be referenced for three different, effective purposes. These applications are summarized as follows:

'means or conditions' by which walking is enabled, including areas being traversable, compact, physically enticing, or safe. Others propose that walkability is about the 'outcomes or performance' of such walkable environments, such as making places lively and sociable, enhancing transportation options, or inducing exercise. A final set of discussions uses the term walkability as a proxy for better (Forsyth 2015, 276-77)

This framework of three purposes underscores the fluid definition and nature of walkability. Similarly, Lindeloew describes walkability to be planning, design, and a proxy; again suggesting three distinct applications of walkability (Lindeloew et al. 2014). Specific definitions found throughout my research generally falls into these three categories of walkability, providing some structure to the concept.

In reference to the first application of walkability, a physical conditions application, Todd Litman provides the following definition “the quality of walking conditions, including safety, comfort, and convenience” (Litman 2014, 3). Another example for the first category is this definition: “Street connectivity and land-use intensity are 2 key dimensions of walkability. Smaller blocks and a greater density of streets and intersections (nodes) are considered to be quantifiable, clear, and correlated features which can aid pedestrian navigation” (King and Clarke 2015, 18-19). This definition is also referring to the physical components of walkability. Stated another way, “[walkability]...entails the opportunity for continuous movement across some distance and therefore engages both the local and global street networks” (Zook et al. 2012, 216). Each of these definitions refers to the physical aspects of walkability. These definitions all fall into the first application of walkability, the physical components that enable walkers.

For the second category, a design or outcome-based understanding of walkability, Michael Southworth suggests the following definition, “walkability is the extent to which the built environment supports and encourages walking by providing for pedestrian comfort and safety, connecting people with varied destinations within a reasonable amount of time and effort, and offering visual interest in journeys throughout the network” (Southworth 2005, 248). Another definition fitting this category stems from Emily Talen, who writes, “walkability is the extent to which the built environment supports pedestrian activity – shopping, visiting, strolling, etc.”(Talen 2013, 80). These definitions characterize the outcomes of a walkable area or design, thus aligning with the outcomes classification of walkability.

Third, walkability as a proxy. The most common example of the third application is the *Walk Score* index. “Walk Score recently has been demonstrated as a valid and reliable tool for estimating access to nearby facilities” (Carr, Dunsiger, and Marcus 2010, 460). Other studies have also used walkability as a proxy for physical activity or social capital (Krieger et al. 2009).

Utilizing these three application classes: means or conditions, outcomes or performance, and proxy, provides some structure to understanding walkability. Outside of this framework and the detailed definitions of walkability, some practitioners have written about the common characteristics of walkable areas. These precise details generally provide an operational or applied understanding of walkability. Efforts like this further examine the complicated nature of walkability and also deepen the understanding of the concept.

For example, Moudon provides an operational definition for walkability that is comprised of three parts: origin/destination, area, and route (2006). Michael Southworth describes six attributes of a walkable network: connectivity of network, linkage to modes, fine-grain and varied land uses, safety, quality of paths, and path context (Southworth 2005). In an effort to explore walkability, both of these practitioners have suggested distinct, but related components of the concept.

In a different approach to parsing the notion of walkability, Mariela Alfonzo outlines a ‘hierarchy of walking needs.’ This framework explicitly acknowledges the social and environmental influences of walking. She suggests a five-component hierarchy beginning with the most pressing need of pedestrians. The five parts are: feasibility, accessibility,

safety, comfort, and pleasurability (Alfonzo 2005). Using defined components, Moudon, Southworth, and Aflonzo all advance an applied understanding of walking. This piecing of the concept reaches into the implementation of walking thereby directly tying to walkability.

Understanding, wanting, and implementing walking is part of a resurgence of urban living. As Southworth writes, “Over the past decade the quality of the walking environment has become a significant factor in transportation planning and design for American cities” (2005, 246). This attention has led to some hype around walkability. Furthermore, this resurgence has shaped and energized some urban design movements, including New Urbanism.

As I have demonstrated in the preceding sections, walkability is a complex concept and has a multi-faceted, fluid definition. There is not a universal definition or understanding. Furthermore, the components of walkability are not agreed upon and multiple factors have been proposed to be a part of this notion. These two realities complicate the construct of walkability and its role.

Walkability is a continually evolving aspect of urban planning and city living. The definition and practice of walkability is an uncertain concept. This uncertainty is demonstrated by Forsyth’s 3-component framework of walkability (means or conditions; outcomes or performances; proxy), as well as numerous practitioner’s articulation of walkability. With this acknowledgement of unclarity and the abundant publications regarding walkability, one can see its universality and understand the hype surrounding it. A status further verified by its correlation to multiple of urban themes such as property values, socio-economic status,

economic development, social and physical well-being (Boyle et al. 2003; Forsyth and Southworth 2008; Talen 2002; Talen 2013; Alfonzo 2005; Speck 2012).

The role of walkability within New Urbanism is not limited to specific physical design recommendations, instead it is included in the ambitions of developing community and fostering social cohesion (Congress for the New Urbanism and U.S. Department of Housing & Urban Development 2000; Seattle.gov 2017a; Seattle.gov 2017b; Congress for the New Urbanism 2017; Elliott, Gotham, and Milligan 2004). Community is seen as a commodity of urban life and new urbanists “make explicit their belief that good design creates good communities” (Grant 2006, 47). Walkability is one of the goals of New Urbanist design due to its correlations to street life and social cohesion.

For the purposes of this thesis, I refer to walkability as having two parts: accessibility and vibrancy. See Figure 2.2. These distinctions are based on a thorough background study of the concept of walkability and roughly adopted from the *Hierarchy of Walking Needs* (Alfonzo 2005). The two components, accessibility and vibrancy, are not entirely distinct or exclusive.

With accessibility, I am referring to the physical components of a walkable environment. This includes the tangible and quantified items associated with walking. Including but not limited to components like sidewalk materials, crosswalks, curb heights, path conditions, and other defined measures. These are the tangible aspects of walkability that have been well defined and researched in literature; the concrete components of walkability that are almost universally agreed upon and understood.

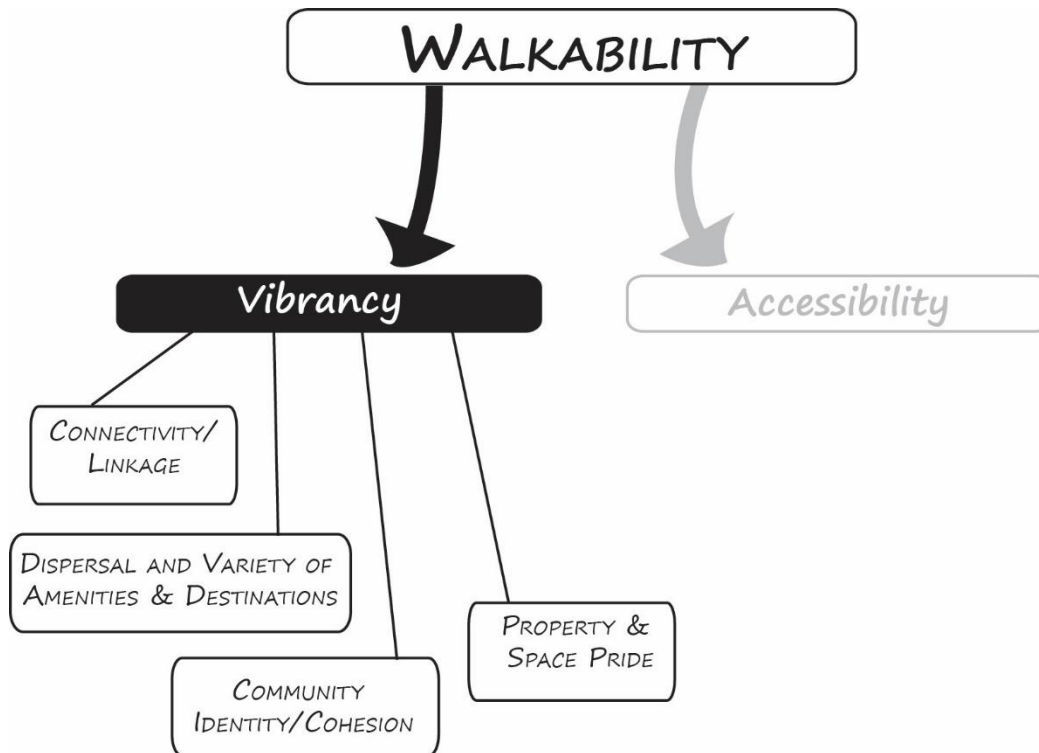
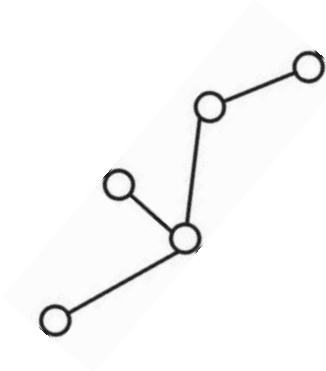
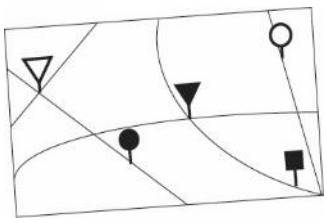


Figure 2.2. Walkability construct for this thesis

With the term vibrancy, I am referring to the aspects of walkability that are not defined by a singular physical component and are not necessarily bound to one specific factor or characteristic. Aspects that aren't explicitly defined, like the pleasure of walking, the desire to walk, and the positive externalities associated with walking (lively community, social cohesion etc.). For the vibrancy component of walkability, I have identified four categories: connectivity/linkage, dispersal of amenities & destinations, community identity, and property/space pride. For this study, these four facets are defined as follows:



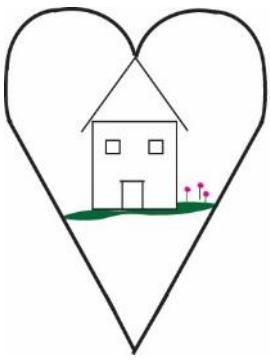
Connectivity/Linkage: referring to the inward and outward (of study area/neighborhood) connections to amenities and destinations. Connections include physical, visual and lifestyle links.



Dispersal and variety of Amenities & Destinations: meaning that public spaces, areas, and uses are spread out and people are not all necessarily drawn towards the same direction or area. Amenities and destinations are varied in type and link to both the study area and the community as a whole.



Community Identity: sense of place or unique aspect to an area; common or standardized design does not outweigh the individual or community. Identity is recognized by personal touches to homes, distinct design, or artwork. A sense of home or grounded connection to an area and the neighborhood.



Property/Space Pride: referring to community care of both private and public spaces, pride demonstrated by using trash bins/services; maintaining housing; keeping up with gardening; and removing nuisances. As well as the enjoyment and active use of public spaces and amenities.

There is overlap between the two components of walkability. For this thesis, I am narrowing my focus to the vibrancy aspect of walkability. This scope of study was chosen due to the overlap of the components and the previously established nebulous nature of walkability. This overlap is further confounded by the fluidity of the walkability concept. The crossover between the components relates back to the previously established idea that walkability is an overarching phenomenon, common to many fields but rarely defined.

Vibrancy includes the intangible portions of walkability, emphasizing community and social cohesion. With this idea of livability, behavioral choices and social relationships regarding the built environment need to be considered. Research states that people desire and favor areas with street life: a pedestrian culture directly resulting from walkability (Speck 2012; Grant 2006). People like the provision of destinations and amenities within their neighborhood, even if they do not directly utilize their services. This availability of amenities directly relates to the liveliness of an area and encourages pedestrian traffic.

Other practitioners do not directly equate liveliness to walking but only speculate that walking may increase social life or community (Southworth 2005; Alfonzo 2005). Despite this preference for walkable areas, the “relationships between social composition and neighborhood walkable urban form are complex” (Zook et al. 2012, 20). A direct connection between social life and walking is a base assumption to the vibrancy framework described above.

One example of walkability’s application as a tool for vibrancy is its role in the movement of New Urbanism. Walkability is stated or implied in every overview or definition of New

Urbanism that I have found. Despite its frequent mention and obvious importance to the New Urbanism movement, the role of walkability and the expectations associated with it are not consistent or clear in this modern design movement. Examining the meaning, implementation, and understanding of walkability as an individual concept and within the New Urbanism movement provides a background to analyzing the vibrancy of walkability.

2.2 NEW URBANISM

New Urbanism is a design and development movement grounded in functional cityscapes. It was formed in the 1980s as a counter to the post World War II urban sprawl and city-center decline found in many cities. The movement grew from a recognition and study of older urban areas, such as traditional neighborhoods and small towns. The study and observation of the urban development of these established towns through time informed the movement. Multiple guidelines have evolved from this design movement with a major focus on building to the human-scale (Congress for the New Urbanism 2017). The movement also emphasizes ‘complete communities,’ meaning that uses and functions are easily accessible, ideally via walking and transit (“New Urbanism” 2017; Grant 2006). New Urbanism has consistently advocated to create places for people; its principles and goals to achieving that end have developed since its inception in the 1980s (ThoughtCo 2017). While the main objective for New Urbanism is well-accepted, the path and methods to achieving livable places is not as standardized.

The guidelines or principles used to implement New Urbanism are not universally defined or completely clear. Some adaptability of these guidelines is required as the movement grows

and develops, however the lack of a structured implementation framework leaves a need as well as an opportunity. A need for project context and an opportunity for the objectives to be applied or precast as desired. The extensive nature of this movement is both a strength and a weakness. The strength being one of universal appeal, allowing New Urbanism to inspire numerous projects of varying sizes and locations. A weakness since a broader applicability inherently requires less specificity and detail. The breadth of New Urbanism reduces the clarity and structure provided in its explanations, guidelines, and objectives.

There are multiple resources defining New Urbanism and each is slightly different, underscoring the breadth of the movement and suggesting problems in the application of New Urbanism. *NewUrbanism.org* (2017) has defined ten specific principles to achieving the objectives of the New Urbanism movement. These principles are:

1. Walkability
2. Connectivity
3. Mixed-Use & Diversity
4. Mixed Housing
5. Quality Architecture & Design
6. Traditional Neighborhood Structure
7. Increased Density
8. Smart Transportation
9. Sustainability
10. Quality of Life

Another source points to four core characteristics of New Urbanism: walkability, de-emphasizing cars, mixed-uses, and sense of community (ThoughtCo 2017).

The *Congress for the New Urbanism* has published a charter, expressing their objectives and values. This charter provides five general statements which explain the movement's ideals.

These are (Congress for the New Urbanism 2017):

1. **We stand** for the restoration of existing urban centers and towns within coherent metropolitan regions, the reconfiguration of sprawling suburbs into communities of real neighborhoods and diverse districts, the conservation of natural environments, and the preservation of our built legacy.
2. **We advocate** the restructuring of public policy and development practices to support the following principles: neighborhoods should be diverse in use and population; communities should be designed for the pedestrian and transit as well as the car; cities and towns should be shaped by physically defined and universally accessible public spaces and community institutions; urban places should be framed by architecture and landscape design that celebrate local history, climate, ecology, and building practice.
3. **We recognize** that physical solutions by themselves will not solve social and economic problems, but neither can economic vitality, community stability, and environmental health be sustained without a coherent and supportive physical framework.
4. **We represent** a broad-based citizenry, composed of public and private sector leaders, community activists, and multidisciplinary professionals. We are committed to reestablishing the relationship between the art of building and the making of community, through citizen-based participatory planning and design.
5. **We dedicate** ourselves to reclaiming our homes, blocks, streets, parks, neighborhoods, districts, towns, cities, regions, and environment.

Following these statements the charter provides guidelines for application. These guidelines are separated into three sections: the region, the neighborhood, and the block (Congress for the New Urbanism 2017). The guidelines are intended to be combined like building blocks with respect to spatial needs and context. Combining these guidelines and statements, the Congress for the New Urbanism aims to build livable, liked places. This lengthier description and writing expresses the movement in another way.

These different descriptions and definitions of the New Urbanism movement share a thread of livability: a desire to create people-centric spaces. This is a common objective expressed in the guidelines and articulated via broad definitions of New Urbanism. The definitions or

descriptions of New Urbanism above are a sample of numerous articulations of New Urbanism. They are varyingly thorough but all connect to multiple facets of development, creating an encompassing, fluid, and clouded understanding of the New Urbanism movement (Grant 2006). New Urbanism heavily emphasizes the physical environment and design. As an antithesis to suburban sprawl, this design movement and “its practitioners reveal a stubborn streak of environmental or spatial determinism” (Grant 2006, 27). This criticism is based on the specific ideas of order and prescribed design elements that are essential to New Urbanism (Talen 1999; Grant 2006).

Of the sources and descriptions above, only the *Congress for the New Urbanism* explicitly acknowledges the need for context when implementing New Urbanism. The group’s charter focuses on contextual and historical reverence in its call for creating human-scale and life-focused places (Congress for the New Urbanism 2017). Despite this reference to context, the New Urbanism movement is too broad to accomplish all its stated goals and objectives. It is interesting to note that the founding members of the Congress for the New Urbanism as well as early participants in the movement disagreed about the scope to which New Urbanism should try to influence urban development. Some wanted to limit the application to reforming suburban areas while others wanted the movement to concern itself with all urban planning issues (Katz 2012). As is clear today, the Congress for the New Urbanism choose the latter, the broader application.

2.3 PUBLIC HOUSING AND WALKING

The history of US public housing is based upon meeting the immediate physical need of shelter. Public housing development and policy was heavily influenced by the housing demands generated by the Great Depression and veterans returning after World War II. American public housing was partly privatized during the late 1940s with the Housing Act of 1949. This legislation pushed for private-sector development (Bratt, Broadman, and Grady, n.d.). This decision cemented the idea of public housing needing to be nothing more than shelter, since private investment instinctively seeks lowest investment for highest profit, allotting minimal consideration for anything beyond the physical basics of shelter.

With this perspective and a policy requirement that rents be 20 percent lower than the nearby rents in the private market, public housing was heavily stigmatized as undesirable and a last resort (Bratt, Broadman, and Grady, n.d.; Hackworth 2003). Additionally, federal policy increased the control given to local public housing agencies while it mandated physical design, private development/investment and rent ceilings. Funding was also reduced (Hackworth 2003). These changes and policies created pockets of poverty and racial/ethnic segregation patterns (Bratt, Broadman, and Grady, n.d.; Hackworth 2003).

Given these restrictions and limited consideration of the social influences of the built environment; most public housing projects did not provide for walkability, especially not the intangibles of walkability. Since this time, design considerations and goals of public housing development and revitalization have evolved to the aspirations expressed by the New Urbanism design principles. Aspirations and considerations such as mixed income homes,

nearby amenities, access equality, social cohesion, and attractive architecture (Congress for the New Urbanism and U.S. Department of Housing & Urban Development 2000; Seattle.gov 2017a; Seattle.gov 2017b; Congress for the New Urbanism 2017; Elliott, Gotham, and Milligan 2004). These elements are all related to one another and are part of a proven correlation between the urban environment and neighborhood quality. A correlation that has been well established (Elliott, Gotham, and Milligan 2004; Talen 1999; Talen and Koschinsky 2014).

HOPE VI, a federal housing program within the Department of Housing and Urban Development, acknowledges the value of context by advocating for local design character, but further consideration of context-based access is not explicitly required. The only component of the *Principles for Inner City Neighborhood Design: HOPE VI and the New Urbanism* concerned with accessibility and walking reads as “Buildings should be designed to be accessible and visitable while respecting the traditional urban fabric” (Congress for the New Urbanism and U.S. Department of Housing & Urban Development 2000, 5).

The remaining access references are vague, such as: “In a well-designed neighborhood, adults and children can walk safely to nearby shopping, schools, and parks. Public facilities serve as focal points for community activity,” and “Transit service to regional jobs is a convenient walk from home” (Congress for the New Urbanism and U.S. Department of Housing & Urban Development 2000, 3). While these statements touch upon the need for walkability within public housing, the goals are vague. Research shows that physical proximity to services and transit has a greater impact on low-income households when compared to other income groups (Chaskin 1997; Talen and Koschinsky 2014; Kleit 2005).

This fact speaks to the need of explicit and overt accessibility and walkability considerations in public housing development.

The relationship between housing design and accessibility or walkability is complicated and influenced by many factors, not a singular built environment component (Talen 2002; Hanlon 2010). In fact, some research suggests that an overreliance or emphasis on physical factors and their influence on social cohesion or community development is prevalent in public housing planning today (Levy, McDade, and Dumlao 2010). Multiple practitioners have suggested that design directives and built environment changes do not suffice to establish and garner benefits from the known, complicated relationship between the urban environment and neighborhood quality (Talen and Koschinsky 2014).

One study equates access to services and amenities with neighborhood quality and explores this quality in public housing. To investigate the neighborhood quality of public housing in eight US metros (including Seattle), walkability was measured via *Walk Score* and this was used as a proxy for access to services and amenities which was clarified as a representation of neighborhood quality (Talen and Koschinsky 2014). This study found that, "...by a wide margin, subsidized housing in the United States is located in unwalkable places" (Talen and Koschinsky 2014, 77).

Other results from this study include negative associations specific to Seattle, such as a correlation between high access housing and higher violent crime rates. Another Seattle specific result indicates that "subsidized housing in areas of high housing price and high housing market strength (an indicator of higher neighborhood quality) has lower access"

(Talen and Koschinsky 2014, 74). While these results are limited to this one study, they express the complications of public housing and walkability.

In 2005 a study of New Holly, the neighborhood housing the study site for this thesis, was completed. This study focused on the first redevelopment phase of New Holly and found that despite multiple amenities being located within the area, only the library was equally accessed and used by area residents (Kleit 2005). This finding challenges the notion that services and amenities generate social cohesion, as a lack of use or unequal usage by different people groups does not fulfill the community aspirations suggested by the guidelines for this public housing development. It is important to also consider that society has evolved and changed and that peoples value community, amenities, and social cohesion differently.

These findings underscore the reality that the relationship between the built environment and walkability is complex. This complexity is particularly pronounced in the intangible aspect of walkability. Despite their fluid definitions and a limited acceptance of success, design interventions continue to dominate today's public housing redevelopment efforts. Within these design frameworks, walkability has become a catchword for various approaches, including New Urbanism. When considering both the popularity of design intercessions and New Urbanism, one can see how walkability is a key component in the development of public housing.

2.4 HOPE VI

New Urbanism has been referenced in the re-design and re-development of numerous neighborhoods. Specifically, the strategies have been applied to *Hope VI* developments. *Hope VI* is a federal public housing program with the Department of Housing and Urban Development (HUD). This program began under the Clinton administration and focuses on the re-development of blighted areas with distressed public housing (Elliott, Gotham, and Milligan 2004). For these revitalization efforts, HOPE VI documentation references New Urbanism and describes the movement as, “a planning and design movement that has attempted to distill and update the essential qualities of traditional neighborhood design.....promotes sustainable, pedestrian-friendly, transit-oriented developments that are safe and accessible for all” (Department of Housing and Urban Development 1999).

Multiple reports from the Department of Housing and Urban Development have affirmed New Urbanism as the design policy for public housing redevelopment since the partnership became official in 1996 (Hackworth 2003; Bohl 2000). Then HUD Secretary, Henry Cisneros, signed the charter put forth by the Congress for the New Urbanism (Elliott, Gotham, and Milligan 2004; Bohl 2000). This design direction was described with the following expectations:

The New Urbanism principles that will be promoted by HUD and its partners in the Homeownership Zones include: defined neighborhoods of limited size; flexible zoning standards to allow a mix of compatible uses, along with a mix of housing styles and levels of income; public parks and gathering space; historic preservation; mass transit connections; and pedestrian-friendly streets and walkways connecting the neighborhood to the surrounding area (HUD.gov 1997).

The U.S. Department of Housing and Urban Development has continued to emphasize New Urbanist design under Cisernos's successors (Elliott, Gotham, and Milligan 2004). As of 2010, HOPE VI program is no longer granting new funds but continues to administer the money allocated through the program (HUD.gov 2017).

To attain the New Urbanism community and livability aspirations, *HOPE VI* relied on the formation of partnerships between federal and local governments, non-profit organizations, and private market interests (Hackworth 2003; Elliott, Gotham, and Milligan 2004). The intention being economic interest and activity in distressed neighborhoods and increased funding for housing redevelopment (Department of Housing and Urban Development 1999). To meet these objectives, the *HOPE VI* program required local housing authorities to allocate some funds for economic development, to include the private sector, and to increase the vetting process of housing applicants (Department of Housing and Urban Development 1993; Elliott, Gotham, and Milligan 2004; Hackworth 2003). These requirements are intended to support the goal of mixed-income housing and diverse communities, ideas stemming from New Urbanism (Hackworth 2003; Department of Housing and Urban Development 1999; Cho, Seungjong, Mark Joseph 2016; Congress for the New Urbanism 2017; Muschamp 1996).

This inclusion of more stakeholders, generates more opinions, inputs, and money. The *HOPE VI* program guidelines prescribe ambitious hopes, changes, and goals to the revitalization of public housing. The revitalization efforts of *HOPE VI* are vetted as the answer to past public housing failures (Congress for the New Urbanism and U.S. Department of Housing & Urban Development 2000; Department of Housing and Urban Development 1999; Gilderbloom

2003). A 1999 HUD publication describes the *HOPE VI* program goals within five main sections. These sections are titled with their aims:

1. Attractive Places to Live
2. Stable, Diverse Communities
3. Families Moving Up
4. Opportunities to Learn and Earn
5. Catalysts for Economic Development (Department of Housing and Urban Development 1999)

This entire *HOPE VI* report emphasizes the role of New Urbanism and associates each of these objectives to specific design and built environment aspects. Front porches and sidewalks are likened to social cohesion while green spaces and public areas are equated to a sense of community (Elliott, Gotham, and Milligan 2004; Congress for the New Urbanism and U.S. Department of Housing & Urban Development 2000). New Urbanists have acknowledged that design and built environment alone cannot generate social change and neighborhood unity (Bohl 2000; Congress for the New Urbanism 2017). Yet the ambitions and objectives set forth by the *HOPE VI* program and the report sections listed seem to reflect this exact assumption.

Chapter 3. RESEARCH METHODS AND METHODOLOGY

As explained in the previous chapter, walkability is a key component of the New Urbanism design movement. Given the breadth of information regarding walkability and New Urbanism, this study is narrowed to one mixed income housing study site, New Holly. I further focus my study on vibrancy, the intangible characteristics associated with walkability. This study is based on information collected during field visits as well as the preceding literature review.

3.1 METHODS

For this thesis, I examine the vibrancy component of walkability, a component identified earlier in my overview of walkability. Venturing into behavior studies leads towards the methods needed to examine environmental behavior. My field methods include behavioral mapping, photographs, and observations. These methods were utilized to study a portion of New Holly, a mixed-income housing site in south Seattle. New Holly redevelopment included affordable housing and public housing units. This qualitative approach was selected since vibrancy is not a quantified idea, but rather a social aspect of community. A component that connects to the social goods and values associated with walkability.

Limiting walkability to numerical studies or only considering quantified proxies of walkability is not appropriate for this study since the New Urbanist component of walkability is expected or accepted to be more than the physical built form. As explained above, New Urbanism is seen as a generator for community and social unity (Grant 2006; Cho, Seungjong, Mark Joseph 2016; Congress for the New Urbanism and U.S. Department of Housing & Urban

Development 2000). The limitation of only analyzing the physical portions of walkability has been recognized (Carr, Dunsiger, and Marcus 2010; Southworth 2005; Forsyth 2015; Forsyth and Southworth 2008; Adkins et al. 2012).

Utilizing observation and behavioral mapping, data were gathered. These techniques were adopted from practitioners Zeisel and Zook (Zeisel 2006; Zook et al. 2012). The two tools were implemented as follows. Directly observing people allowed information to be collected about activities, interactions, persons, and use of space. I began this study as a 'secret outsider,' a distant observer, not acknowledged by participants in the area (Zeisel 2006, 197). After four visits, my repeated comings were recognized by one elderly female resident who stated that she remembered me. Following my seventh visit, I was recognized as an outsider by one male who questioned me and did not appreciate my being there. In regard to these two people, my role changed from secret outsider to recognized outsider, nevertheless my ability to collect data was not impeded.

A recognized stranger may, in unknown ways, impact the behavior of the people being watched (Zeisel 2006, 198). I did not have any further interactions with either of the people who recognized me. Observations were recorded as field notes and typed up in detail following the completion of a site visit. "Behavior mapping is an observational technique used to record the activities of an individual or a group occupying a space"(Zook et al. 2012, 226).

A study route was created and walked on each visit while mapping. This route was selected to include major streets in the area and to allow for maximal observations of the central

area. A decision based on the assumption that the central area amenities and public space would most likely be representative of the residents use of space. The intention of observing people, interactions, and activity lead to this study route selection. The street pattern and shortcuts found in the neighborhood make it possible to see the central, public green space for nearly the entire walk through the site. Please see Figure 3.1 for a detailed map of the study route.



Figure 3.1. Study Route of New Holly.

3.2 SITE VISITS

Ten site visits were completed between February 25th, 2017 and April 18th, 2017. Site visits took place between 12:30 pm and 7:00 pm; data collection times and days were selected based on observer availability, scheduling restraints, and project timeline. Effort was made to include both weekend and week days. Data collection was completed in a standardized fashion beginning with the de-boarding of the light rail. At this point, I estimated the number of persons getting off of the light rail and recorded this number. Then I proceeded to the study route via S Othello St while recording day, date, temperature, weather, and time. Temperature and weather were recorded as reported by the *Weather app* on my smart phone. While recording these basics, and walking to New Holly, I observed and noted the number of persons from the light rail that entered the study area. Upon entering the study site I walked along the designated study route, mapped behavior and took notes estimating age, gender, and racial/ethnic group. Notes regarding actions, happenings, and interactions were also taken. See Figure 3.2.

Visit	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Weekday		X	X		X	X		X	X	X
Weekend day	X			X			X			
Temperature	42°	54°	52°	56°	53°	54°	59°	55°	52°	61°
Weather	rainy	Light rain	Partly cloudy	cloudy	sunny	windy	Partly cloudy	cloudy	Partly cloudy	sunny

Figure 3.2. Site visit days.

Two of the observations (Observations #1 and #2) took place while it was raining. After completing two visits, efforts were made to minimize rainy observation visits based on the assumption that fewer people would be outside during inclement weather. These efforts extended the timeframe of the field work and favor the latter half of the observation period. Each visit was completed in 30 to 45 minutes and the LINK light rail was used to commute to the study site.

3.3 STUDY SITE

This specific study area was selected based on its proximity to the LINK light rail and commercial activities; factors associated with pedestrian-friendly neighborhoods and in line with New Urbanist design ambitions. As a Seattle Housing Authority project, New Holly was held to Seattle legislation requiring that each housing unit that is removed is also replaced, reducing people displacement. Furthermore, residents of the original public housing development (Holly Park) were given the option to return following the revitalization of the area. This emphasis of keeping public housing stock and empowering residents to stay in their neighborhood makes New Holly a suitable site for this study, since community and people are closely tied to the idea of vibrancy. More details regarding vibrancy as an aspect of walkability are provided in the next chapter.

The New Holly neighborhood was built in three stages and the last phase was completed in 2007. The area has mixed uses and multiple residence types. This mixed-income housing development includes almost 1,400 affordable housing units (“Seattle Housing Authority” 2017). Each phase was completed by a different development/architecture group, while one

design firm completed the site design and planting plan for the area. The three architecture firms that were commissioned for the phased residential development are Weinstein/Copeland Architects, Popkin Development, and Community Design + Architecture; the firms are listed in the order of the three development phases. Nakano is the landscape architecture firm who's planning and design was implemented throughout the entire New Holly neighborhood revitalization project. (Nakano Associates, n.d.).

Different housing developers with the same design guidelines revitalizing the area provides a theoretically unifying built environment, however it is clear that the three stages of development are different. A difference that is visible to the eye and felt when walking through greater New Holly. Due to this difference, the study site was limited to one phase. Utilizing one landscaping architecture firm's plans also attempts to unify the neighborhood, with similar plantings and green spaces. Both of these facts attributed to the selected of this study site.

For this thesis, I focused on a just one portion of the New Holly neighborhood. This decision was based on two factors. First, the time and resource limitations of this study. Second, the study site's setting is interesting in that the area is already spatially divided from the rest of the neighborhood via a large arterial (S Othello St). The selected study area is a mixed income development with varied housing styles. It is situated within the third phase of the redevelopment of New Holly, meaning it is the newest development in the area. This south Seattle site is near the Othello station of the LINK light rail. The study area is west of MLK Jr

Way S and east of 39th Ave S; with a southern border of S Holden St and a northern edge of S Holly Park Dr. See Figure 3.3 for a context map of the study site.

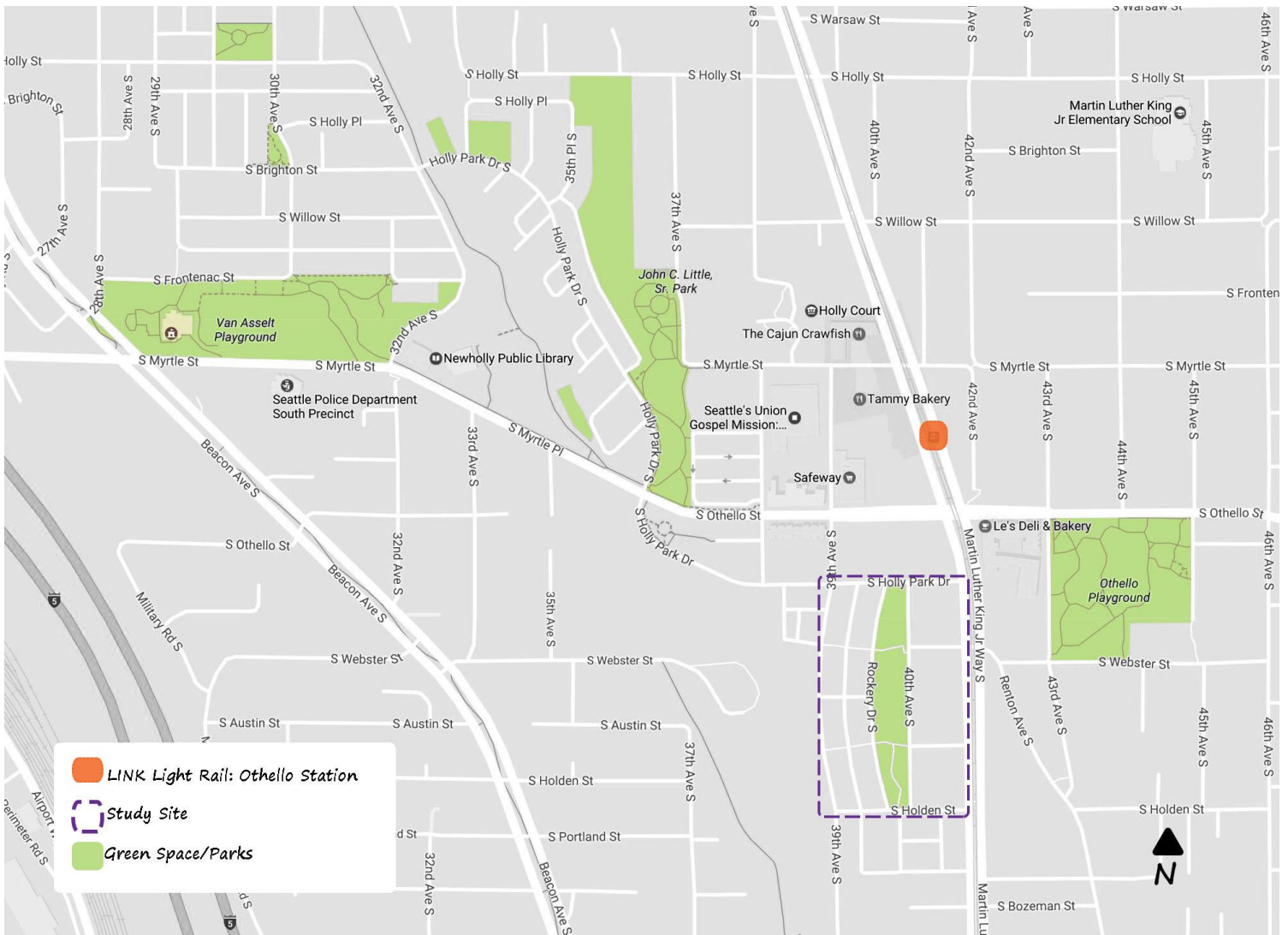


Figure 3.3. Context Map.

Chapter 4. FINDINGS

4.1 AREA CONTEXT

New Holly is one of 260 revitalization projects that received HOPE VI funding (Cho, Seungjong, Mark Joseph 2016). As a recipient of these funds, the Seattle Housing Authority created a redevelopment plan for New Holly and grounded this plan in New Urbanist principles. New Holly is located approximately 6.5 miles south of downtown Seattle. This housing development was previously named Holly Park. Holly Park was built in 1941 as public housing for World War II veterans. In 1997, the site was determined to qualify as distressed under the HOPE VI grant (Seattle.gov 2017a). The Department of Housing and Urban Development has defined distressed as follows:

Requires major redesign, reconstruction or redevelopment, or partial or total demolition, to correct serious deficiencies in the original (including inappropriately high population density), deferred maintenance, physical deterioration or obsolescence of major systems, and other deficiencies in the physical plant of the project (U.S. Department of Housing & Urban Development 2005).

Utilizing HOPE VI funds along with other public funds and private money, New Holly was redesigned and redeveloped. See Figure 4.1 for details about money sources used to finance the revitalization of New Holly. This redevelopment was based in the design framework prescribed by the HOPE VI program, New Urbanism. (Seattle.gov 2017a).

Funding source	Amount
Private investment	\$144,000,000
Tax-exempt borrowing	\$56,000,000
HOPE VI grant	\$50,000,000
Other public funding	\$50,000,000
Tax credit partnership equity	\$40,000,000
Total investment	\$340,000,000

Figure 4.1. Funding for New Holly (Seattle.gov 2017).

As New Urbanist, the redevelopment plan for New Holly calls for design elements related to walking. Specifically, the Seattle Housing Authority prioritized the redrawing of streets “to reconnect to the area's street grid” (Seattle.gov 2017a). This objective clearly ties to walkability with the underlying ideals of New Urbanism. Other portions of the *New Holly Redevelopment Plan* address the social correlations to walkability. For example, the Seattle Housing Authority states that “careful attention has been given to initiatives and activities that promote positive interaction among neighbors” (Seattle.gov 2017b). All of these statements and goals aim to create that which has naturally occurred in some neighborhoods, the formation of lively community.

Facts and observations of the study area were collected by visiting the site, researching the area, and taking and analyzing photographs. The intention of this baseline was to gain a general impression of the study area and to ground-truth the selected study route. The route was confirmed prior to February 25th, the first site visit and observation.

The study area is entirely residential. West of 39th Ave S (the study site border) there are some trees and grassy terrain. This area also includes the Chief Sealth Trail but pedestrian connectivity to this path is not marked by signage. The trail has not been completed and the current path runs through residential streets within the study site (SDOT 2007a). As the trail map (Figure 4.2) indicates, the trail has been detoured along 39th Ave S which is the western edge of the study area selected for this thesis (SDOT 2007b).

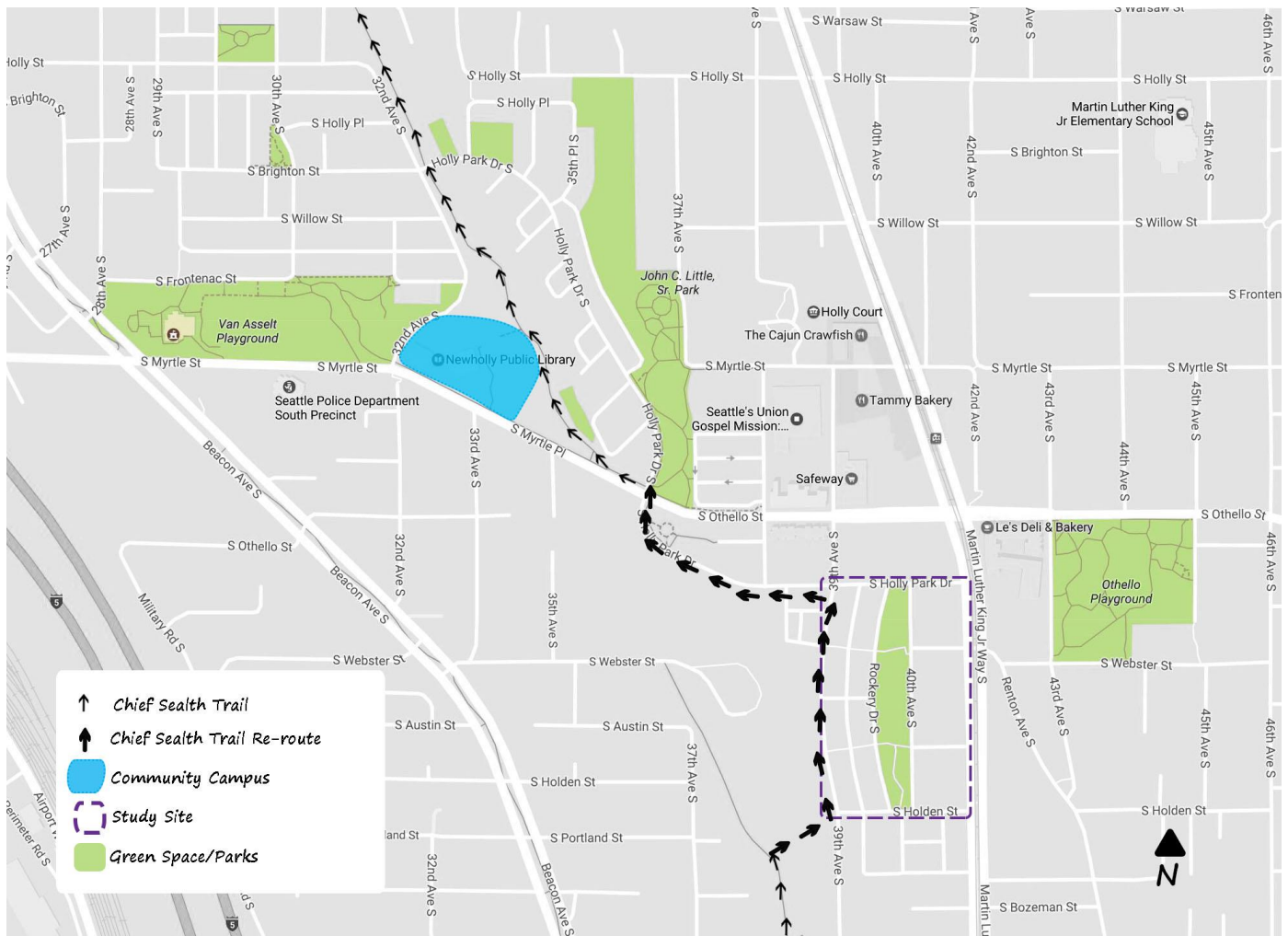


Figure 4.2. Chief Sealth Trail

To the east, a busy and approximately 100 feet wide road defines the study area edge. This is MLK Jr Way S, a large thoroughfare that includes rail infrastructure for the region's light rail, the LINK. South of the study area there are more residential structures. To the north, there is a large undeveloped lot. See Figure 4.3.



Figure 4.3. Empty lot on north side of the study area. (source: Author)

To the northwest there is some additional housing and a City of Seattle Neighborhood Service Center. There is more commercial activity as one continues further north, including a grocery store, a bank, some restaurants, and a laundromat. The New Holly Neighborhood community campus includes amenities that are cited in the Seattle Housing Authority

redevelopment plan and is located further to the northwest. These assets include a public library, learning center, childhood center, a preschool and a neighborhood campus facility (Seattle.gov 2017a). These facilities are clustered together along S Myrtle Place, a wide road north of the study site. Nearby is the Seattle Police South Precinct as well and a large grassy area with a play structure. As previously explained, the Chief Sealth Trail runs along the northeast edge of this neighborhood amenities cluster. Both the available walking infrastructure and the Metro Transit Bus Route 36 connect to the New Holly Neighborhood amenities.

4.2 OBSERVATIONS OF STUDY SITE

In the study site, buildings are both free-standing and row-style. A pattern that can be seen in the building outlines of the site map. This difference corresponds to the market rate housing and the affordable housing structures of the study site. The market rate housing is single story, freestanding structures found along 39th Ave S. The remaining buildings are affordable units housed in townhomes. See Figure 4.4. All structures in the study area are residential. Every building is 2-3 stories tall with wooden siding and varied paint colors. All houses are built in similar architectural styles, contextualized for the region (“Seattle Housing Authority” 2017). The houses are all connected to the area’s sidewalk network and each building is adjacent to some vegetation. Street parking is available along all the roads in the study area.

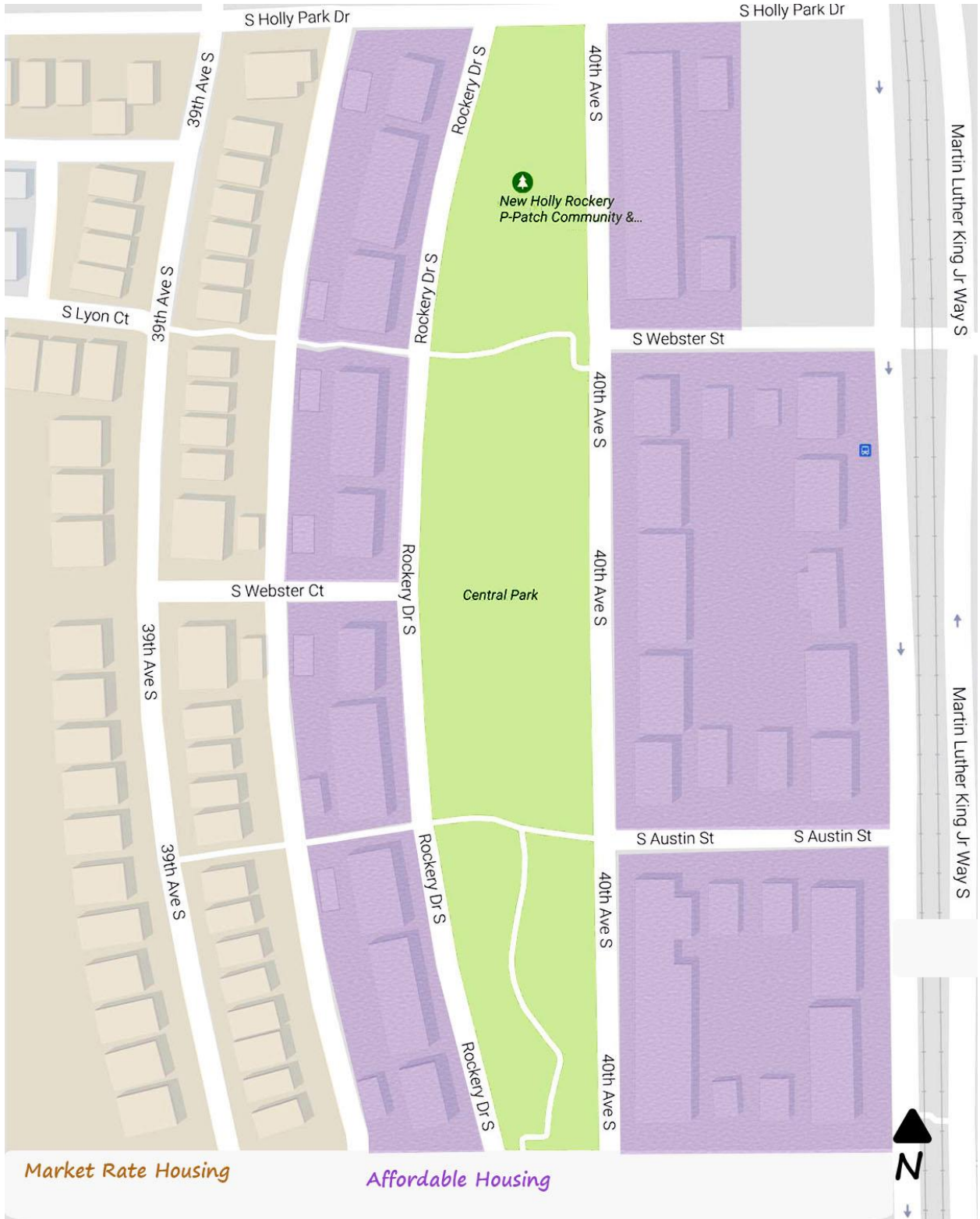


Figure 4.4. A clear divide in housing when comparing structure footprints.

There are distinguishing design features when comparing the houses along 39th Ave S to the remaining homes in the study area. All the homes along 39th Ave S are free-standing, have great façade articulation and concrete steps. Other design details like porch columns, front doors with windows and decorative details, well-maintained landscaping, flower boxes, and accenting trim provide these houses with personality and reduce the sterility of a newly built development. See Figure 4.5.



Figure 4.5. Houses along 39th Ave S (source: Author)

The building materials also appear to be of higher quality than the other structures in the study site, as evidenced by observed wear and tear of the other houses in the area. In general, rentals go through more wear and tear, compounding the issue. Furthermore, approximately half of the homes along 39th Ave S have front driveways with garages and the other half has garage access via an alley. The porches and balconies of the homes along this street are roomy and most are framed by low fences. See Figure 4.6.



Figure 4.6. New Urbanist style porches along 39th Ave S (source: Author).

The remaining homes have fewer design details and are rowhouses with less space between the clusters of homes. There is very little façade articulation or detailing. Some have front porches but the size and quality of these porches differs amongst the units: some are shared, some are walled rather than fenced, and others appear to be more of a landing given their size. Furthermore, some ‘porches’ are not well-lit and/or do not allow for natural light. Some of the row homes also have open stairways and walkways that connect second story units. There is some general wear and tear amongst these homes and the vegetation is unkempt. See Figure 4.7.



Figure 4.7. Study area houses not along 39th Ave S (source: Author).

A few of these homes have garages and some have designated parking spots in the alleys found in between 39th Ave S and Rockery Dr S as well as 40th Ave S and MLK Jr Way S. See Figure 4.8.



Figure 4.8. Alley between 39th Ave S and Rockery Dr S (source: Author).

Another distinction between the row houses and those on 39th Ave S is the proximity to traffic and noise. The affordable homes are closest to MLK Jr Way S, a busy thoroughfare along the eastern edge of the study area. Please reference Figure 4.4.

The sidewalk network is extensive and reaches each home while also connecting to the central park area. Two additional walking pathways create direct physical connections between the Central Park and homes on 39th Ave S. These footpaths continue into the park area. An additional footpath runs through the park, further extending the pedestrian network.

Within the study area, most of the sidewalks are smooth concrete and unobstructed. Only one instance of sidewalk obstruction was found. See Figure 4.9. The pathway on the western edge of the central park is gravel instead of concrete, this is also the material chosen for the footpaths throughout the central green space. Most of the sidewalks are lined with trees but as soon as one reaches the edge of the study zone, the landscaping and sidewalk quality decreases. Outside of the study zone, the sidewalks are not as well maintained, dirty, and do not consistently have a landscape buffer.



Figure 4.9. Fire hydrant in sidewalk, creating a path obstruction (source: Author).

The central park area includes a community p-patch on the north side and a play structure on the southern end. In between there are two half-court basketball hoops and a large grassy open space. The entire central area is encircled with walking infrastructure. As previously mentioned, there are some walking paths that cross this green space. Eleven benches, seven picnic tables, and some mature trees complete the area. See Figure 4.10.

The area is approximately 700 feet long and varies between 100 and 150 feet wide. These distances were determined via Google maps.



Figure 4.10. Play structure on southern end of Central Park area (source: Author).

For transit access, there are two modes available within a half mile walkshed. This half mile distance has been used in many walking studies and is commonly accepted as the maximum walking distance to services, with greater distances reducing a pedestrian's likeliness to utilize available services (Lee and Talen 2014; Southworth 2005). The LINK light rail runs along MLK King Jr Way S on the eastern edge of the study area. The nearest

light rail stop is located approximately 0.2 miles north of S Holly Park Dr (the northern boundary of the study site). This transit station is accessible via the available walking infrastructure and requires study site residents to cross a minimum of two traffic intersections. Depending on a resident's home within the study site, the walk may be as much as 0.4 of a mile. This distance is well within the accepted distance of transit-oriented development, which generally allots for a half mile.

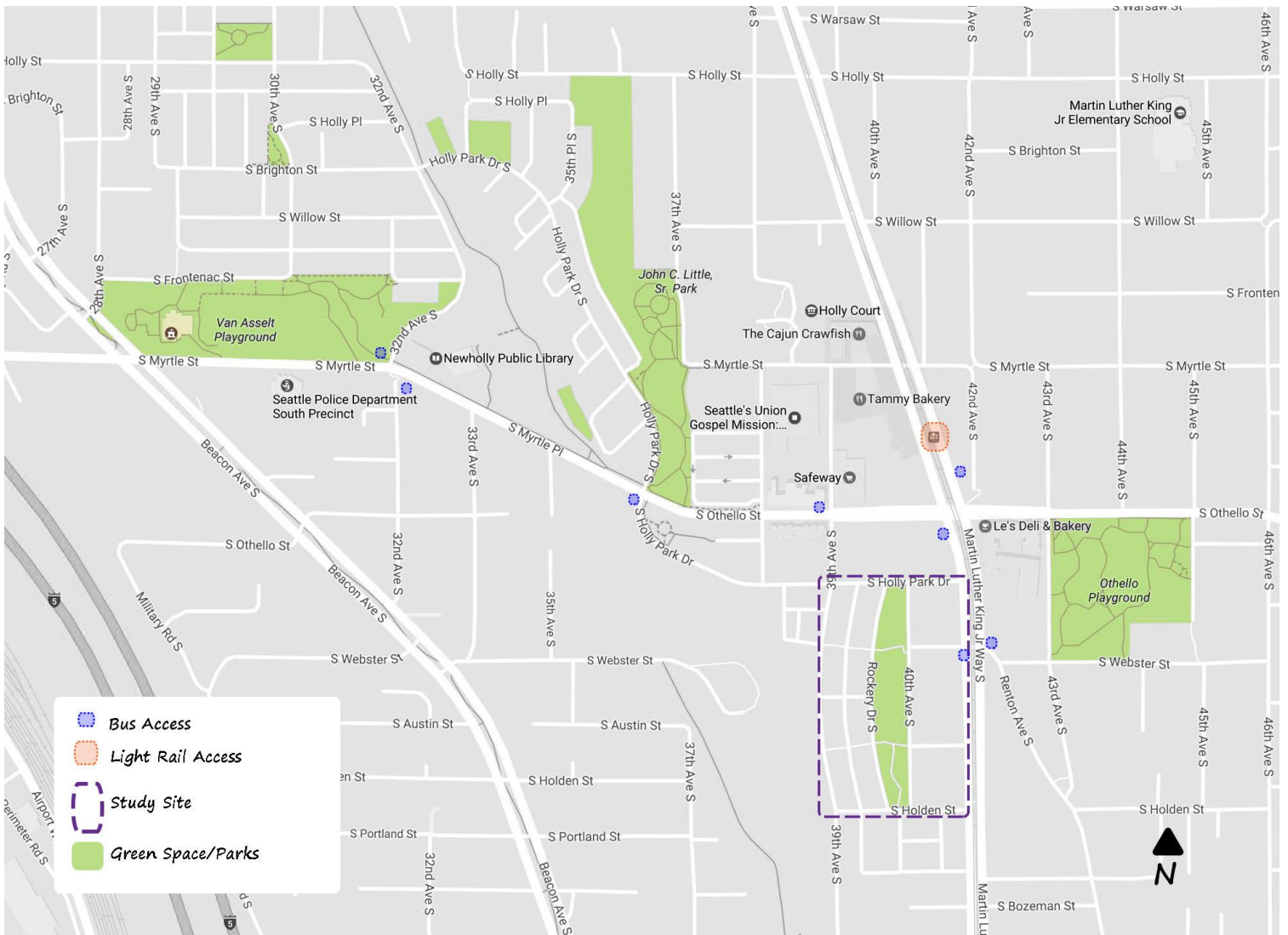


Figure 4.11. Public transit access around study site

Multiple bus stops are also near the study site. Depending on a person’s starting location these stops are between 450 feet and 0.4 of a mile away. These bus stops provide access to three King County Metro lines (36, 50, and 106). No other transit agency has buses serving in the area. See Figure 4.11.

A study conducted in California and Oregon, found the average commuter’s walking route to transit to be 0.52 miles (Weinstein et al. 2008). The average walking route to transit in the US is 0.7 mile (Kim 2015). The walking routes from any house within the study area, 0.4 miles, is shorter than both the US average and the distance found in California and Oregon, other west coast states.

4.3 OBSERVATIONS OF HUMAN BEHAVIOR

4.3.1 *Quantitative Findings*

Data regarding human behavior was collected on site visits and was then aggregated and analyzed. In total, 164 people were observed and classified by demographic information and actions/behavior. See Table 4.1 for a comprehensive count of the people observed during the ten sites visits.

Table 4.1. Total persons seen during site visits

Visit	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	Total
People Observed	7	21	12	9	19	11	30	22	24	9	164

People’s locations were recorded on a map of the study site and represented by four symbols; these symbols represent property maintenance, walking, interacting, and coming from LINK light rail. These initial categorical symbols were used while walking through the study area. Greater details regarding the behavior and actions of the people observed was written in the field notes; details including demographics (race/ethnicity, age, gender) and observed actions. These specifics were recorded as educated approximations. For this study race/ethnicity was divided into five categories: African American, White, Asian, Hispanic and other. Please see Table 4.2.

Table 4.2. Racial/Ethnicity breakdown of observed subjects

Race/Ethnicity	Visit	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	Total
African American/Black		3	5	6	3	7	6	21	12	16	3	82
White		2	1	1	0	2	2	1	4	0	1	14
Asian		1	4	5	5	6	1	5	2	3	1	33
Hispanic/Latino		1	2	0	0	0	0	0	2	1	0	6
Other		0	9	0	1	4	2	3	2	4	4	29
Total		7	21	12	9	19	11	30	22	24	9	164

Age was classified into three groups: children/teenagers, adults, and elderly. These classifications were based on the observer’s estimation of age. Using these estimations, persons projected as 17 or younger were classified as children/teenagers. While people between ages 18-65 were categorized as adults and persons 65 and older were recorded as elderly. The largest group, with 94 persons, was the adult group. The smallest group was the elderly with only 15. Children/teenagers make up the remaining persons observed during the site visits with a total of 55. Please see table 4.3

Table 4.3. Age classifications of subjects observed.

Age Group	Visit	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	Total
Children		1	7	3	1	5	2	18	6	10	2	55
Elderly		1	1	1	1	3	1	2	3	2	0	15
Adults		5	13	8	7	11	8	10	13	12	7	94
Total		7	21	12	9	19	11	30	22	24	9	164

Gender was recorded as male, female, or unknown. Infants and some children were recorded as other when a gender identity could not easily be approximated. There were slightly more females than males observed during the site visits. A total of 83 women and 73 men were seen and eight children were classified as unknown. See Table 4.4.

Table 4.4. Gender groups of observed subjects

Gender	Visit	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	Total
Female		5	13	9	2	12	3	12	10	10	7	83
Male		2	6	3	6	7	6	18	12	11	2	73
Unknown		0	2	0	1	0	2	0	0	3	0	8
Total		7	21	12	9	19	11	30	22	24	9	164

Outside of demographic details, actions, behaviors, and interactions were thoroughly noted. Coding was used to categorize the detailed field notes into groups of observed behavior. Four behavioral classes were identified through this method. The four classes are: walking purpose, domestic work, observing/roaming, and activity. These classes were further divided into groups to provide greater specificity of behavior. All persons recorded in the notes and on behavioral maps were classified into these groups of behavior.

The largest number of people, 80 total, were categorized into the first behavior class: walking purpose. Walking was further divided into three groups (to/from transport, utility, and other), these divisions were created based on the groupings found during the coding and analysis of the field notes. In examining this behavior class, one can see that almost half of the walkers seen were moving to/from a mode of transport. Most of these persons were utilizing automobiles as transport, not the available transit modes. Another ten persons were walking for an observable reason, for a utilitarian intent. This leaves 33 walkers whose purpose of walking was not recognizable. Possible purposes include leisure, walking for transport, or exercise. Please see Table 4.5 for detail.

Table 4.5. Details for Walking Purpose

Walking Purpose	Visit	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	Total
To/From Transport		3	7	3	0	9	1	4	0	10	0	37
From LR		3	5	3	0	3	0	0	0	0	0	14
To/From Car		0	2	0	0	6	1	4	0	10	0	23
Utility		2	1	0	0	2	1	1	1	0	2	10
Carrying Groceries		0	0	0	0	0	1	0	0	0	1	2
Walking Dog		2	1	0	0	2	0	1	0	0	1	7
Mail		0	0	0	0	0	0	0	1	0	0	1
Other		1	1	4	4	3	7	6	2	2	3	33
Total		6	9	7	4	14	9	11	3	12	5	80

The second behavioral class, domestic work, includes 21 persons. This category was further divided into 5 subgroups (Trash, Garden, Car Maintenance, Moving Boxes/Furniture, Hired Help/Service). These groups were created based on the observed actions and activities. The largest number of persons in this class (8) were engaged in managing the trash in the area. Five people were from a hired service as was evidenced by their uniform and/or labeled

vehicles. Both the garden group and the car maintenance group includes three people respectively. Lastly, two persons fall into the moving boxes/furniture group. See Table 4.6.

Table 4.6. Details for Domestic Work

Domestic Work	Visit	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	Total
Trash		0	4	1	0	0	0	0	2	0	1	8
Moving Bin		0	1	0	0	0	0	0	2	0	0	3
Picking Up		0	3	1	0	0	0	0	0	0	1	5
Garden		0	0	0	1	0	0	1	0	1	0	3
Pruning/Planting		0	0	0	1	0	0	0	0	1	0	2
Weed whacking		0	0	0	0	0	0	1	0	0	0	1
Car Maintenance		0	2	0	1	0	0	0	0	0	0	3
Moving Boxes/Furniture		0	0	0	1	0	0	1	0	0	0	2
Hired Help/Service		0	0	0	0	0	2	1	1	0	1	5
Total		0	6	1	3	0	2	3	3	1	2	21

The third behavioral class, observing/roaming, includes 32 persons and is the most difficult behavior to count and explain. Observing/roaming includes people watching other people or activities, standing around without a noticeable intent, or remaining in a confined area or space without an observable action. Given the encompassing definition of this behavior class, the subgroups for this class are divided spatially. Observing/roaming was seen in four distinct areas of the built environment: street, alley, park, or balcony/porch. Within each of these spatial subgroups, the observed subjects observed were further divided between children and adults. This age distinction was included as a pattern of usage emerged during data analysis: only children were found to be observing/roaming in the park or alley spaces of the study site. Also, no elderly persons were classified as observing/roaming. Please see Table 4.7 for details.

Table 4.7. Details for Observing/Roaming

Observing/Roaming	Visit	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	Total
Street		0	2	2	1	0	0	2	0	1	0	8
Adults		0	0	1	0	0	0	0	0	1	0	2
Children		0	2	1	1	0	0	2	0	0	0	6
Alley (only children)		0	4	2	0	3	0	0	1	0	0	10
Park (only children)		1	0	0	0	2	0	3	0	0	0	6
Porch/Balcony/Stairway		0	0	0	1	0	0	1	0	6	0	8
Adults		0	0	0	1	0	0	1	0	2	0	4
Children		0	0	0	0	0	0	0	0	4	0	4
Total		1	6	4	2	5	0	6	1	7	0	32

The last behavioral class, activity, includes 31 persons and is divided into 3 subgroups. These subgroups are sport, smoking, and chatting/visiting. Of the 31 included in this class, 17 were engaged in a sport activity. Sport was further classified as ball sports, biking, or running. The remaining actions break down to smoking and chatting/visiting. Smoking was only observed twice, while 12 people engaged in chatting/visiting. Please see Table 4.8 for details.

Table 4.8. Details for Activity Behavior

Activity	Visit	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	Total
Sport		0	0	0	0	0	0	9	8	0	0	17
Biking		0	0	0	0	0	0	0	3	0	0	3
Ball Sport		0	0	0	0	0	0	8	4	0	0	12
Running		0	0	0	0	0	0	1	1	0	0	2
Smoking		0	0	0	0	0	0	1	1	0	0	2
Chatting/Visiting		0	0	0	0	0	0	0	6	4	2	12
Total		0	0	0	0	0	0	10	15	4	2	31

These tables provide a detailed account of the observed behaviors. When totaling all four behavioral classes, the 164 persons observed during field work are represented. Some classifications were easily made while others required some discretion to determine a subject's primary activity. Some people displayed multiple behaviors simultaneously or altered activity during the observation period. For example, one subject arrived to a house, walked from the car to the driveway and proceeded by wheeling the trash bin into the garage. This behavior can be classified as walking or working.

Clearly the behavioral classes used to categorize the observed actions are not exclusive. For this thesis, each observed subject was limited to one behavioral class. This limitation was implemented to avoid the possible inflation of some behaviors. Overall, only six observations required a distinction to be made between observational classes. It also worth noting that some behavior was noted from a distance possibly leading to missed information.

Outside of the behavioral and demographic observations described above, social interactions between people was recorded. In total 26 interactions were observed. Interactions ranged from 2 to 4 persons. All but one 3 or 4-person interaction was between children or teenagers. Only one interaction crossed age groups (child to adult), all other social interactions were limited to all adults or all children. Other than one hired mover interacting with a homeowner and one group of 4 children, all observed interactions were within the same racial/ethnic group.

Interactions were classified as sitting, standing, walking, or activity based. Fourteen of the interactions were activity based. Greater specificity of the activity or behavior is noted in eight subgroups. The remaining twelve interactions are separated by the physical stances taken by the participants. Four interactions took place while subjects were seated, three while standing, and five while walking. Please see Table 4.9 below for details.

Table 4.9. Observed Interactions

Interactions	Visit	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	Total
Sitting		0	0	0	0	0	0	1	1	2	0	4
Standing		0	0	0	0	0	0	0	2	0	1	3
Walking		0	0	0	1	0	1	1	0	2	0	5
Activity		0	4	1	0	2	1	4	1	1	0	14
ball sport		0	0	0	0	0	0	2	1	0	0	3
working on car		0	1	0	0	0	0	0	0	0	0	1
hired work		0	0	0	0	0	1	1	0	0	0	2
playing on stairway		0	0	0	0	0	0	0	0	1	0	1
playing in alley		0	1	1	0	1	0	0	0	0	0	3
roaming street		0	1	0	0	0	0	1	0	0	0	2
roaming park		0	0	0	0	1	0	0	0	0	0	1
cleaning up		0	1	0	0	0	0	0	0	0	0	1
Total		0	4	1	1	2	2	6	4	5	1	26

4.3.2 Qualitative Findings

Each site visit included behavioral mapping which allows for a spatial understanding of people and place. Site maps were used to track the demographic and behavioral data represented above. Utilizing data points from all ten visits, composite maps were created as analysis tools and visual representations. These maps are used to apply the collected information to the concept in question, vibrancy. All composite maps can be found in the Appendix.

To aid in the understanding of connectivity/linkage, commuters from the LINK light rail are mapped. A composite map for the observed property care (garden/trash) directly connects to the property/space pride aspects of vibrancy. Composite maps of demographic patterns, both age and race/ethnicity, provide an insight into the community identity facet of vibrancy. A composite map of all people observed sheds light to the dispersal and variety of amenities category. All in all, these composite maps provide visual tools that aid the analysis of vibrancy. This analysis is discussed in the next chapter. Please see appendix for composite maps.

Considering age demographics, it is interesting to recognize that only children utilize the central park area, and with the exception of one kid, children were only seen in the central park on the west side of the study area. Additionally, most children/teenagers did not use the formal walkways but rather they ran in streets, alleys, and across landscaping. Finally, observations revealed that the formal play equipment was never used during site visits, rather kids played informally in alleyways and streets. No one was ever seen using the smaller play spaces located along 39th Ave S. These patterns may connect to factors noted earlier including built environment trends and housing types. The housing type in the area populated by the observed children is mostly that of row houses. Despite sufficient and well-maintained walking paths and sidewalks, children/teenagers hardly used this infrastructure. Lastly, the clear demographic clustering shows a spatial divide (Appendix D) that correlates to the housing type and design division explained earlier.

Another age trend was seen with the elderly group, people estimated to be 65 or older. These persons all utilized the formal, available walking infrastructure and were spread throughout the study area. Most elderly people were observed as walkers or engaged in property care. This was the only age group never classified as roaming or observing. Observations also revealed no elderly persons interacting with other people.

Another pattern emerged with the observed LINK light rail commuters. The persons walking from the light rail stop near New Holly were almost exclusively returning to houses along 39th Ave S: the single family, market rate homes. All but one light rail commuter returned to houses in the northern half of the study site, the side closest to the LINK light rail stop. These observations suggest that few persons within New Holly are utilizing the community as a transit-oriented development. A hypothesis supported by the fact that most observed commuters were drivers not transit riders. Consistent car traffic and heavily utilized street parking within the study site further support this explanation. The fact that most transit commuters returned to 39th Ave S suggests that light rail use is limited to this people group. A group observed to be mainly Asian adults living in market rate homes (Appendix E and H).

Racial/ethnic patterns also emerged both in respect to age group and spatially. No Hispanic or White children were seen. The racial/ethnic classification of Asian was most commonly seen along 39th Ave S, the market rate homes. The largest racial/ethnic group (82 people) was the African American, this constitutes half of all people observed. Spatially, composite maps show this group clustered toward the eastern and northern edge of the study area (Appendix J). These trends and spatial patterns are further explored in the next chapter and considered in the discussion of the four components of vibrancy.

Chapter 5. DISCUSSION: VIBRANCY IN NEW HOLLY

In this chapter I analyze vibrancy as a component of walkability. Utilizing New Holly as a case study I explore the intangibles of walkability. Using both my field work and literature, I analyze the findings, patterns and trends, introduced in the previous chapters, and apply them to the four-component vibrancy framework explained in chapter 2. The aim is to understand and explore the vibrancy part of walkability. Specifically, I am asking, 'How walkable or 'vibrant' is New Holly?.' The larger inquiry is an understanding of walkability that includes more than the quantified, physical parts of a walkable environment. See Figure 5.1 for a graphic representation of the concept for this study.

As previously stated, I have defined walkability as a two-part phenomenon. These two parts are accessibility and vibrancy. Accessibility refers to the tangible, distinct components that provide a pedestrian-friendly environment. With the term vibrancy, I am referring to the aspects of walkability that are not defined by a singular physical component and are not necessarily bound to one specific factor or characteristic. Aspects like the pleasure of walking, the desire to walk, the positive externalities associated with walking (lively community, social cohesion etc.). For the vibrancy component of walkability, I have identified four categories: connectivity/linkage, dispersal and variety of amenities & destinations, community identity and property/space pride. These categories are reflective of both the literature review and my own understanding of the intangibles of walking. Within the realm of this thesis, I am focusing on the vibrancy part of walkability.

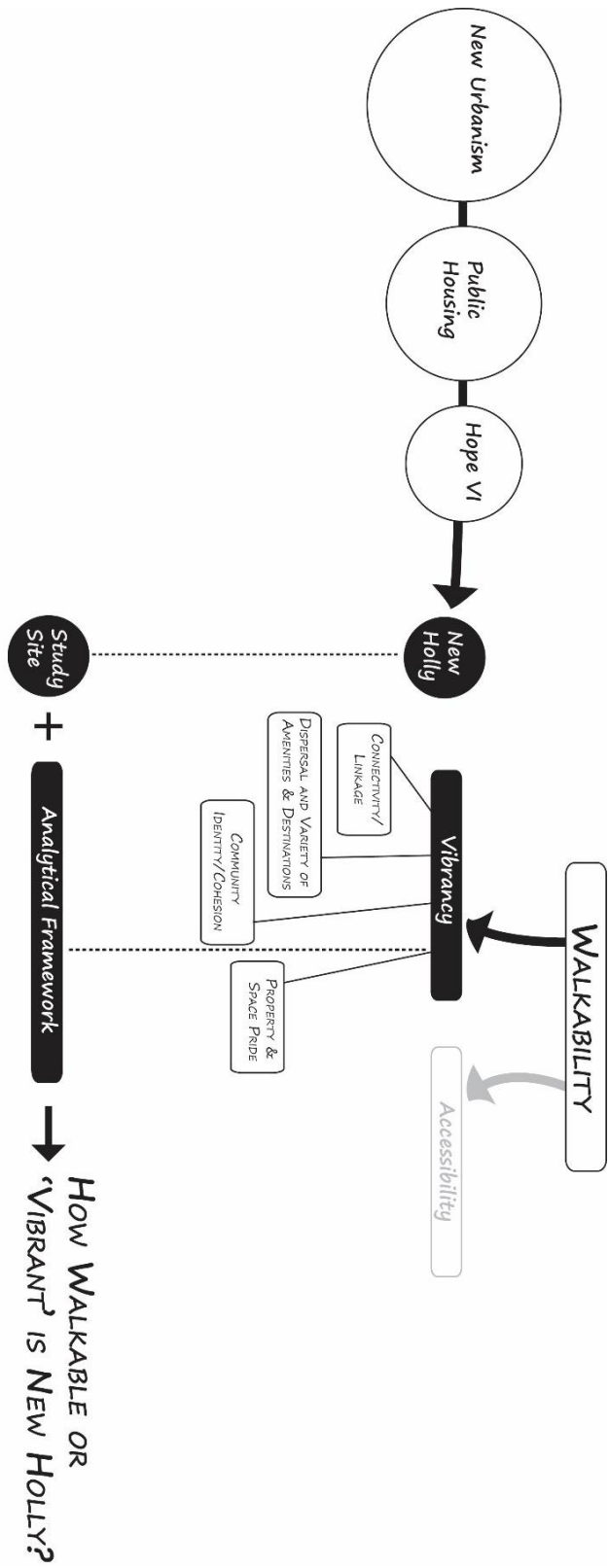

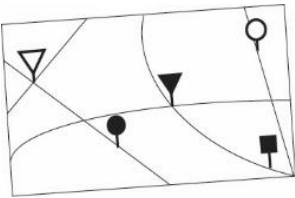

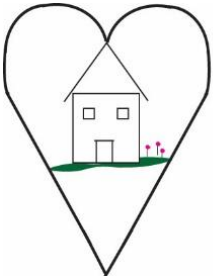


Figure 5.1. Conceptual Framework.

Table 5.10 provides an overview of the four categories of vibrancy. These were identified through the previously discussed and introduced in chapter 2.

Table 5.10. Four facets of Vibrancy

<i>Connectivity/Linkage</i>	<i>Dispersal and Variety of Amenities & Destinations</i>	<i>Community Identity</i>	Property/Space Pride
<p>referring to the inward and outward (of study area/neighborhood) connections to amenities and destinations. Connections include physical, visual and lifestyle links.</p>	<p>meaning that public spaces, areas, and uses are spread out and people are not all necessarily drawn towards the same direction or area. Amenities and destinations are varied in type and link to both the study area and the community as a whole.</p>	<p>sense of place or unique aspect to an area; common or standardized design does not outweigh the individual or community. Identity is recognized by personal touches to homes, distinct design, or artwork. A sense of home or grounded connection to an area and the neighborhood.</p>	<p>referring to community care of both private and public spaces, pride demonstrated by using trash bins/services; maintaining housing; keeping up with gardening; and removing nuisances. As well as the enjoyment and active use of public spaces and amenities.</p>
			

The distinction between amenities and destinations is not complete; however, I see the two as different. Either can be permanent or temporary. With the term amenities, I am referring to lifestyle spaces/areas or practical spots, such as green spaces, play areas, community

gardens, or transit stops. Destinations are often buildings and generally serve a larger geographic area. Examples are retail stores, employers, churches, schools, libraries, or community centers.

In the following section, each of these four components is discussed and applied to the study site. Site visit observations, mapping, and photographs are used to examine the extent to which the study area and the neighborhood embody each of these components. Within each section, both the study site and the neighborhood are given a relative score of negative (-), neutral (0), or positive (+). This scoring is intended to provide an overview of vibrancy in New Holly. This rating system provides an applied understanding of the aspects of walkability under examination in this thesis.

5.1 CONNECTIVITY AND LINKAGE

This component of vibrancy examines the connections/linkages into and out of the study area. Connectivity/linkage refers to the physical, visual, and lifestyle-supporting connections between places. Physical referring to connected, well-designed transport infrastructure. Visual linkages could either be wayfinding signage or elements of the built environment that provide curiosity and/or ease for walkers. Lifestyle linkages are a result of activities or places that share a unified interest or characteristic. Lifestyle connections or lifestyle-supporting connections are links between places or spaces that support a specific aspect of living. These might be a collection of food sources that work in conjunction, like a bakery, fruit/vegetable stand, and butcher shop. Alternatively, this could be a combination of assets that support intellectual well-being like an educational center and library. A lifestyle connection may also be cultural, in that numerous business in close proximity cater to the

needs of a specific social group. These types of connections or links are not exclusive; a connection between amenities may very well have a physical, a lifestyle and a visual link.

Connectivity/linkage is one of the four components of vibrancy. To examine this component in New Holly, consideration is given to both the study site and the surrounding neighborhood. Additionally, physical barriers and distances are examined. The consideration of distance is taken from a pedestrian perspective. Table 5.11 provides the scoring for New Holly in regard to connectivity and linkage. Detailed analysis for this rating, including specific observations and trends, is provided in the following discussion.

Table 5.11. Connectivity and Linkage Rating for New Holly

CONNECTIVITY/LINKAGE	Physical	Visual	Lifestyle	Overall Rating
Study Site	+	0	0	0
Neighborhood	0	—	—	—

Within the study site, the various amenities are well connected. There are two small public spaces or play areas located between houses along 39th Ave S. These areas are paved, open spaces designated as play areas (Figure 5.2). They are physically well connected to the street and sidewalk network. Visually, they are connected to the neighborhood by signage and linked by the view corridors created by S Holden St and S Austin St. The p-patch, play structure, basketball courts, benches, and grass areas are all accessible by pedestrian infrastructure. These amenities are also visually connected by signage in the area and view corridors created by area walkways, alleys, and cross streets. These features are all related to outdoor recreation linking them as part of a defined lifestyle.



Figure 5.2. Small, paved play area within study area (source: Author).

The only other amenities in the study site are an in-home daycare service and a bus stop. The daycare is located in a house adjacent to the central park. This service is well-connected by the pedestrian and vehicle infrastructure, creating a physical link. Its proximity to the park provides a potential lifestyle connection with the park's play structure, an amenity geared towards children. A visual connection is irregularly present when the provider places an A-frame sign on the sidewalk. Overall the physical connectivity within the study site is strong.

Connectivity from the study site to the New Holly neighborhood as a whole is limited. Some undeveloped land, a large thoroughfare, and inconsistent walking infrastructure reduce the site's connectivity to the surrounding community. North of the site, between S Holly Park Dr and S Othello St, a large undeveloped lot acts as a barrier between the residents of the study site and commercial destinations. These commercial amenities include a grocery store, a feature commonly referred to as essential by planning experts. Experts cite a grocery store as critical when describing and analyzing livable areas, walkable neighborhoods (Southworth 2005; Lindeloew et al. 2014).

This commercial hub is between 0.1 and 0.4 miles away, a walking distance within the commonly accepted 0.5 mile walkshed. A distance that can be covered by most people within 10-15 minutes. Despite this proximity and the physical linkage provided by sidewalks and crosswalks, the connectivity is poor. The visual linkage is poor with an expansive, littered, and empty lot being the main perspective of walkers traveling from the study site towards the commercial amenities. Nothing frames the pedestrian's view and the walking scape changes in quality. A lifestyle connection is not found as the walking infrastructure and the commercial area do not elicit a link to the study site residents.

The environment alongside the footpaths changes from tree-lined and groomed to undeveloped and littered as one exits the study site and walks towards the commercial amenities. This exposes pedestrians and reduces the pleasure of walking. This design change does not unify the area and creates a division between the site and the nearest destinations. The side of the commercial development facing the study site, predominately features car parking. A banking branch is set back behind said parking and requires walking

patrons to either walk through the parking lot or to utilize a circuitous sidewalk path. The area's grocery store does not face towards the residences, instead the building's side without a door or cart corral is visible to the study area. The store's signage is also not directed towards the housing area, creating a limited visual connection. Other commercial amenities are behind or beyond the bank and grocery store, limiting the amenity linkage for the study site.

As a revitalization project funded with some federal monies, the New Holly neighborhood was built with a redevelopment plan that aligns with federal regulations written for the HOPE VI program. This redevelopment plan explicitly focuses on reconnecting New Holly to the area. The plan states, "Streets were redrawn to reconnect to the area's street grid and New Urbanist planning and design principles were applied" ("Seattle Housing Authority" 2017). With this redrawing of streets, the connectivity aspect of walkability, a new urbanist ideal, is addressed. While the basic physical link from the study site to the neighborhood is present, it is not a sufficient link to create the walkability ideal prescribed by New Urbanist design and the New Holly Redevelopment Plan. The redevelopment plan acknowledges that housing and physical redevelopment alone do not suffice and has added, "community services, parks & opens spaces, and light rail connections [to] benefit the entire neighborhood" (Seattle.gov 2017a). These destinations and amenities also relate to the connectivity/linkage of vibrancy as they are intended to connect the people of New Holly.

The New Holly neighborhood campus includes multiple destinations and is situated along S Myrtle Pl, northwest of the study site. The amenities include a learning center, a Seattle Public Library branch, classrooms for South Seattle Community College, Head Start, a pre-

school, youth tutoring, employment programs, outdoor play areas and sport facilities (Seattle.gov 2017b). From the study site, the walking routes to this cluster of amenities is between 0.4 to 0.7 miles, depending upon a patron's starting location. This distance is close to and above the 0.5 mile walking threshold referenced earlier. The physical connection to the neighborhood core from the study is reduced by these relatively long walking routes. There is no visual link to these amenities from the study site as one cannot see the neighborhood campus from the study site and no wayfinding signage is found within the area. A lifestyle linkage is not evident as the walking routes to the neighborhood campus are either along the large undeveloped lot and a busy road or the Chief Sealth Trail which creates a slightly longer path and still requires some contact with traffic. See Figure 5.3. Neither pedestrian route is well-linked to the study area.

Another neighborhood connectivity consideration is that of transportation. As previously said, the walking infrastructure is linked to the greater New Holly area but lacks in quality. The walking paths north of the study site are either next to a busy thoroughfare with a minimal landscape buffer or a littered lot with irregularly shaped, curb-less asphalt walkways. Neither of these options provide a service level or walking experience similar to that of the study site. This incongruence in the walking infrastructure decreases the physical and visual connectivity between the study site and greater New Holly. Additionally, this built environment heightens the lack of security and safety. Lastly, there is no signage in regard to the nearby Chief Sealth Trail, reducing general connectivity.

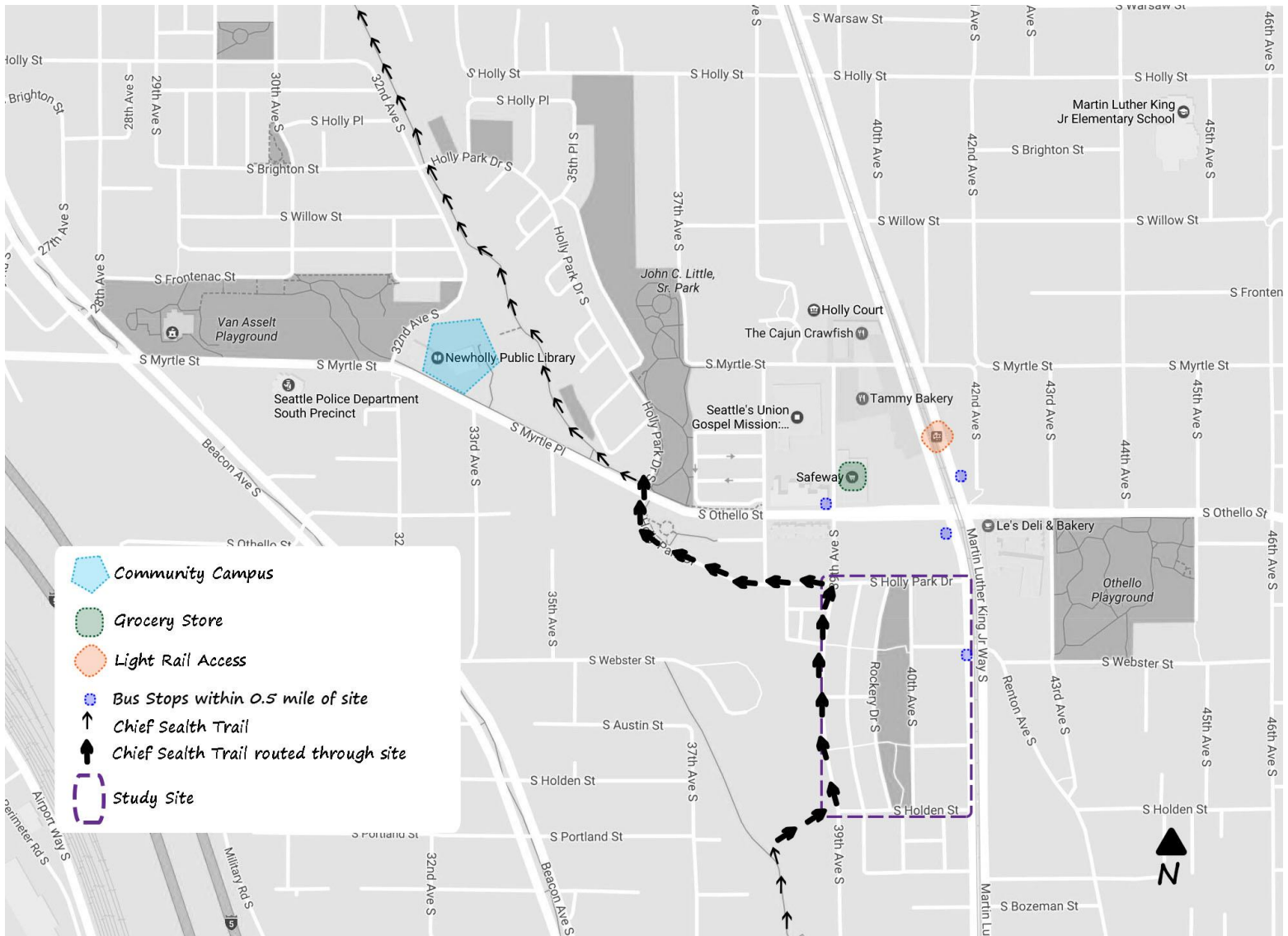


Figure 5.3. Study site assets related to Connectivity/Linkage.

Outside of the one bus stop found on the eastern edge of the study site, there are three additional bus stops and one light rail station available within greater New Holly and a 0.5 mile walkshed of the study site. Two of the bus stops are located across S Holly Park Dr, north of the empty lot previously discussed. The third bus stop and the light rail station are northeast and require pedestrians to cross both S Holly Park Dr and MLK Jr Way S, a crossing that can be lengthy depending on the timing of the traffic lights. These transit mode

access points are all physically linked to the study site with limited success since the walking infrastructure is variably successful. Visually only passing trains and buses relay the transit linkage to the area. No signage is found to indicate transportation options, limiting the visual connectivity of transit to houses and persons with a view of the stations or mode.

Regarding lifestyle connectivity, active and public transit modes are not well connected to the study site. Cars and driving are well-established as the expected transportation mode. This expectation is reinforced by front driveways and garages along 39th Ave S.

Furthermore, ample street parking and designated alley parking support driving. This automobile preference is also evidenced by the fact that 62% of the commute walkers observed, a result from the classification of the site observations, are walking to/from cars rather than connecting to other transit modes.

Overall, the linkage and connectivity of the study site is acceptable for both the visual and lifestyle connectivity as it is available but inconsistent. The physical connectivity within the study site is good with the walking infrastructure being plentiful and well-maintained. At the neighborhood level, the walking infrastructure varies in both type (asphalt/cement) and quality (smooth/cracked). The visual and lifestyle linkages between the neighborhood and study site are lacking. Some of the visual or lifestyle connections to spaces and amenities that lie near the study site are disrupted by the large, empty lot situated directly north of the study site. This lot and its position tie to the lack of connectivity between the neighborhood and the study site.

5.2 DISPERSAL AND VARIETY OF AMENITIES

The dispersal and variety of amenities or destinations is the second component of vibrancy. This component focuses on the placement and type of amenities and destinations available. Availability is not limited to the study area but also regarded with respect to the surrounding area and neighborhood. Considerations of this aspect also includes the movement pattern and accessibility of identified assets. To understand this component, observations of the quality and type of physical environment, and behavior trends are considered. Furthermore, observed demographic trends are included in this analysis of the availability of amenities. Table 5.12 gives a rating for this component, followed by a discussion and detailed explanation for this scoring.

Table 5.12. Dispersal and Variety of Amenities & Destinations Rating for New Holly

AMENITIES/DESTINATIONS	Dispersal	Variety	Overall Rating
Study Site	—	—	—
Neighborhood	—	+	0

Most of the amenities found within the study area are in the central park and are created for play. This placing creates an inward pull and limits users to a specific demographic. The smaller, paved play areas, along 39th Ave S are not central to the study area, and were never used during any of the field observations. The central park includes multiple amenities, but only the benches and basketball courts were ever used during field observations. This observed use was exclusive to children/teenagers. Only two of the five race/ethnicity classifications, African American and Other race/ethnicity, used the central space. Daycare and bus stop usage was not seen or noted and are difficult to account for

without extended observations. Finally, Chief Sealth Trail, re-routed along 39th Ave S, saw some activity from cyclists and runners; these users were all white adults. These use patterns beckon the question of amenity diversity, placement, and quality.

At the neighborhood scale, New Holly has numerous destinations and amenities. One of these is the New Holly neighborhood campus which includes multiple features. The campus is clustered in the northern portion of New Holly along S Myrtle Pl. The study site comprises most of the area southeast of S Myrtle Pl. It is the only section of the neighborhood required to cross a large arterial (S Othello St) when connecting to neighborhood amenities; this limits access. This limitation extends to all greater New Holly amenities including the community campus, stores, restaurants, and public parks & playgrounds.

The green space found within the study site is not listed as an official public park (Seattle.gov 2016). An intention for the central park green space is not given beyond the provision of multiple, open space throughout New Holly (Seattle.gov 2017a). Two green spaces in the neighborhood are listed as official Seattle parks and border S Myrtle St/S Othello St, the neighborhoods main east/west arterial. Just beyond the neighborhood boundary, to the east of MLK Jr Way S, another city park, Othello Playground, directly abuts to this arterial. As city parks, these three spaces are maintained and cared for by the city and generate a sense of investment by the city. Furthermore, as a part of the city's park network these areas include a greater variety of amenities such as wading pools, tennis courts, soccer fields, baseball fields, grills, adult exercise equipment and restrooms.

These three parks generate a network of green spaces along the major arterial running through New Holly, a network that does not include the study site. The park edges bordering onto S Myrtle St/S Othello St create access points to green spaces and draw people into the neighborhood. Bordering onto the main neighborhood street exposes these parks to patrons, allows persons to see activity and to recognize other users, potentially creating interest to join or explore the area. See Figure 5.4.

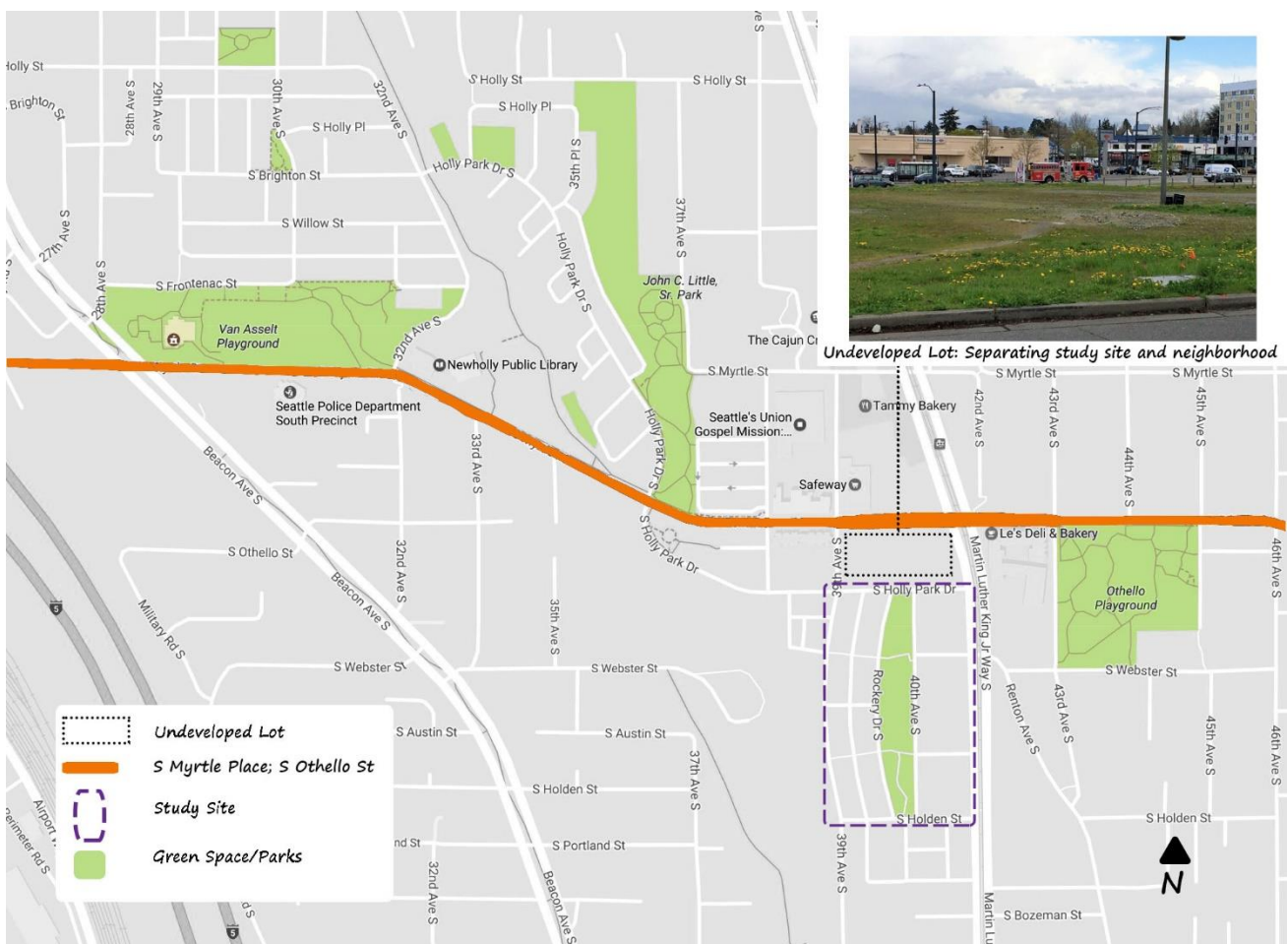


Figure 5.4. Green space locations in the neighborhood.

The entire northern edge of this street is lined with amenities and destinations, outside of the green spaces, there are transit stops, commercial opportunities, and the Chief Sealth Trail.

The study site lies south and its green space does not abut onto this neighborhood arterial, rather it is set back by one block. This block is the previously mentioned, littered and undeveloped lot. This spatial separation and unkempt land barrier isolates the study site and separates it from the numerous amenities described above. While this physical separation is part of the issue, the clustering and spacing of the available amenities intensifies this isolation. The amenities described above are all located north of the main road running through New Holly. Despite the fundamental 0.5-mile walkshed criteria being met for most residences in the study area, the amenities are not sufficiently dispersed and varied. See Figure 5.5.

areas of New Holly. This could minimize the barrier created by the large street running through the neighborhood.

The smaller, paved play areas in the study site (along 39th Ave S) are currently underutilized and the use of the large green space is limited to a specific age group, children/teenagers. Re-purposing the smaller spaces to uses or purposes appealing to residents on the western side of the study site may prove successful. As the field observations and behavioral maps show, there is a distinct spatial pattern for youths and children and it does not include interaction or movement along 39th Ave S (Appendix D). Children seen in the central green space did not engage with the provided the play structure. Formalized play observed, was limited to the use of one of the basketball courts. Informal play was frequent and observed within alley and street spaces. Acknowledging this behavior trend, reconsidering the purposes of these smaller parks and changing the target audience is appropriate.

During observations, the centralized green space saw some activity, but some parts were always noted as inactive. These inactive amenities include the p-patch and the play structure. Both of these features are located at either end of the large central green area. The central green area with few trees and its expansive size creates a feeling of vulnerability when walking through the area.

On a larger scale, a sense of enclosure is created by the buildings and trees found along three sides of the central area, while the fourth side is without structures or landscaping, creating a void. Considered together, the use of space with respect to demographics and

behavior suggest that the current amenities are not well used and only serve a portion of the residents.

All in all, the placement, size, and type of amenities found in New Holly do not serve the study site residents well. Restructuring the amenities within the study site to support the observed behavior may better serve the community. Additionally, connecting the area's open space to the park corridor created along S Othello St by the adjacent city parks would decrease the physical isolation of the area.

5.3 COMMUNITY IDENTITY/COHESION

This third component refers to a sense place or identity generated by a given area. The idea that the design complements the people of the community and creates social cohesion. An acknowledgement of community being more than the built environment; rather a characteristic inclusive of the physical setting and cultural identities found in a given area. To explore this component behavior observations, demographic data, the built environment, and spatial patterns are examined. With this analysis, an understanding of the community identity within the study area is created. Table 5.13 shows the Community Identity/Cohesion rating for New Holly. The explanatory discussion follows.

Table 5.13. Community Identity/Cohesion Rating for New Holly

COMMUNITY IDENTITY/COHESION	Overall Rating
In Study Site	—
Within Neighborhood	—

No Asian, Hispanic, or White persons were ever observed in the central green space. This appeal to a limited demographic is interesting and the observed racial/ethnic make-up of the community offers some insight. Generally, the racial/ethnic pattern seen reflects that of the study area as a whole. No White or Hispanic children were ever seen on any site visit. This is explained by the very few Hispanic persons seen and the fact that the white people observed were predominately hired services (tow truck, appliance repair, moving service) or passing through via the trail re-route (biking, running). Despite making up 21% of the observed persons, not a single Asian person was seen in the central park. This statistic is notable. See Table 5.14. Most Asian people were observed along 39th Ave S, the market rate housing. All but two Asian persons observed were adults. With these findings, one can see that the demographic group dominating the central area, children, is not well represented amongst the Asian demographic.

Table 5.14. Racial/Ethnic makeup of observed subjects by percentage

Racial/Ethnic Group	Total	Percentage
African American/Black	81	49%
White	14	9%
Asian	34	21%
Hispanic/Latino	6	4%
Other	29	18%
Total	164	100%

All racial/ethnic groups showed distinct spatial preferences as seen on the composite maps. (Appendices H-K). African Americans were found on the eastern side of the study area, including the central park. White persons were mostly seen moving through the area along 39th Ave S, and a few white persons were seen along the sidewalks in the central area. Hispanic persons were seen in the middle part of the study area along 40th Ave S. Most

Asian persons seen were found along 39th Ave S with some (mostly elderly) also walking in the middle part of the study area. The final racial/ethnic classification, other, was seen along the western side of the area with a few using the central park, as well as the northern and southern edge of the study area.

These spatial divides suggest cohesion and clustering amongst the varying racial/ethnic groups. The factors attributing to this clustering are uncertain. A clear correlation is seen between market rate housing and Asian persons. Public park usage is primarily associated to African American people. A clear west and east side divide is present, with some mingling along the walking infrastructure found in the center of the area. All use of the central area and almost all interactions observed were limited to the intra-racial/ethnic activity. The only exceptions were one group of children including both Asian and African American youths and a hired service staff conversing or working with residents.

These demographic patterns provide some indication of the resident's connection to the community. Signage in the area and neighborhood clearly market the area as one community, New Holly. The objectives listed by the Seattle Housing Authority align with the social cohesion and community goals prescribed by New Urbanism. The Seattle Housing Authority's Redevelopment Plan for New Holly states,

Housing was designed to bring together the people of the neighborhood as well. Narrow streets slow traffic and front porches located closer to the street give residents a good excuse to trade greetings and share experiences. Low fences around private back yards provide each household a sense of security and ownership of their own space, but still allow for visibility and conversation with neighbors. (Seattle.gov 2017a)

This statement refers back to the New Urbanist intention of using design to create social cohesion and community. But observations did not reveal the desired behavior described above, as no cross-cultural conversations or interactions were observed outside of the children and hired service staff mentioned earlier. The housing design and quality in the area varies significantly. The New Holly porches, hyped as interaction generators are not all equally true porches. Along 39th Ave S, half of the homes have balconies that are up one story and set back from the street. See Figure 5.6. A driveway, garage, and multiple stairs distance these balconies from the sidewalk and other neighbors. This distance counters the New Urbanist idea of social interaction being supported by front porches.

On the other side of this street, the houses do not have garages and sit closer to the sidewalk. These homes all have front porches. These porches are all cement and of similar size (approximately 6-8 feet wide and 3-4 feet deep). There is some variety in terms of fencing and landscaping. Within the study site, these porches are closest to the type described and suggested by New Urbanist design. With their proximity to the sidewalk and low or no fencing, these porches represent the social engagement space suggested in the New Holly redevelopment plan. Throughout the ten site visits, no social interaction was seen along this side of the street, on these porches, or between neighbors.



Figure 5.6. Balconies and Porches along 39th Ave S (source: Author).

Along the next street, Rockery Dr S, the front porch design changes. The size is reduced significantly; some are now made of wood and some are more like a landing. While still close to the street, these homes have ‘porches’ enclosed by 2-3 walls rather than fencing. Furthermore, some of these significantly smaller front spaces are shared between two housing units. Additionally, the homes along this street are row houses with some having a second story unit access via a stairway. The stairs leading to the ‘porches’ along this street are also wooden and have not held up well in the region’s weather. This leads the stairways and porches along this street to be less attractive. With wear and tear these ‘porches’ do not inspire one to want to spend time in this space. See Figure 5.7.

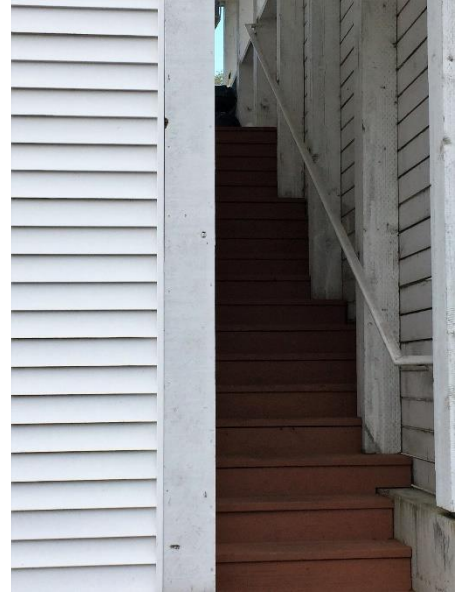


Figure 5.7. Porch stairs and second-story stairway with noticeable tear and wear (source: Author).

As one continues to walk through the area, along 40th Ave S and MLK Jr Way S, the housing continues to be row style. The majority of the porch designs are shared, but variations in the 'porch' styles are found. These variations include cement slabs or wooden, fenced in porches. See Figure 5.8. The trend of wear and tear also continues throughout the area.

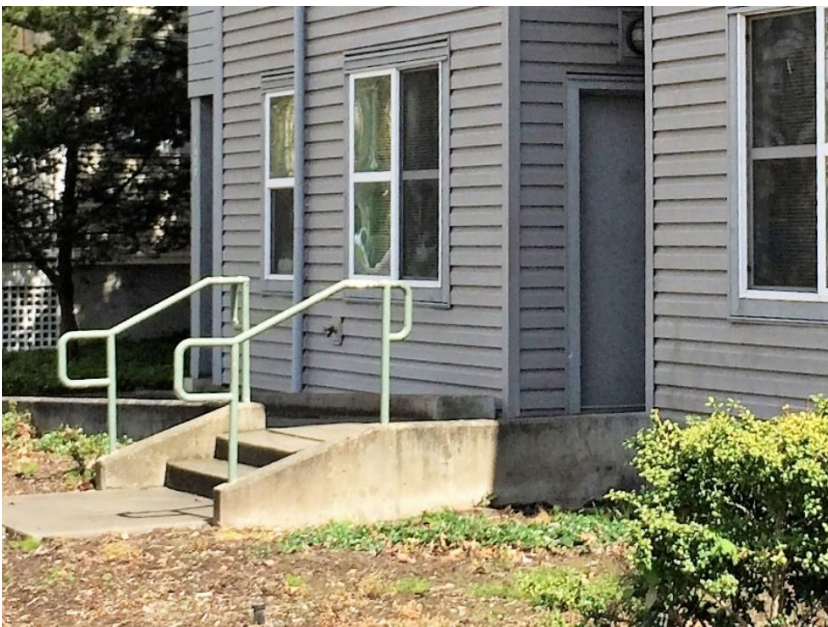


Figure 5.8. Examples of shared porches in study area (source: Author).

During observation, two interactions were observed on the porches along 40th Ave S. Both interactions were between adults of the same racial/ethnic group (Hispanic and African American). The design and quality of the spaces or 'porches' utilized for these interactions is significantly lower than that of the market rate housing. Yet, these are the spaces in which social interaction was seen. This finding lends itself to questioning the importance of design when seeking social cohesion. The intent of neighbors interacting or socializing with each other was not observed across races/ethnicities, age, or socioeconomic classifications. Does this indicate a failure of design or unreasonable expectations for social cohesion via changes in the physical environment?

The entire neighborhood of New Holly, including the study site, was redeveloped with New Urbanist design ideals. Within the study site, the building design feels forced or sterile, especially among the row housing. A unity or commonality that isn't true of the residents is displayed by the physical structures. Observed interactions and spatial patterns of people support the conclusion that the built environment has not created a community. At the neighborhood scale, a community campus was built to provide a community hub. The presence of this centralized community point is not noticeable in the observations of the study site.

There is some signage indicating or suggesting that the study area belongs to a larger community. See Figure 5.9. No explicit mention of the community campus is made in any of the signs seen in the study area. No person was observed walking to or from the community center. In fact, there was hardly any walking behavior observed into or out of the study area, with the exception of 14 people observed as walking commuters from the LINK light rail to

the study site. No one was seen walking to the LINK light rail, which may be due to the timing of the observations (all site visits were done in the afternoon/early evening).



Figure 5.9. Study area signage.

Taken together, the racial/ethnic divisions, behavioral trends, and design features observed all point toward multiple social identities. The community is not primarily defined by a social unity formed between study site residents. Nor does the study site appear to be part of the greater New Holly. Separation and division between people groups is demonstrated by the field observations. There are behavioral trends associated to age groups as well as racial/ethnic groups. Design efforts to limit these stratifications have fallen short as the composite maps show spatial patterns following these trends. This finding leads one to question whether or not we should be design for social cohesion.

Beyond this spatial and social clustering, the area lacks identity. This lacking is manifested by the sterility of a singular, idealistic design pressed upon a large development. A development intended to serve a variety of people groups and needs. As an example, the requirement of ‘porches’ has led to some rather incomplete and odd design choices.

The commitment to New Urbanism in this revitalization has prescribed a way to achieve community identity and social cohesion. This prescribing has not left room for the organic and natural development of community identity, a cherished and praised characteristic of walkable areas. The concept of community identity has been established as a necessary component of lively, livable places (Talen 2002; Southworth 2005; Forsyth 2015; Congress for the New Urbanism 2017). As stated by Zook, “walkability and urban liveliness are not the same thing, nor does the presence of one guarantee the presence of [the] other” (Zook et al. 2012, 232). However, these two notions are likened by the movement of New Urbanism, a supposition underlining this thesis. This connection specifically ties to the community identity component of vibrancy.

5.4 PROPERTY/SPACE PRIDE

The fourth facet of vibrancy is the acknowledgement of the basic investment in or care of personal and public space. This is a basic need to create useful, active, and vibrant spaces in a community. Members of the community feeling connected to and a part of a physical area. In order to explore the pride of property and space in the study site, behavior attributed to property maintenance was observed and tracked. Additionally, the personal touches or investments seen around homes were noted. Furthermore, the study site’s built

environment trends relating to property care/pride are considered. Table 5.15 gives a rating of property/care space. Details and an analysis of this scoring are provided in the following text.

Table 5.15. Property/Space Pride in New Holly

PROPERTY/SPACE PRIDE	Private spaces	Public spaces	Overall
In Study Site	0	0	0
Border of Study Site	N/A	—	0

During ten site visits, a total of 11 people was seen engaged in property care. For this thesis, property care is defined as one of two behavior groups (Trash, Garden) within the domestic work behavior classification discussed earlier. See Table 5.16. Considering these as partial proxies of property/space pride, there is a trend signifying higher property pride along 39th Ave S. This is the street with the free-standing, market rate houses.

Table 5.16. Domestic work observed and noted as a proxy of property care

Domestic Work	Visit	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	Total
Trash		0	4	1	0	0	0	0	2	0	1	8
Moving Bin		0	1	0	0	0	0	0	2	0	0	3
Picking Up		0	3	1	0	0	0	0	0	0	1	5
Garden		0	0	0	1	0	0	1	0	1	0	3
Pruning/Planting		0	0	0	1	0	0	0	0	1	0	2
Weed whacking		0	0	0	0	0	0	1	0	0	0	1
Car Maintenance		0	2	0	1	0	0	0	0	0	0	3
Moving Boxes/Furniture		0	0	0	1	0	0	1	0	0	0	2
Hired Help/Service		0	0	0	0	0	2	1	1	0	1	5
Total		0	6	1	3	0	2	3	3	1	2	21

Outside of this behavioral pattern, building trends were noted. Greater wear & tear was seen amongst the row housing. Worn-out siding, faded paint, and poorly maintained houses and landscapes were prevalent in the affordable housing portion of the study site. This trend suggests less care and pride in homes when compared to the other houses within the study site.

One conceivable explanation for these observations is a lack of permanence felt by some residents, a possibility suggested by some analysts of public housing developments (Coley, Sullivan, and Kuo 1997). Others suggest that a person may not feel connected, invested, or knowledgeable in regard to maintaining a home, thereby reducing the feasibility of investing time, money, or energy into the physical upkeep of a home (Santiago and Galster 2004).

Another pattern noted was that of beautifying or personalizing one's home, a pattern found along 39th Ave S. Items like lawn ornaments, doormats, planters, and door décor resulted in a reduction of the monotony and sterility of the built environment. Decorative accessories like this may represent a person's investment or pride in their home or space. Decorating one's housing to create a sense of home is again tied to a person's investment in their space. A correlation that isn't seen with people who do not consider their residence a home or do not see themselves as part of the community. This idea of defining a sense of space via beautification may be culturally limited. Furthermore, the design and layout of these homes is prescribed to fit a property ideal based on the cultural identity and understanding of New Urbanists. This mono-cultural design and community idea may hinder some people's ability to invest in their property or space.

There are multiple public spaces within the study site, these are generally well-maintained. Exceptions being the p-patch and one of the basketball hoops. The p-patch appears unkempt and the net on the basketball hoop was missing. See Figure 5.10. These findings did not change between the first and last visit, a time of nearly two months. Although the study area as a whole was littered, this was limited to private spaces and undeveloped areas. This trend suggests some community ownership or pride in the public spaces of the study area.



Figure 5.10. Unkempt community assets: missing net and inaccessible p-patch garden (source: Author).

An interesting pattern noted in regards to space and property care, was that of an increased presence of trash and junk on the perimeter of the study area. The geographic boundaries of the New Holly redevelopment are visibly defined by litter. Abandoned shopping carts, pieces of trash, garbage bags, a broken fence, as well as the undeveloped land create a boundary around the study site. This trend of litter and rubbish creates a border that spatially

separates the area from the neighborhood. This boundary of rubbish was consistently present throughout the entire observation period. See Figure 5.11.



Figure 5.11 Study area photos representing the observed pattern of litter and materials found on the perimeter of the New Holly development (source: Author).

Altogether, property pride and space in the study site is inconsistently present. Most of the homes along 39th Ave S displayed home beautification and maintained properties; while the remaining houses in the study site were to, varying degrees, unkempt or run down.

Behaviorally, only 11 out of the 164 people observed were engaged in property care. This number may not be representative of the actions associated to home or property care given the limited observational periods and the sporadic nature of property care. Lastly, the public spaces in the area were well-kept.

5.5 OVERALL VIBRANCY IN NEW HOLLY

The four components of vibrancy reviewed here create a comprehensive idea of the study area's vibrancy in respect to walkability. The observed behaviors and physical elements of New Holly applied to the four components lead to the finding that the overall vibrancy is negative. See Table 5.17.

Table 5.17. Vibrancy in New Holly

VIBRANCY	Study Site	Neighborhood
Connectivity/Linkage	0	—
Dispersal & Variety of Amenities/Destinations	—	0
Community Identity	—	—
Property/Space Pride	0	—
Overall	—	—

Considering the equating of community to walkability as is done with the New Urbanist design ideals, it is clear that the intended social cohesion as stated in Seattle Housing Authority's redevelopment plan has not occurred. A unified, walkable community has not been created in greater New Holly. The creation of community via design and a lively street life is not supported by the spatial clustering observed.

New Holly as a whole does not exhibit a walkable environment beyond the physical infrastructure. This leads to the finding that walkability in New Holly is incomplete and specifically lacks in vibrancy. Furthermore, New Urbanist design has not shaped community, but rather generated a hurdle via its prescribed, uniform ideals. A hurdle perhaps limiting

the gradual, organic social development of a housing area. This social development has been defined as a part of walkability.

Finally, this case study and analysis provides a platform to support the idea that vibrancy is an important component of walkability. A part that is perhaps not emphasized or valued by interventions utilized in redevelopment and revitalization of urban areas. Understanding and valuing vibrancy as a part of walkability, creates an opportunity for planners, designers, policymakers, community advocates and other stakeholders; an opportunity to shape changes, policies, and investment toward plans that incorporate both the vibrancy and the accessibility aspects of walkability.

Chapter 6. RECOMMENDATIONS AND CONCLUSION

6.1 FURTHER RESEARCH

The findings of this study are limited due to time, resource, and data restraints. Further data analysis from both New Holly and additional HOPE VI housing sites is needed to better understand New Urbanist designs and their influence on vibrancy. Expanding the analysis beyond HOPE VI housing sites is also needed to increase the applicability of vibrancy as a part of walkability. More field work is necessary to expand the data set and to include other days, hours, and times of year. The observations and trends seen in the field work for this thesis are restricted and may not be representative of the residents' experiences and use of space.

6.2 WALKABILITY IN NEW HOLLY

While many parts of the physical design and environment in New Holly are technically sound with smooth sidewalks and tree-lined paths, the area lacks in walkability. Some of this inadequacy lies within the vibrancy components discussed in the previous chapter. Well-designed, unused spaces do not fulfill the objectives laid out in the redevelopment plans for New Holly. As the observed behavior in New Holly demonstrates, New Urbanist ideals of social cohesion and unity have not been achieved. The study site, the neighborhood, and New Holly as a whole all rate as negative (-) when summing the four components of vibrancy.

In analyzing the vibrancy component of walkability, specific barriers and trends are seen that contribute to the negative vibrancy rating in the New Holly neighborhood. Each of the four components, directly and indirectly, recognizes three particular barriers as deterrents to

Firstly, the undeveloped, littered lot on the north edge of the study site. Two of the components of vibrancy (Connectivity/Linkage and Dispersal & Variety of Amenities/Destinations) explicitly identify this lot as a physical obstacle. It is important to realize that this lot is not just a physical barrier. Community Identity suffers due to the stark difference in the physical appearance and environment of the study site versus that of this lot. Property/Space pride suffers since an empty, littered space adjacent to one's property or neighborhood does not instill a sense of importance in taking care of one's surrounding environment or space.

To negate the negative impacts of this lot, there are multiple possibilities. As a quick win, just clearing the litter and cleaning the space would vastly improve the area and the surrounding space. Temporary use of the space, as a recreational area or plaza, may also help the study site connect to greater New Holly. In the longer term, context-sensitive development is appropriate. Context-sensitive meaning that the site development should not isolate the study site but rather connect to it and the neighborhood. Connections could be created by landscaping, building design, artwork, and signage. Additionally, it is important that this site development include amenities and destinations since the southern side of New Holly is under-served and separated from available assets by a wide, busy roadway.

The development of this lot could be another community core or an amenity valued by the people of the area. Interacting and communicating with the residents regarding their needs, wants, and values may shed light on desired amenities or destinations. Creating a space that draws people in, generates a sense community, and provides life in the area is optimal. A development that combines uses and connects the study site residential area to greater

New Holly with design elements and amenities. Generating a space that is representative of the residents and their needs. Regardless of the specifics of this development, it must connect the study site area to the rest of New Holly.

Second, the standardized home designs and regimented built environment of the entire housing development. With the HOPE VI and Congress for New Urbanism partnership, housing developments are limited to utilizing one design framework when revitalizing distressed public housing. In the case of New Holly, prescribed design elements and style has led to a housing community that is physically monotonous while intended to serve diverse people. The area design is not 'owned' by the community and almost creates a sterility; a statement that is perhaps accurate for many housing developments. This corresponds to the community identity component of vibrancy.

The provided public spaces are used infrequently and only by a specific demographic: children/teenagers. This lack of use correlates to the amenities component of vibrancy. As discussed in the last chapter, the requirement of porches/balconies to impart community has generated odd design choices, while also creating porches of unequal value in design and function. Other directives, like the quantification of mixed income has contributed to a physically and socially divided area. A realization established by the observed social interactions, property maintenance tendencies, and use of space. These trends tie back to the community identity, property/space pride, and connectivity/linkage components of the vibrancy analysis.

Countering this second obstacle is difficult as housing designs cannot easily be altered and there are a great deal of factors requiring consideration. Possible interventions to this observed division and sterility of the area could include efforts to engage with the under-utilized p-patch and recreation equipment in the area. Making the necessary repairs and perhaps engaging the community in discussion about the p-patch. Why is not being used? What resources do the residents require? Creating additional, smaller public spaces on the eastern edge of the area may also be useful. Although the small public spaces along 39th Ave S were not used during any site visits, the idea of smaller public spaces itself is not discredited. Perhaps these spaces would be more effective near a different demographic? Maybe occupants of town homes would be more likely to use smaller, public spaces near their residence since they do not all have their own private green space as the homes along 39th Ave S do. For the house designs, there are some options to reducing the feeling of sterility, options outside of building renovations. Simply adding some flexibility to the porch requirements could allow maintenance work and future upgrades to create more useful porch spaces. Additionally, smaller changes that provide residents with choices may also reduce the sterile feeling of the area. Changes like planter boxes or paint colors selected by residents.

Lastly, the pattern of isolation noted in regard to this site. This obstacle is specific to the study site's position in respect to the neighborhood as a whole. Considering linkage/connectivity the site is inwardly focused and lacks outward connections. Within the study site, the dispersal & variety of amenities/destinations is focused only on public space and the central green space does not connect to the neighborhood arterial, isolating the area from the surrounding neighborhood. Community identity is also limited to the study

area as there is no wayfinding signage to the New Holly neighborhood community campus. Furthermore, the study area's identity is challenged with some large signage referring to Othello. Social separation along racial/ethnic lines was also observed throughout field work. Spatially, racial/ethnic clusters appear when analyzing the composite maps. These clusters isolate specific people groups within the study site and limit community cohesion. A lack of property/space care contributes to the pattern of rubbish found on the perimeter of the study site. This collection of trash creates a border or edge that further contributes to the isolation of the area. Together these observations all amount to a separated, isolated study area.

To remedy the isolation of the study area, multiple efforts must be employed. Efforts regarding wayfinding for the New Holly community campus, Chief Sealth Trail, public parks, and transit may assist in reducing the isolation for this site. Linking the central green space to the neighborhood arterial, much like the area's public parks, could also reduce spatial division currently in place. This could be done as it was with Broadway Hill Park in Seattle, this public space was designed to be the 'front porch' of the community (Seattle.gov 2016). Finally, residents' ideas and opinions should be sought out. What do the people living in the study site area see? Does their experience reflect the site isolation found in this study?

Numerous physical, social, and cultural divides are evident within the study area; a fact that may contribute to the unrealized goal of community and unity. These divides provide information about the realization of the redevelopment plan for this area. Specifically, the

observed trends and division patterns suggest that the design of the development has not generated a walkable, vibrant community. To this end, it is sensible to question the singular design direction of New Urbanism as well as its objectives. Should housing development have aims of social unity? Are the ideals of community and lively street-life common to all social groups seeking housing?

In recognizing the potential and shortcomings of design interventions, multiple questions arise. How effective is it to try and determine social behavior with a standardized built environment? Is it appropriate to influence community with design? Does pairing walkability and public housing with New Urbanist design increase a power imbalance between public housing residents and the management? Is a systemic inequality perpetuated when designing the built environment to generate specific behavior? These questions are important to consider and recognize but lie outside of the scope of this study and require further study.

Altogether, the study of vibrancy in New Holly completed as a part of this thesis serves as a platform to understanding the intangibles of walkability. Based on this case study, the analysis and rating of vibrancy, the barriers to vibrancy identified, and the literature read, one can conclude that vibrancy matters. The applied understanding of walkability within New Urbanism does not adequately incorporate vibrancy. When developing, or incorporating walkability, current practices heavily rely on design interventions. Aims of lively, vibrant communities are pursued with design plans and spatial changes. This overemphasis on the

physical environment does not sufficiently consider the nuances of walkability. Nuances like links/connections that aren't physical or the strong influence of spaces around the built environment or designed spaces.

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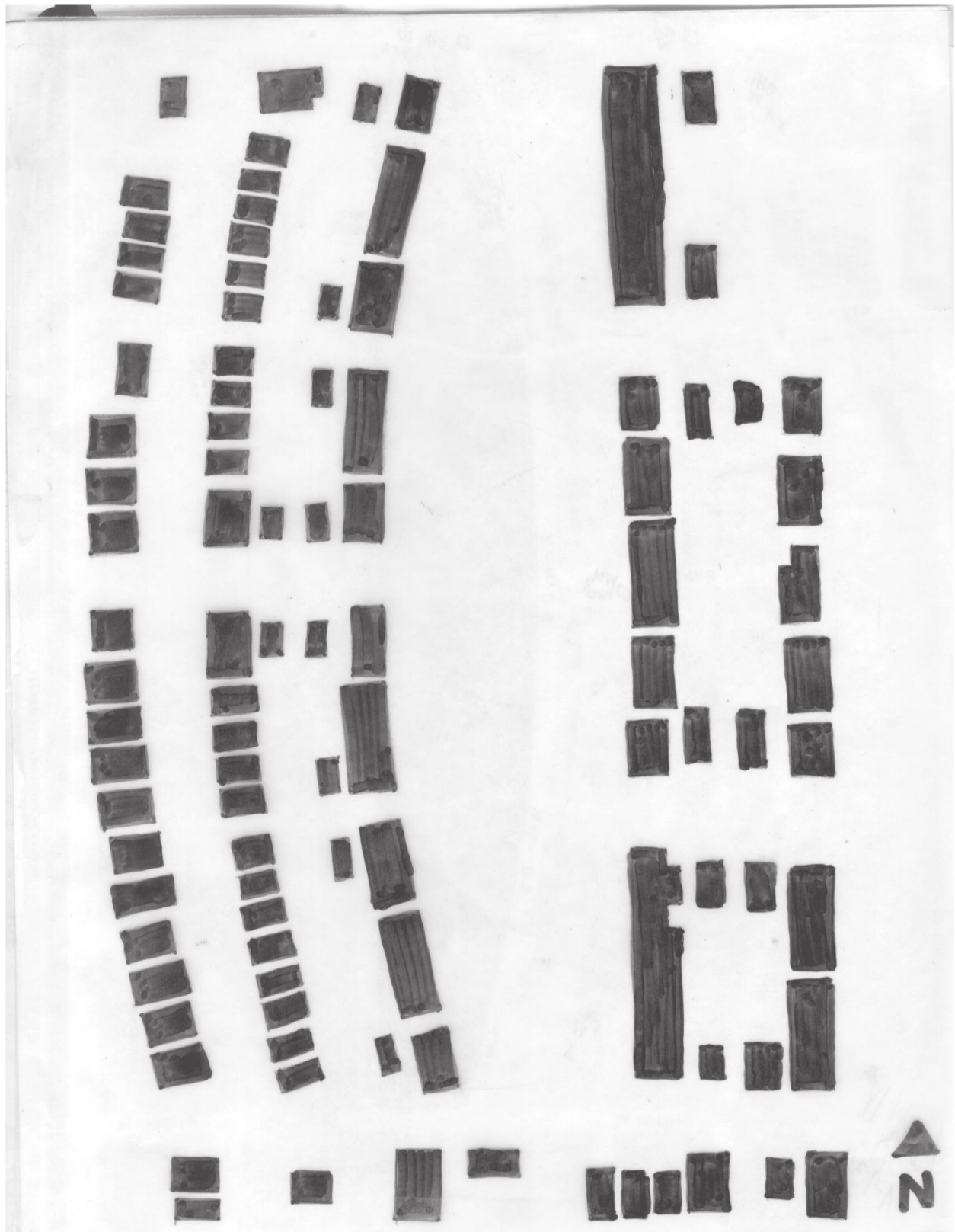
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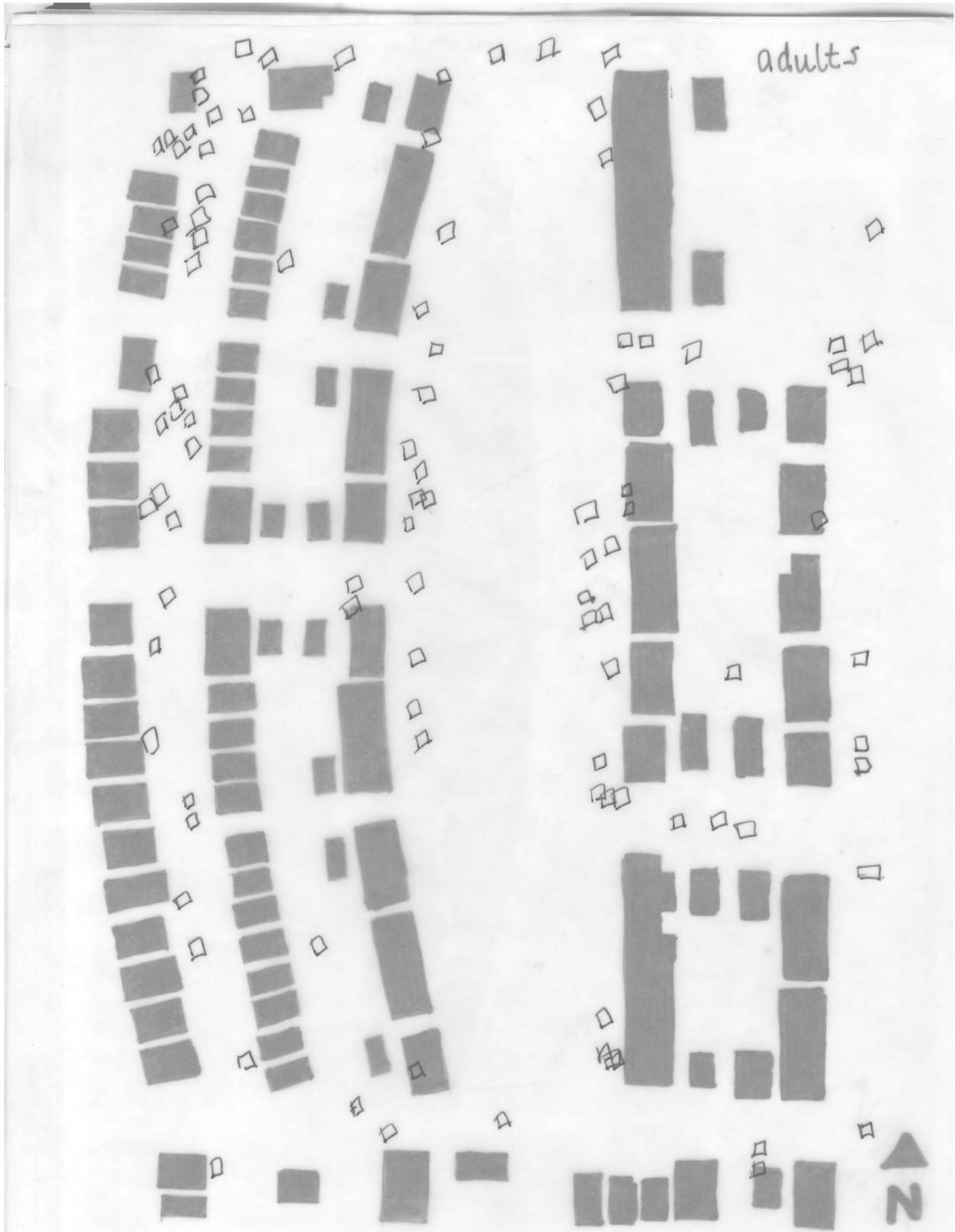
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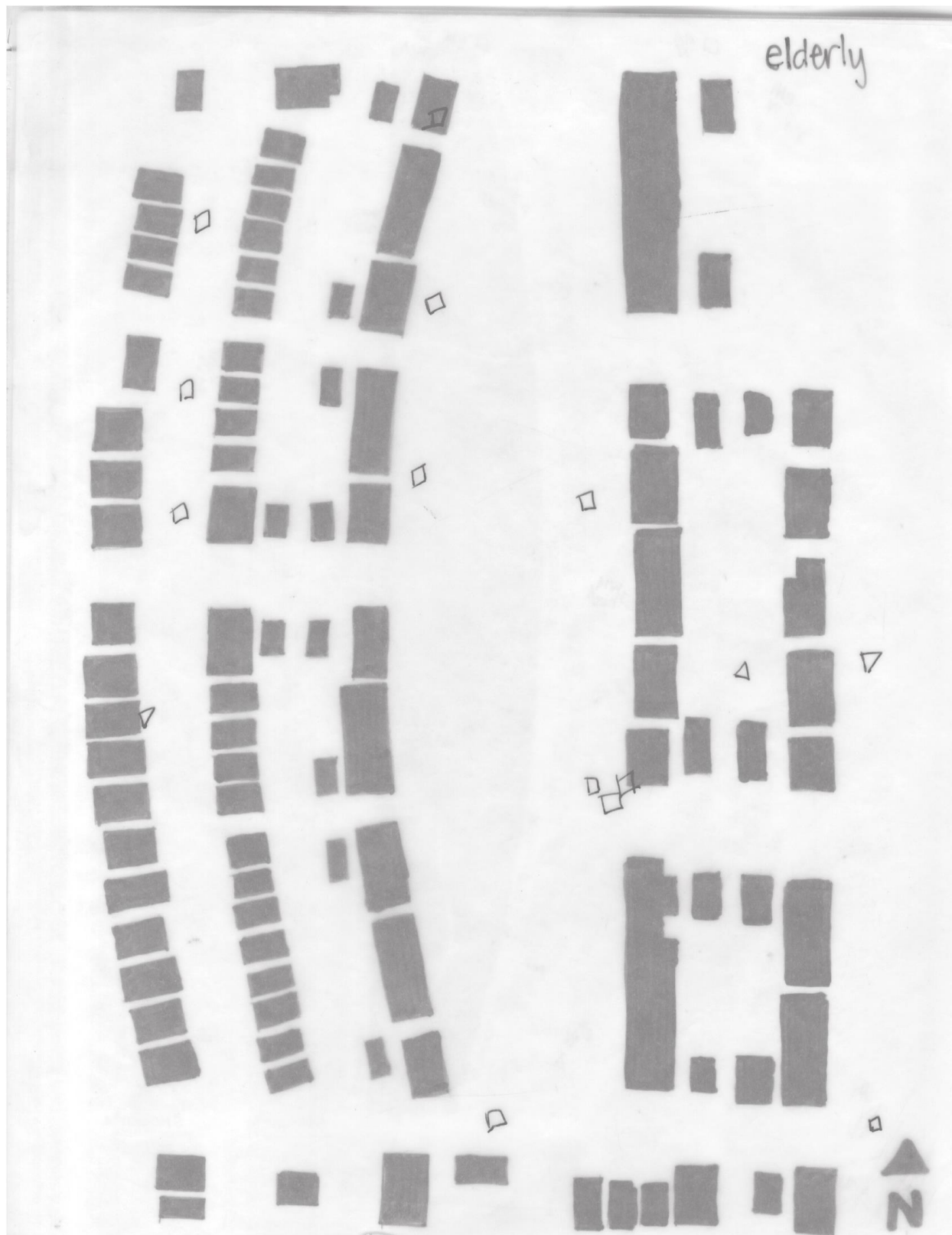
APPENDIX A: FIGURE GROUND OF STUDY AREA



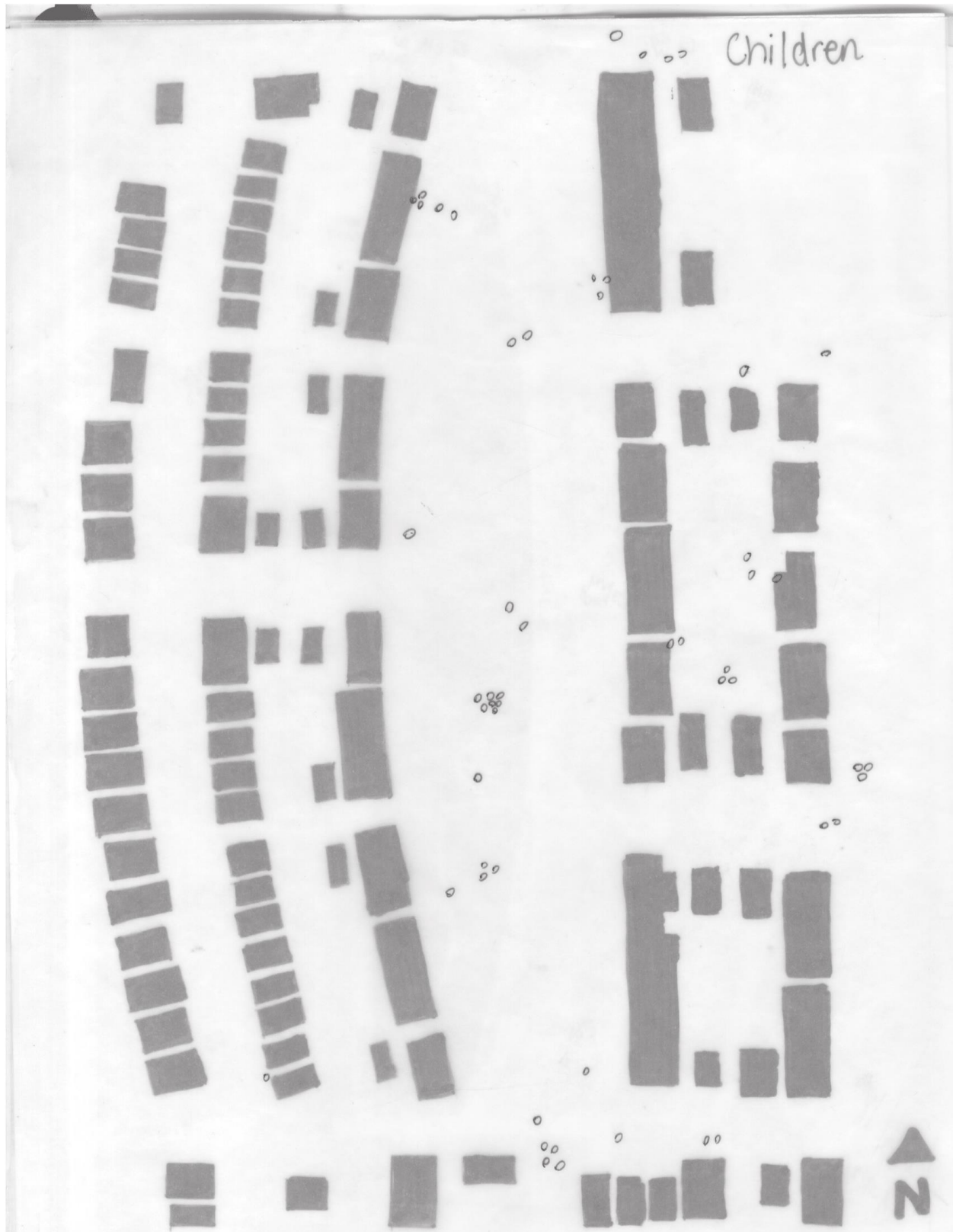
APPENDIX B: COMPOSITE MAP OF ADULTS



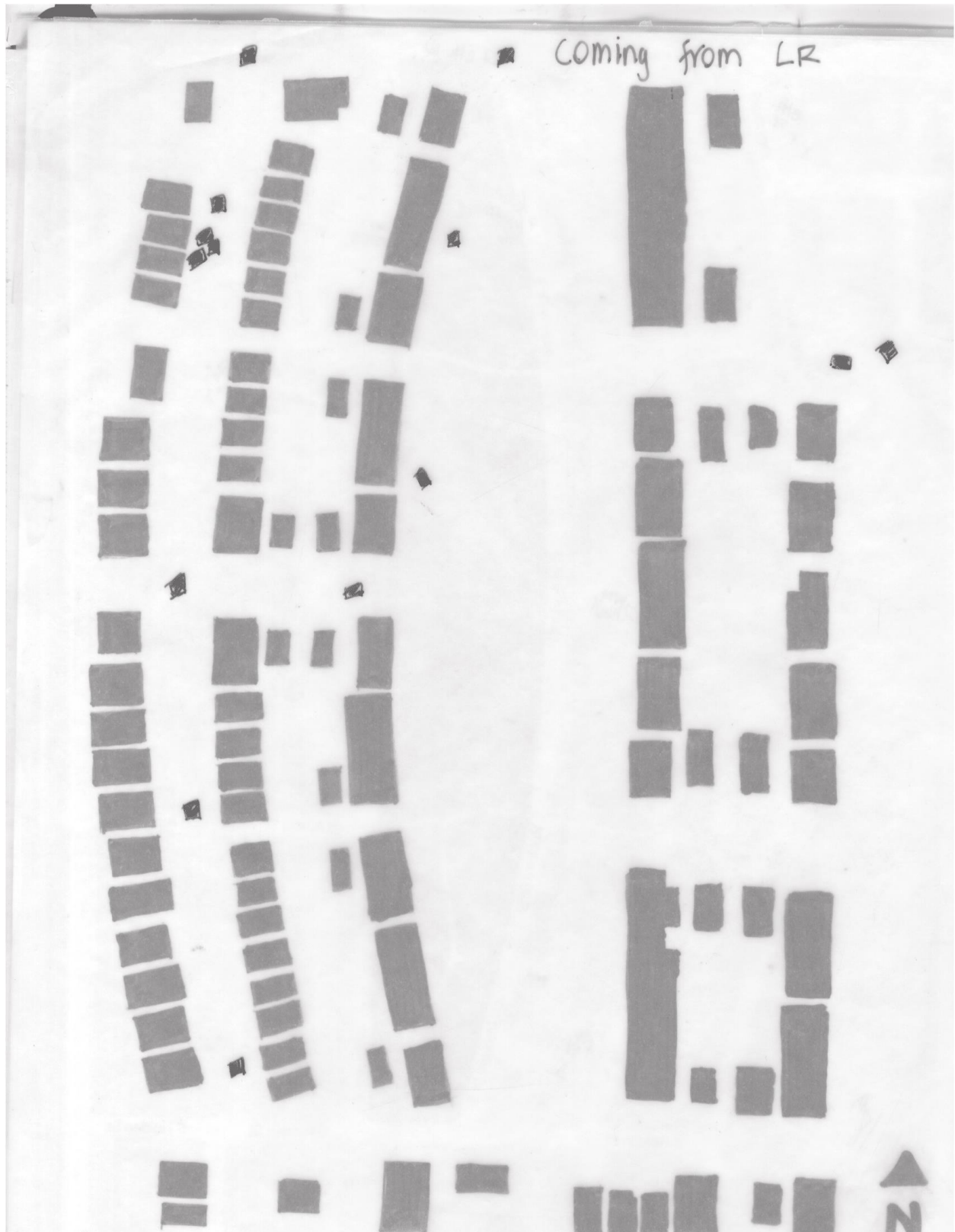
APPENDIX C: COMPOSITE MAP OF ELDERLY



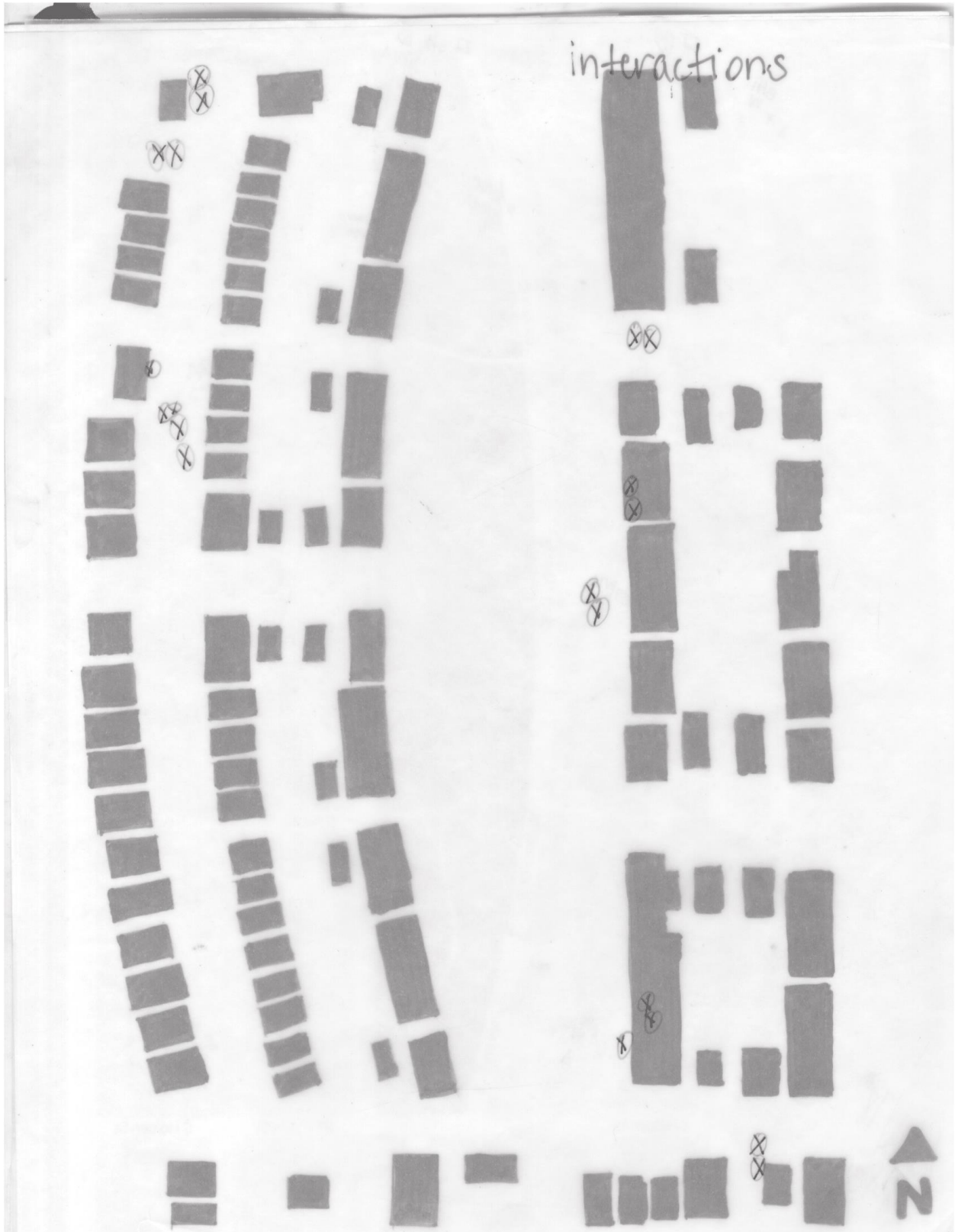
APPENDIX D: COMPOSITE MAP OF CHILDREN



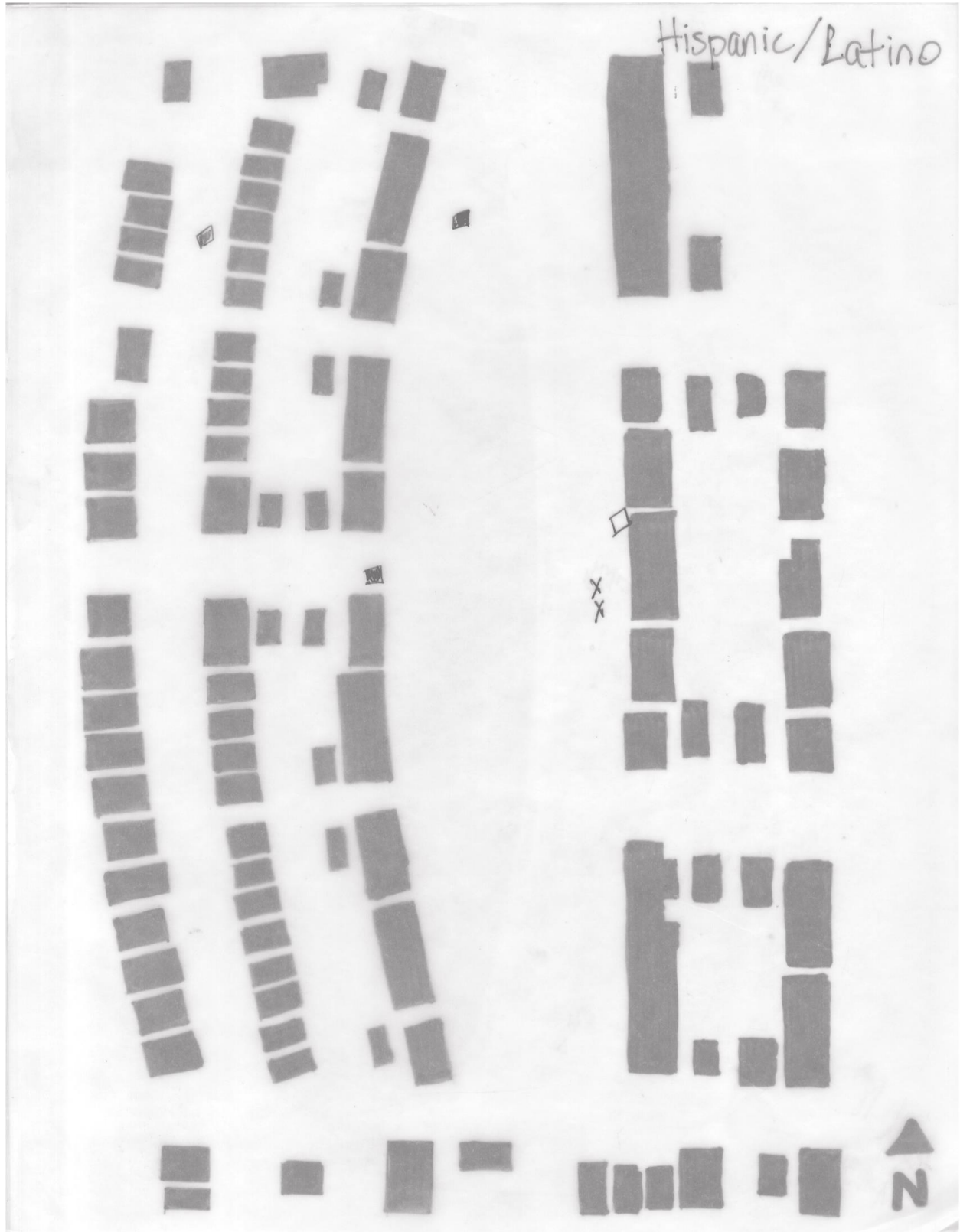
APPENDIX E: COMPOSITE MAP OF COMMUTERS FROM LIGHT RAIL



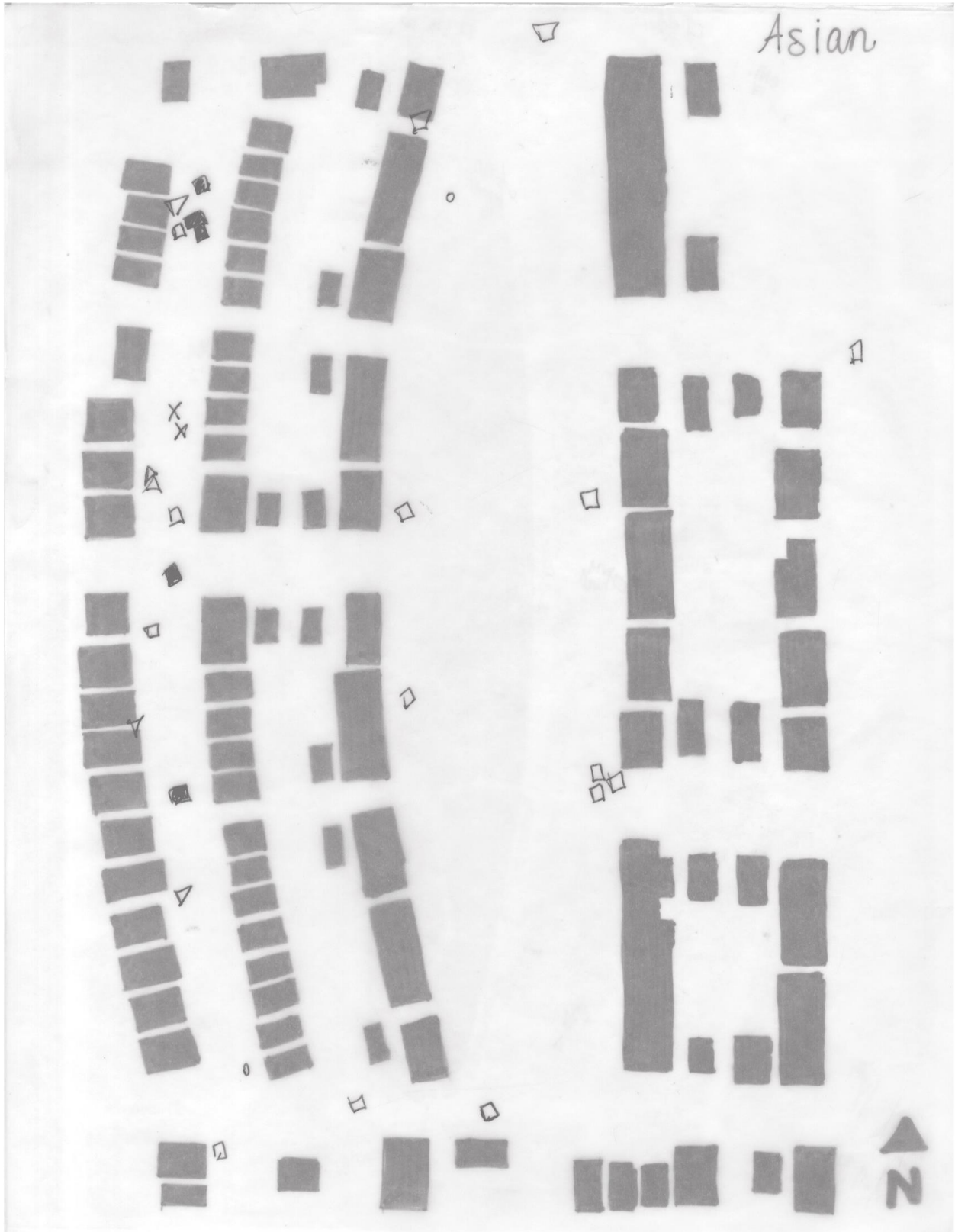
APPENDIX F: COMPOSITE MAP OF OBSERVED INTERACTIONS



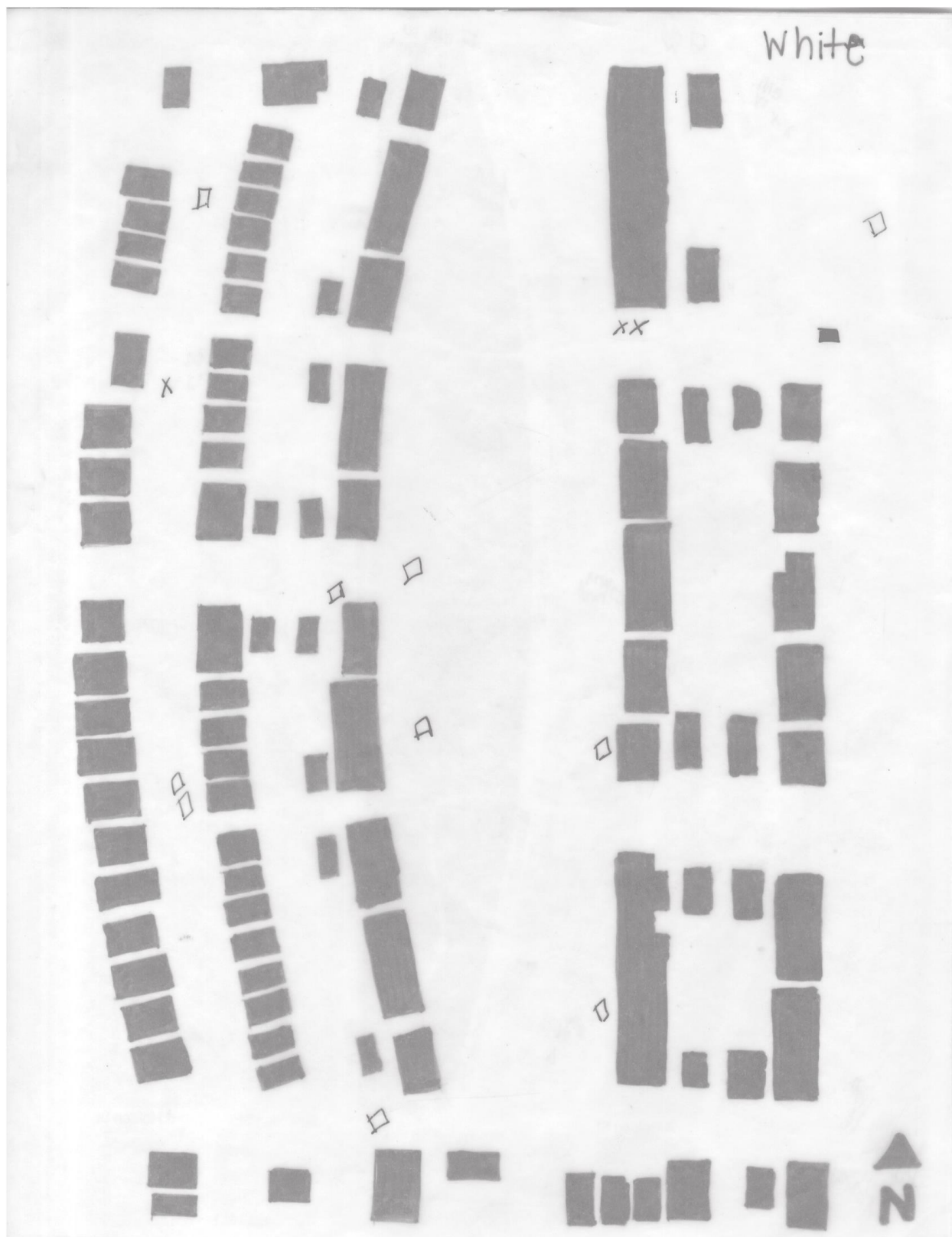
APPENDIX G: COMPOSITE MAP OF HISPANIC/LATINO PERSONS



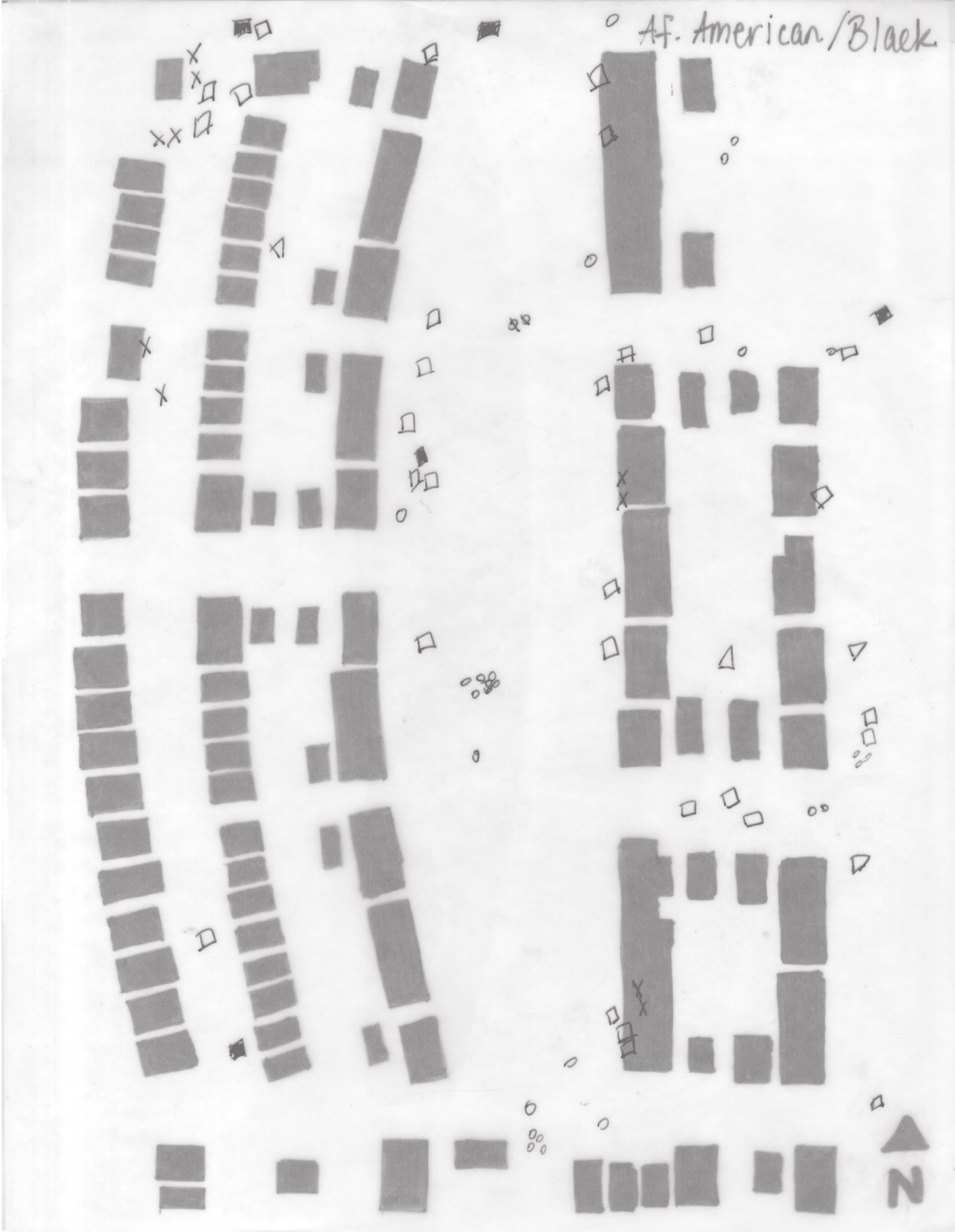
APPENDIX H: COMPOSITE MAP OF ASIAN PERSONS



APPENDIX I: COMPOSITE MAP OF WHITE PERSONS



APPENDIX J: COMPOSITE MAP OF AFRICAN AMERICAN/BLACK PERSONS



APPENDIX K: COMPOSITE MAP OF OTHER RACE/ETHNICITY

