# Incomplete Streets: Operationalizing Jan Gehl's 12 Quality Criteria on Ballard Avenue

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## Abstract

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The purpose of streets is far more than to just get from one place to another. Substantial progress has been made in establishing operative definitions of some of the qualities that make streets great. But progress has been slow and much still remains undefined. This paper seeks to see how we are doing now and what else we could be doing with regards to street design in Seattle. As a foundation, this research used a well-established methodology for evaluating the quality of public spaces and applied it to Ballard Avenue NW, a popular street in Seattle's Ballard neighborhood. Ballard Avenue NW was evaluated using a modified version of Jan Gehl's 12 Quality Criteria covering the general quality areas of Protection, Comfort, and Enjoyment. Each of the 12 Quality Criteria was graded on a scale of how effectively it met the individual metrics established by Gehl. The research used structured observational studies along Ballard Avenue NW and evaluated how the street performs as a public space. Suggestions for improvements were based on a combination of academic literature and the City of Seattle Pedestrian Master Plan. Through these evaluations, this research revealed how Jan Gehl's 12 Quality Criteria can be operationalized and applied to a street in Seattle to identify areas of success and for improvement.

Overall Ballard Avenue NW scores slightly above average. My results show that Ballard Avenue NW relies heavily on its historical character and the design of the past but both the City of Seattle and the Ballard Avenue Landmark District do little to improve upon it. As cities again rethink street design we need to continue to develop holistic street evaluation tools. But informed design only accomplishes so much. Seattle should also innovate new to tools such as establishing an inventory of model streets for matching with specific situations and the establishment of a pedestrian specific street classification. All of these tools combined may offer the best chance at recreating the good qualities of historical Ballard Avenue NW for other Seattle streets. The best new streets need not be the same as the old, but by serving as models, our successful old streets still have much to teach us about designing streets for today and tomorrow.

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## Introduction

Planning and design professionals have increasingly turned their attention to features of safety, walkability, and quality of life for urban populations. New efforts from academics, planners, designers, and policymakers have endeavored to address problems with streets and public right-of-ways. The development of automobile-centric streets and hostile places for pedestrians has led to concerns with pedestrian safety, traffic, social impacts and quality of life. Many cities, like the City of Seattle, have made efforts to refocus their priorities to quality of life and walkability goals within their departments and current planning movements such as Complete Streets are guiding new street design standards and development. In Seattle, new street design guidelines in the Right-of-Way Improvement Improvements Manual and adoption of the Complete Streets ordinance are representative of a change in how cities think about and design streets.

Modern street plans such as Complete Streets, while improvements over plans of the past that heavily favored automobiles, continue to focus on streets as settings that provide transportation, only concerned with balancing the mobility needs of users (Gehl 2010). This leaves out key elements to improve streets in numerous ways that have been addressed for decades by social critics and planning and design professionals including Jane Jacobs, William Whyte, Allan Jacobs, David Lynch, and Jan Gehl. All of these urban thinkers and researchers highlight that while the planning profession has made progress in the areas of safety infrastructure, street furnishing, and lighting, there is still a gap in our design policies regarding how streets function for pedestrians. Making the situation worse, these policies and plans are also often disjointed from each other and lack requirements,

leaving the responsibilities for the improvement of the sidewalk environment in a state of ambiguity, inaction, and disrepair. Danish architect and academic Jan Gehl is presently one of the biggest names in professional planning. His method for assessing the quality of a public space, referred to as the "12 Key Quality Criteria," has been used across the world to reclaim important street environments designed with old policies and designs. The criteria were developed to ensure safe, comfortable, and enjoyable city space for residents.

When I originally setout to design and research this project I was absorbed by the idea of a street in my own neighborhood, Ballard Avenue NW, becoming a strictly pedestrian street similar to those found across Scandinavia. As my work progressed my interest shifted to the uses and standards we have for our streets. Still reflecting on pedestrian streets in Scandinavia, it became apparent to me that I wanted to understand what qualities makes a street a successfully designed place for people. Ballard Avenue NW already teaches us lessons on designing streets spaces during a time when the scale was made for people instead of for automobiles. Physically, the buildings are placed closely together, touching each other, now much more rare in Seattle. The intact historical buildings offer a range of building styles with retail and service spaces at street level and residences and offices above. The street has granite curbs and even some remaining hitching rings for horses. Brick paving and some reminders of the streetcar right-of-way appear under asphalt. This also places a variety of uses in close proximity to one another, making walking easy between consumer needs. Ballard Avenue's setting draws in crowds of pedestrians, inviting them to shop, eat, linger and just wander.

This research operationalizes Jan Gehl's 12 Quality Criteria and applies that modified criteria to Ballard Avenue NW. The research used structured observational studies along Ballard Avenue NW and evaluated how the street performs as a public space.

The street was evaluated using a modified version of Gehl's 12 Quality Criteria covering the general quality areas of Protection, Comfort, and Enjoyment. Each of the 12 Quality Criteria was graded on a scale of how effectively it met the individual metrics established by Gehl. The scale of "Good," "Average," or "Poor," is based on Gehl's established methodology used globally for rating public spaces.

Suggestions for improvements were based on a combination of academic literature and the City of Seattle Pedestrian Master Plan. Through these evaluations, this research has revealed how Jan Gehl's 12 Quality Criteria can be operationalized and applied to Ballard Avenue NW to identify areas of success and for improvement.

**Structure**

The first chapter of this thesis is an overview of the history of street design. Within this chapter, the first section is a quick history of street design through some of the most influential urban thinkers. The second section looks at how modern approaches were influenced and are proceeding today. The second chapter discusses how I operationalize Jan Gehl's methodology and created a modified version of the 12 Quality Criteria, outlining data collection and analysis procedures. The third chapter is a summary of the findings for each of the 12 Quality Criteria. The final chapter is a discussion of the findings, suggestions for addressing poor scoring criteria, and lessons learned from applying the Gehl method.

# Literature Review: Returning to the Human Scale

## Brief History of Street Design

The discussion surrounding street design has been around more than 100 years. As our cities have grown and the way we live and travel have changed, streets have changed too. The famous urban observer and journalist Jane Jacobs wrote, "Cities are immense laboratory of trial and error, failure and success, in city building and city design"(J. Jacobs 1992, 6).

The twentieth century has seen the development and extensive reception of two major city design manifestos; that of the new town or garden city movement, and the Charter of Athens. Both manifestos, concentrated on new building that were divorced from the streets, and both eventually shunned streets as essential and positive to urban living (A. B. Jacobs 1995, 311). Both movements also called for a separation of land uses, rather than integration. The rejection of streets as places for people and for the making and expression of community was strong, in favor of "efficiency, technology, and speed, as the prime determinants of street design" (A. B. Jacobs 1995, 311). As well intentioned and socially responsive as those manifestos were, their results, observable by the 1960s, did not encourage public life. Instead, they had been more consistent with vehicle movement than with people movement.

Efforts to reshape the form of the American city in the interest of creating more cohesive, livable, and energy-efficient communities and metropolitan areas have often been blocked or diffused by the standards and procedures that have become embedded in planning and development over time (Southworth and Ben-Joseph 1995, 65). Of particular trouble are

standards for streets that order a dispersed, disconnected community pattern providing automobile access at the expense of other modes, especially non-motorized. The rigid framework of current street standards has often resulted in uniform, unresponsive urban environments. Attempts to correct negative externalities associated with past street designs have been meet with resistance from the many groups with interests in street design: engineers, financial institutions, government regulators, the road building industry, and police and fire protection services.

Jane Jacobs was the first strong voice to call for a decisive shift in the way we plan and design cities. In her book *The Death and Life of Great American Cities, Jacobs* writes on her interest of how cities actually function, instead of how they should work according to planners and urban designers (J. Jacobs 1992, 3). At the time of her writing in the 1960s, Jacobs also noticed how growing car traffic was squeezing the rest of urban life out of urban space (J. Jacobs 1992, 7). Jacobs notes that automobiles are often cited as the "villains" for the problems of cities. However, she states that the needs of the automobile are "simple" and "easily understood and satisfied" when compared to understanding how the city works itself. She asks "How can you know what to try with traffic until you know how the city works itself, and what else it needs to do with its streets? You can't"(J. Jacobs 1992, 7).

To Jacobs, the "Streets and their sidewalks, the main public places of a city, are its most vital organs"(J. Jacobs 1992, 29). Her ideas about the important qualities of urban streets have influenced and inspired generations of planners and designers to shape urban forms around her core ideas of achieving small block sizes and connected street patterns.

While Jacobs was praised for her work, she was also criticized by planning professionals and academics for not having formal training in the field of urban planning. Her critics saw her work as subjective, lacking academic and statistical rigor (Larice and Macdonald 2006, 80). However, sociologist and urban observer William Whyte's work observing social patterns in public spaces of urban centers provided extensive empirical backing for some of the ideas Jacobs helped pioneer.

During the 1960s *Streetlife Project* in New York City, Whyte collected many years of documentation using time-lapse photography, direct observation, and newly developed site-surveying procedures to give insight on the public on street life and public spaces. By observing and analyzing patterns of pedestrians on the streets and public plazas of New York, Whyte's study and subsequent book *The Social Life of Small Urban Spaces* helped the New York City Planning Commission understand the value of urban design. Whyte found that the presence of public space alone was not enough to encourage people to use it; human-scale design and pedestrian-friendly amenities were essential in creating vibrant public spaces (Whyte and Project for Public Spaces 2001, 10–15). Whyte's work was a noteworthy step forward for shifting city-planning attention towards human scale design.

Jacob's *The Death and Life of Great American Cities* was an important reference for Whyte, especially for his chapter dedicated to streets. While Whyte's work, as well as the work of Jane Jacobs, was widely read in planning circles, it took several decades for cities to incorporate their notions of how design influences use into street design standards and policies.

Following Jacobs' concerns and interest in city life and Whyte's in studying public spaces, Allan Jacobs became interested in how the functional aspects of streets have received much more attention than their social or community building aspects. Jacobs undertook research to determine the qualities and characteristics of the world's best streets. He conducted surveys of people on the street and professionals to get their views on good streets, and then observed and measured suggested streets as well as those he knew from his own experiences.

His influential book *Great Streets*, documents his findings with content that uniquely classifies types of streets, not by traffic but by design characteristics, and presents scaled plans, cross-sections, and perspective sketches of the very best examples he discovered as well as examples of poor quality streets. Jacobs believes that good cities are made of good streets and that we are rapidly losing our talent and awareness for creating them (A. B. Jacobs 1995, 311–314). Jacobs pens that "beyond functional purposes of permitting people to get from one place to another and to gain access to property, streets–most assuredly the best streets–can and should help to do other things: bring people together, help build community, cause people to act and interact, to achieve together what they might no alone" (A. B. Jacobs 1995, 312). Jacobs tells us that design matters and that great streets do not just happen (A. B. Jacobs 1995, 314). Overwhelmingly, the best streets derive from a "conscious act of conception and creation of the street as a whole" (A. B. Jacobs 1995, 314).

## Modern Approaches to Street Design

Street design standards and funding structures have successfully supported the single use of automobiles in the street. However, cities are beginning to reinvest in the street space,

seeing it as an important piece of our neighborhoods and communities. In an effort to improve the quality of urban life, new street design guides and toolkits such as the Seattle Pedestrian Master Plan have surfaced - redefining the way streets are used. However, as communities change their street design manuals, they face an outdated and well-developed federal transit infrastructure. History shows that street design standards have been limited by the prevailing notion of streets as a place for cars, rather than people (Southworth and Ben-Joseph 1995).

The Complete Streets movement emerged in the early 1970s with the goal of reforming transportation policy for all users. This includes safely and comfortably moving bicyclists, cars, as well as pedestrians and transit riders along and across a street. The Complete Streets movement attempts to change the approach to street design at a variety of levels, including data collection, staff training, funding, a revised decision-making process, and engagement of all users in the design of streets spaces (Smart Growth America 2014a). Proponents claim the benefits of Completes Streets can lead to improved safety, health, economic, and environmental outcomes. In the past two decades, the movement has gained momentum with over 600 regional and local jurisdictions, 27 states, and the District of Columbia having adopted policies or committed to (Smart Growth America 2014b).

While the Complete Streets effort has expanded the idea of the street space as more than just an arterial for vehicles, its central focus is still on mobility - mobility of people in automobiles, on foot, and on wheels. Critics such as Jan Gehl and others under the umbrella of New Urbanism, say the movement does not go far enough to conceptualize the street space as a center for many activities, with transportation being just one.

Building upon the Complete Streets movement, the Livable Streets movement of 1987 goes further by requiring a greater vision for the street space as a place in itself, one that can have multiple benefits - improved ecological, economic, social, and civic outcomes (A. B. Jacobs 1995, 312). Livable Street designs emphasize place making, uniqueness over uniformity, flexible and contextual design, and a collaborative process that is rooted in community engagement (Spaces 2014). In several ways, the Livable Street movement has incorporated the ideas of Jane Jacobs and William Whyte and has moved to incorporate their lessons and findings into street design and policy.

Standing upon the foundational work of Jan Jacobs, and William Whyte, Jan Gehl's concern is with the experience of everyday life in the pubic realm and how the design of buildings and spaces can enhance that experience. In his view, a city is best viewed at eye level and human-powered speed - the city that not only suits the needs of pedestrians the best but also make for a pleasant pedestrian experience will be a successful city (Gehl 2007). When we design cities for automobiles, or build buildings just for the sake of building, then we are moving away from what makes cities really work. For Gehl, inviting people to spend more time in the city is the simplest and most effective method available for reinforcing life in cities.

Jan Gehl is one of the most recognized names in the modern urban planning field. He is the founding partner of Gehl Architects, a Danish firm globally recognized as an expert in designing people friendly spaces. The work of Gehl Architects has been well received, as the firm has been hired in major cities throughout the world to apply their approach and methodology with the goal of improving the livability of these areas through human

centered design. Their list of clients includes São Paulo, Moscow, Malmö, Melbourne, San Francisco, and Seattle (Gehl Architects 2014). One of the most notable United States examples includes increasing public space along Broadway in New York City.

Gehl is critical of Complete Streets because it focuses on traffic planning with too little attention to the quality of city life. He tells us that mixing types of traffic is possible, but not on the equal terms as implied by the shared street concept, as pedestrians and bicyclists will need to be alert at all time to stay safe (Gehl 2010, 93–94). Gehl points to international examples as the Dutch "woonerf" and British "home zones" as examples where pedestrians can thrive with other forms of traffic as long as it is absolutely clear that all movement is based on the priority for pedestrians. Mixed traffic solutions must prioritize either pedestrians or provide appropriate traffic segregation (Gemzoe and Damm van Deurs 2005, 46–57).

Urban designer David Lynch, an American planner famous for his book, *The Image of the City*, agrees with Gehl on mixed street solutions, writing that a compromise street concept that allows cars to "intrude at very low speeds" while giving the pedestrian an unrestricted right-of-way in the entire street space is a skillful way to achieve local safety and quiet without serious loss of individual mobility (Lynch 1984, 427). Lynch also highlights that while the planning profession has made progress in the areas of street furnishing, lighting, and concentrating activities, there is much to learn about "achieving the humanization of the city sidewalk"(Lynch 1984, 431).

Jan Gehl and Lars Gemzøe created a method for assessing the quality of a public space by using 12 criteria. Referred to as the "12 Key Quality Criteria," or the "Gehl method," the

criteria were developed to ensure safe, comfortable, and enjoyable city space for residents. These criteria are based on research developed and tested over many years in partnership with the Center for Pubic Space Research (Gehl and Gemzøe 2006, 106). The 12 Quality Criteria are organized into three general areas of focus: “Protection,” “Comfort,” and “Enjoyment” (Figure 1).

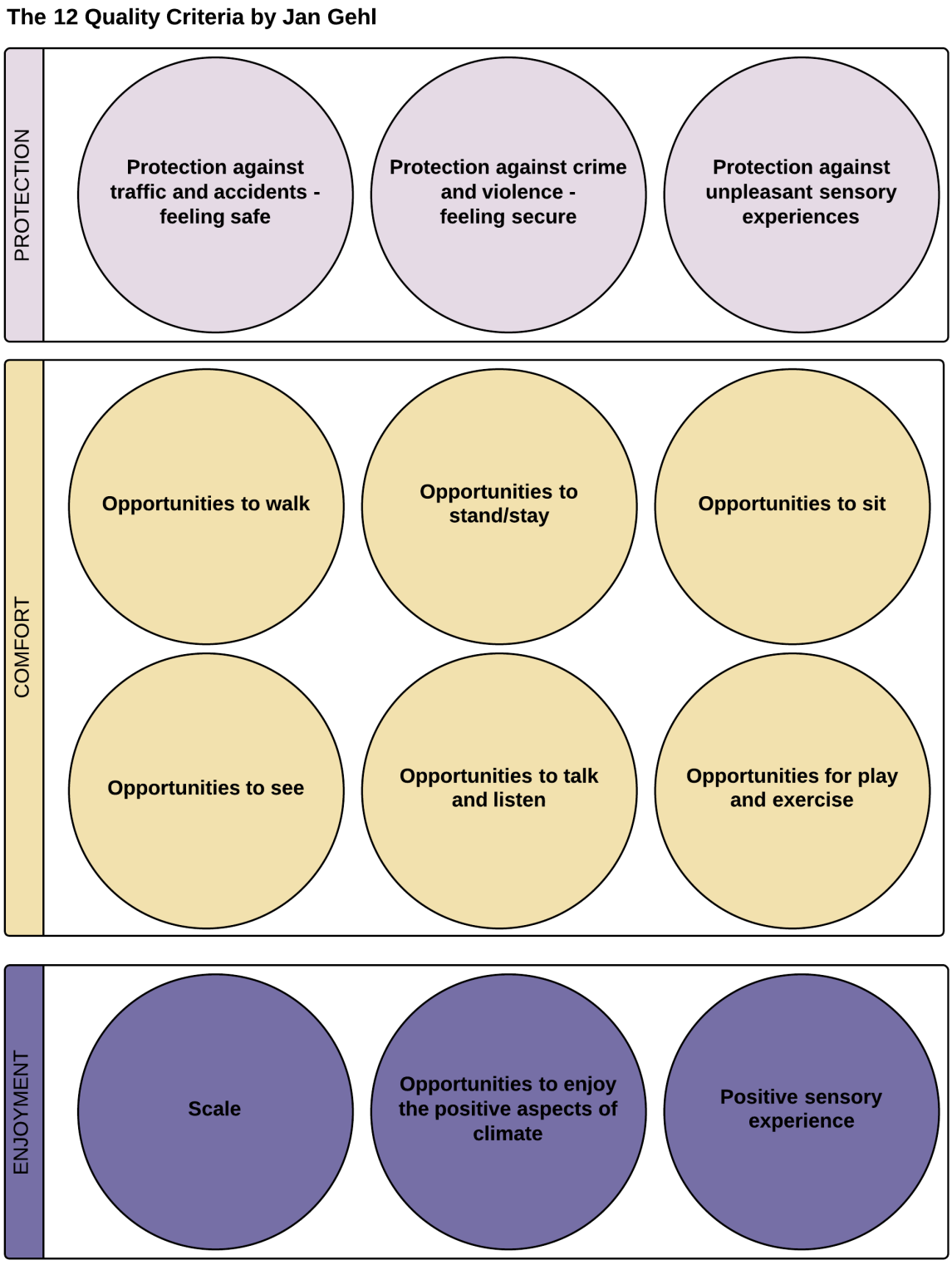



**Figure 1 Based on Jan Gehl's 12 Quality Criteria in *Cities for People***

With regards to Protection, Gehl stresses that it is crucial to ensure "reasonable protection against risk, physical injury, insecurity and unpleasant sensory influences, the negative aspects of climate in particular"(Gehl 2010, 238). If only one of these major problems concerning protection is not satisfied, upholding the other qualities can prove pointless.

Gehl states the next step is to ensure that the spaces offer good Comfort and "invite people to the most important activities underlying their use of public space – walking, standing, sitting, seeing, talking, hearing and self-expression"(Gehl 2010, 238). Considerations about a space during the day and at night as well as during the seasons of the year are a part of the work to optimize city space.

Lastly, with respect to Enjoyment, a high quality public space primarily involves ensuring "a good human scale, opportunities to enjoy the positive aspects of the climate in the region, as well as proving aesthetic experiences and pleasant sensory impressions"(Gehl 2010, 238). Good architecture and design are part of the twelfth and last criterion. This criterion should be seen as an umbrella concept that should include all of the other areas. It is important to emphasize that architecture and design cannot be dealt with in isolation from the other criteria.

## Street Design Policy in Seattle Today

There is every reason to applaud the many new types of streets and policies that ensure safety for pedestrians and bicyclists while allowing cars and service vehicles. From project to project, planners must consider which types of streets and degrees of traffic integration would be a good solution.

The foundations of a Complete Streets policy in the City of Seattle have been in place at least as far back as the 1994 Comprehensive Plan. The plan defines the urban village land use strategy to include transportation policies intended at creating a balanced transportation system (Seattle Department of Transportation 2014a). Seattle officially adopted shared street design principals through the Complete Streets ordinance, passed by the Seattle City Council in 2007 (Seattle City Council 2007). The legislation states that it supports and encourages walking, bicycling, and transit use while balancing the needs for all users. The legislation acknowledges that "each street has unique needs and characteristics, so the application of Complete Streets principles to each road will be different each time"(Seattle City Council 2007). This requires the Seattle Department of Transportation (SDOT) to design streets using these new design standards. The city uses a data-driven process to evaluate planned projects consistent with the Complete Streets policy (Seattle Department of Transportation 2014b). The Complete Streets Checklist is the tool SDOT uses to collect data and information about the status of the street and surroundings, as well as the details of the project, with a goal of identifying specific improvements that can be incorporated into the project to balance the needs of all users. While all of this is to be praised, the question remains, how are we doing now and what else should we be doing in terms of evaluating and designing city streets? This is the focus of my thesis.

## Methods

This research was inspired from my travel experiences throughout Scandinavia, especially Copenhagen, Denmark. When I returned home I noticed a growing need for pedestrian friendly space in my neighborhood of Ballard. Pedestrian streets were introduced in Europe in the 1960s. Since then, numerous types of streets and traffics solutions have since been developed so that today's planners have a wide range of streets to choose from. Scandinavia taught me that when choosing street types and traffic solutions, it is important to view from the non-motorized, human dimension. People must be able to move comfortably and safety in cities on foot or by bicycle. These methods will be used to rate how well Ballard Avenue NW functions as a street for pedestrians.

This research will rate Ballard Avenue NW as a public space using Jan Gehl's well-established 12 Quality Criteria. Gehl tells us that "many fine squares and streets, possesses a number of elementary qualities, which can be analyzed, evaluated and assessed, and documented for use in contemporary public open space design"(Gehl 2007, 18). The results will then inform a discussion centered on suggestions to improve upon low scoring areas along the street.

Gehl rates each criterion with a rating of "Good," "Average," or "Poor." What is less clear is how the final ratings for each criterion are arrived at and operationalized using Gehl's methods. Gehl has published many books on evaluating public spaces and used this literature to identify the individual metrics within each criterion. Once a complete list of metrics was made I established how they would be operationalized. Standards are based upon Gehl's descriptions of each criterion and its metrics within his book *Cities for People*.

Second, I referenced the City of Seattle Pedestrian Master Plan. For example, I looked up the city spacing standards for pedestrian-scaled lighting. If a city standard did not exist, I used the works *Walkable City* by Jeff Speck and *Great Streets* by Allan Jacobs for their greater specifics on street design standards.

After a standard was set I matched to fit the Gehl scoring scale of "Good," "Average," or "Poor." After data was collected and analyzed every metric and sub-metric (if applicable) received a score of "Good," "Average," or "Poor." These scores were converted to the numerical values of "3," "2," and "1" respectively. This was done so that total scores could be calculated for each metric. An average score was then calculated for each criterion (Appendix F). Average scores with decimal values were not rounded up to the next whole number if 0.5 or above. The averaged value was then translated into "Good," "Average," or "Poor" in the final evaluation.

What follows below is a numerical progression through the 12 Quality Criteria within the three areas of Protection, Comfort and Enjoyment. Each Quality Criteria has a set of established metrics by Gehl. A brief explanation of the criteria, its respective metrics, introduction of sub-metrics, and how they will be measured will be provided. Metrics that were deemed difficult to quantify due to the project timeline or issues with access to measurement equipment were removed from the analysis. Comments on why these metrics were removed are provided. At the end of this section I will provide a table introducing my modified 12 Quality Criteria.

## Operationalizing the 12 Quality Criteria

### PROTECTION

### 1. Protection Against Traffic and Accidents – Feeling Safe

Gehl comments that protection expresses our need to be kept safe from accident, insecurity, and discomfort (Gehl and Gemzøe 2006, 106). Traffic is an important factor. Good city spaces provide such good traffic safety that we do not have to fear being hit or need to remain on constant alert. Good city spaces provide good conditions for pedestrian traffic. People must be able to move comfortably and safely in cities on foot or by bicycle with special consideration given to children, the young, the elderly and people with disabilities. Pedestrian safety was determined by the existence of physical protection. In the built environment this typically means grade separation in the form of the presence of sidewalk system, existing block size, and the layout of the intersection.

#### Protection for Pedestrians

*Sidewalks*

Interruptions in sidewalks to provide cars with uncomplicated access to garages, driveways, and delivery gates have gradually become a natural part of the street scene. Sidewalks are not a preferred method of protection as they may physically separate but do not necessarily provide a sense of safety or tranquility (A. B. Jacobs 1995, 273). Nevertheless, they are a common engineering solution throughout the world. In an environment where cars are given the priority, they become necessary. Where sidewalks do exists, in almost all situations, the sidewalk should be led unbroken through

entranceways and side streets as part of general policy of inviting rather than discouraging pedestrian traffic (Gehl 2010, 123–124).

To confirm the complete sidewalk system I checked City of Seattle GIS data, and verified in person during site visits that the sidewalk was complete from end to end of the study area.

"Good" (3) – A complete sidewalk which covers the entire study area
"Average" (2) – Sidewalk system is present but incomplete
"Poor" (1) – No sidewalk present

*Intersections*

The safest approach for road safety is the four-way stop sign (Speck 2012, 187). This makes drivers think for themselves instead of telling them when to go. Four-way stop signs require motorists to approach each intersection and negotiate with other modes of traffic for the right-of-way, and are safer and cheaper than signals. While intersections without signage can be just as effective, as shown by the Dutch traffic engineer Hans Monderman's idea of "naked streets," the benefit of the stop sign is both its familiarity to American drivers and the legal understanding and requirement of the 30-foot setback from the sign. This is an additional benefit to Ballard Avenue NW for increasing safety through visibility at corners.

Present conditions of study area intersections were verified in person. Stop sign locations were recorded using diagraming. The final diagram will be used to score as it relates to the scale.

"Good" (3) – Four-way stops at all intersections
"Average" (2) – 2-way stops at all intersections
"Poor" – (1) No stop signs or only at some intersections

**Eliminating Fear of Traffic**

Eliminating fear of traffic was removed as a metric for this study. Curbs and sidewalks may physically separate but do not necessarily offer a sense of safety or tranquility. The sensation of fear is difficult to measure accurately through direct observation. Surveying pedestrians using the study area could get to an answer, nonetheless the short duration of this research did not allow for the time to evaluate the fear of traffic.

**2. Protection against Crime and Violence**

Being able to walk safely in city space is a prerequisite for creating inviting well-functioning cities for people (Gehl 2010, 97). Experienced as well as perceived safety is crucial for life in the city. Dark, deserted spaces and streets often promote a feeling of insecurity (Gehl and Gemzøe 2006, 106). For places to feel safe, there have to be people around with things to do. This is best achieved by the presence of diverse functions: housing, offices, shops and restaurants, so that there are lights in the windows and people nearby at all times of night and day.

**Lively Public Realm & Eyes on the Street**

The metric of Lively Public Realm was removed from this evaluation due to the difficulty in evaluating. A possible method of evaluating could be taking pedestrian counts or activities at various times of the day and week and gauging against other popular pedestrian areas in Seattle such as Broadway in Capitol Hill. This idea was eliminated because of the demands in time and Gehl's stance that analysis based on measuring just pedestrians is incomplete. Gehl says, "The experience of liveliness in the city is not limited to quantity. The lively city is a relative concept. It is not numbers, crowds, and the city size that matter but the sense

that city space is inviting and popular that creates a meaningful place"(Gehl 2010, 63). The concept "eyes on the street," coined by Jane Jacobs, was removed as a metric because it has similarities with the metric of Overlapping Functions.

**Overlapping Functions Day and Night**

Jane Jacobs describes the crime-preventive effect of life in the street, of mixing functions in buildings and of residents' are for common space (J. Jacobs 1992, 35). The presence of others indicates that a place is reasonably good and safe (Gehl 2010, 98). Linked with Jacobs idea of "eyes on the street," mixed functions means that people are present in the street at all times of the day, whether for coffee in the morning, business meetings over lunch, happy hour with friends, enjoying nightlight at a show, or locals making errands during the day or evening. Housing in particular signifies good connections to the city's important common space and a marked reinforcement of the real and perceived safety in the evening and at night (Gehl 2010, 99). So even if the street is deserted, lights from the windows in residential areas send a comforting signal that people are close by.

Land Use was evaluated by a visual survey and diagraming of Ballard Avenue NW. Properties were placed into the City of Seattle Current Land Use categories of Retail/Service, Mixed-Use (includes Retail/Service on ground floor), Entertainment, Hotel/Motel, Office, or Vacant/Parking. Retail/Service and Mixed-Use were considered the most important as they bring with them a variety of uses that span all hours of the day. Rankings were developed grounded in City of Seattle Pedestrian Zone street-level standards that require the principal pedestrian street to have pedestrian-orientated commercial uses, like shops, restaurants, and customer service offices, on 80% of the

ground floor (Department of Planning and Development 2013, 1). Current land uses were identified in person and any in question were verified using the Seattle Parcel Data tool on the Seattle Department of Planning and Development website. Land use information for each tenant along Ballard Avenue NW was collected in a spreadsheet. The Count feature in Microsoft Excel was used to total instances of each land use category. Percentages were calculated of the total for each use within the study area.

"Good" (3) – Greater than 80 percent is Retail/Service and Mixed-Use
"Average" (2) – 60-80 percent is Retail/Service and Mixed-Use
"Poor" (1) – Less than 50 percent is Retail/Service and Mixed-Use

**Good Lighting**

Gehl remarks that lighting in a city space has a pronounced impact on "orientation, security and visual quality in the dark hours"(Gehl 2010, 180). A variety of lighting strategies are used in cities around the world. Many cities are practical and functional in their approach while others take a much more conscious approach to lighting, recognizing the impact it has enhancing the appeal of city spaces, as well as a form of artistic expression. Pedestrian lighting has multiple purposes including: 1) Helping pedestrians to safely navigate sidewalks and pathways, 2) Providing for visibility and security at all hours, 3) Extending the hours that a business district is active, and 4) Encouraging walking as part of an active lifestyle (City of Seattle 2012, 5).

For the purposes of this study I am using the City of Seattle's definition of pedestrian lighting, "Pedestrian lighting sources that are, in addition to roadway lighting, specifically used to address pedestrian lighting needs (City of Seattle 2012, 5). To confirm the complete pedestrian-scaled street lighting system I checked the City of Seattle Department of Transportation GIS data and verify in person that the lighting system is in place from end to

end of the study area. The focus is on the existence of the pedestrian-scaled system, which is not a standard in the city.

"Good" (3) – Presence of a pedestrian-scaled street lighting system
"Average" (2) – No pedestrian-scaled street lighting system; roadway lighting only
"Poor" (1) – No street lighting in place besides that provided by businesses

### 3. Protection against Unpleasant Sensory Experiences

This factor details with protection against uncomfortable sensory experiences such as adverse weather conditions and unpleasant pollution. In Seattle, the main problem is that wind and rain cools us down and cloud cover keeps the sun from warming us up again. Seattle ranks in the top 5 nationally with 226 cloudy days per year. The problems vary with the seasons, especially the complex winter and spring weather patterns. Buildings should be adapted to local conditions in order to avoid having a negative impact on city environments. Gehl puts specific emphasis on how to improve what he calls the "micro-climate" of city streets, telling us that it is always possible to improve, particularly around places that want to invite people to stay (Gehl 2010, 174). Examples in Scandinavia include blankets, pillows, windshields, and heat lamps to patrons warm at outdoor cafes. The City of Seattle currently does not require overhead protection for new buildings, however the City is considering adding this rule for areas designated as a Pedestrian Retail Area (Department of Planning and Development 2014).

#### Rain/Snow

Gehl spends little time detailing standards for protection for rain and snow but it is logical to rate protection from both in terms of the overhead coverage provided by awnings. Ballard Avenue NW has frequent nooks from store entries that can provide shelter, as does

the mature tree canopy, but for this study I focused on infrastructure dedicated to overhead protection from the weather.

Awnings

Overhead coverage was defined as marquees and awnings, including retractable (See Figures 2 and 3). These are the two forms required by the Ballard Avenue Landmark District (The City of Seattle and Ballard Avenue Landmark District Board 2005). The street design literature I referenced and the City of Seattle did not have spacing or coverage standards, so I defined coverage as the number of awnings or marquees per building. This decision was based on the logic that a building should provide at minimum one awning for customers. The City of Seattle currently does not require overhead protection for new buildings, however the City is considering adding this rule for areas designated as a Pedestrian Retail Area (Department of Planning and Development 2014). Calculating the percentage of awnings as a part of the walkway using measurements or GIS was considered but I decided there was little value gained with more specific numbers.

Overhead coverage was collected by a visual survey of the study area. Buildings were used as the unit of measure instead of awnings per block to get a greater idea of coverage. An awning was credited to a building in two ways. First, if either a marquee or an awning was present. Second, if the awning was large I counted as a separate awning per door it covered. For example, if a large awning covered three doors, I would count as three awnings. The observations were recorded into a spreadsheet and organized by block. The total number of actual awnings and an expected was recorded for each side of the street. The minimum expected was calculated as one awning per building.

"Good" (3) – Each block side meets greater than 80 percent of its minimum
"Average" (2) – Each block side meets 60-80 percent of its minimum
"Poor" (1) – Each block side meets 40-59 percent of its minimum


Figure 2 Marquee on Ballard Avenue NW

Figure 3 No awnings on the western sidewalk of Ballard Avenue NW

## Heat/Cold

Weather extremes of the cold and heat can be handled on many levels on the micro level. One of the most efficient and natural protections against heat includes tree coverage. Measurements of ambient temperatures taken on exposed versus canopied streets around the United States document temperature differences ranging from five to fifteen degrees (Fahrenheit) between the two (Speck 2012, 226). Trees can also help shield pedestrians from inclement weather. Storefronts are in the best position to protect pedestrians from the cold by providing features that block wind and provide heat outdoors.

### Street Trees

Jeff Speck recommends a continuous canopy of mature trees (Speck 2012, 233). He tells us that this is only possible when a single species of tree is planted at a consistent spacing distance or is made up of two or three species that appear almost identical yet have a distinct genetic makeup to reduce the effects of tree disease. The City of Seattle also

encourages the planting of trees along public streets. To provide the optimum canopy cover for a streetscape, the City of Seattle recommends a consistent planting of all medium-scale trees between 25 - 30 feet apart, measured from the center of the tree (Seattle Department of Transportation 2014c).

While the consistent planting is important, what matters more is the size of the trees and the larger canopy that comes with their age. The size of a tree is measured by the trunk size. Tree trunk measurements were collected using the Seattle Department of Transportation Street Tree Inventory (Seattle Department of Transportation 2014d). The overall tree system was visually confirmed with a visual survey to identify any major gaps in coverage that should be noted. No measurements were taken but gaps would be noted for the use of improvements.

"Good" (3) – Continuous line of street trees with a median trunk diameter of 12 inches or greater
"Average" (2) – Continuous line of street trees with a median trunk diameter of 0-11 inches
"Poor" (1) – Little to no street trees

Windscreens and Heat Lamps

Transparent windscreens and heat lamps reduce the effects from the cold. People tend to gather for extended periods of time at restaurants, cafes, and bars. Those spaces that offer outdoor facilities for sitting and standing should offer protection from the wind and cold to encourage activity throughout the seasons, type of weather, and time of day. Data was collected in diagram form during a visual survey of the study area.

"Good" (3) – Both windscreens and heat lamps at the majority of restaurants, cafes, and bars with outdoor facilities. Gaps of no more than one establishment between protection.
"Average" (2) –Windscreen or heat lamps at restaurants, cafes, and bars with outdoor facilities. Gaps of no more than two establishments between protection

"Poor" (1) – No outdoor windscreens and heat lamps at restaurants, cafes, and bars with outdoor facilities

**Pollution**

Gehl gives little details regarding pollution at the street level. This could be measured by the cleanliness of the air, amount of trash on the street, or smells. This metric was removed from this study due to a lack of access to equipment and methods to measure the level of pollution within the study area.

**COMFORT**

Gehl presses that when protection is attended to; various parts of comfort need to be addressed (Gehl 2007, 19–20). He tells us that pedestrians need to have first-rate opportunities for walking. This includes good level surfaces, ample space, interesting frontages to look at and few obstacles or other harassments. Just as important are good opportunities for standing and sitting, for enjoying and spending time in the public space. Good public spaces offer good opportunities for seeing, as well as for hearing and talking.

**4. Opportunities to Walk**

**Room for Walking**

A standard sidewalk is constructed of Portland cement concrete and is located at least 5½ feet from the face of the curb and 2 feet from the property line (Seattle Department of Transportation 2014e). The sidewalk may be located closer to the property line when necessary to attain the minimum 5-foot planting strip width and 6-foot sidewalk.

The Seattle Right-Of-Way Improvements Manual requires that the "Pedestrian Zone," the area of the sidewalk reserved for pedestrian travel, be a minimum width of 6 feet (Seattle

Department of Transportation 2014e). Point obstructions such as poles and fire hydrants may intrude into the sidewalk area, but the sidewalk must have 5 feet clear width remaining (See Figure 4).

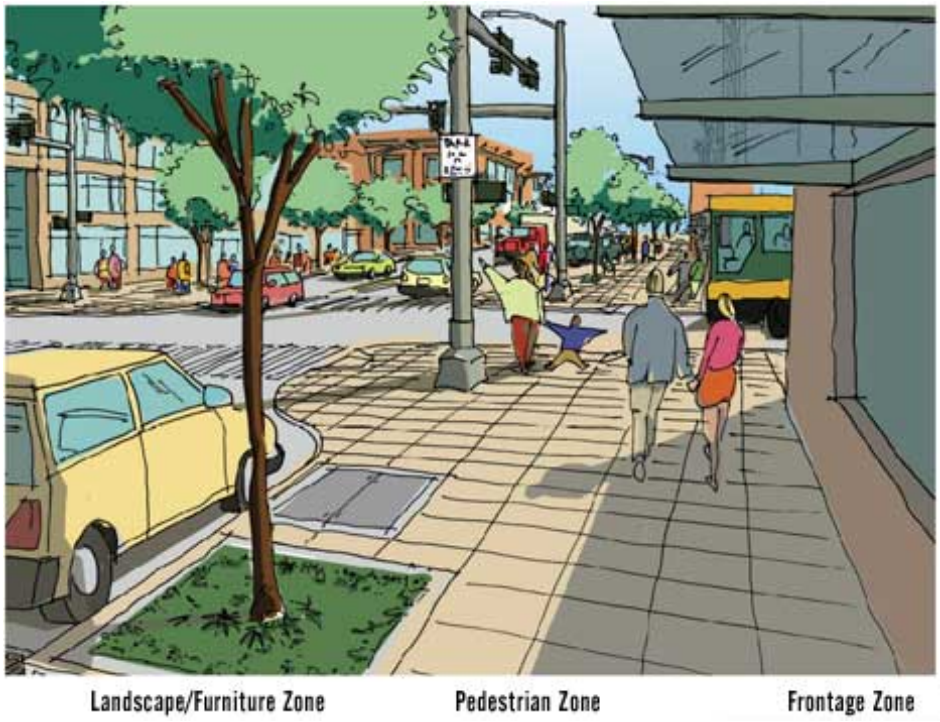



Figure 4 Image from the City of Seattle Right-Of-Way Manual

Room for walking will be determined using the Seattle Right-Of-Way design criteria. Measurements will be taken at the first tree and the shortest points on both the west and east sidewalks of each block. These numbers will be recorded in a spreadsheet and averaged. The averaged number will be matched with the scale. Measurements will be rounded to the nearest foot.

Width of Pedestrian Zone

"Good" (3) – 6 feet of space for pedestrian travel
"Average" (2) – 4-5 feet of space for pedestrian travel
"Poor" (1) – Less than 4 feet of space for pedestrian travel

Interesting Façades

Removed due to difficulty in defining for evaluation within the time constraints of this thesis. This could be measured using criteria set by Allan Jacobs but would take extensive time to measure and quantify throughout the study area.

**No Obstacles**

The Seattle Right-Of-Way Improvements Manual requires that the "Pedestrian Zone," the area of the sidewalk reserved for pedestrian travel, be a minimum width of 6 feet (Seattle Department of Transportation 2014e). The manual requires that "Street furniture, plantings, and items should not protrude into travel routes"(Seattle Department of Transportation 2014e).

Obstructions within the "Pedestrian Zone"

Obstructions will be defined as objects that encroach within the established pedestrian zone. Objects that cross into the pedestrian zone will be recorded in a diagram of the study area. The number of obstructions encountered will be tallied and the total will be matched with the evaluation scale to determine the score.

"Good" (3) – 3 or less obstructions within the "pedestrian zone"
"Average" (2) – 4-9 obstructions within the "pedestrian zone"
"Poor" (1) – 10 or more obstructions within the "pedestrian zone"

**Good Surfaces**

I will confirm the complete sidewalk system through City of Seattle Department of Transportation GIS data. The condition of the sidewalk surfaces will be evaluated during a visual survey of the study area. My assessment will use the same scale used by the Seattle Department of Transportation for transportation infrastructure that it owns. Sidewalks

were rated using an Asset Condition Rating of "Good" (As new or requires routine maintenance), "Fair" (Major rehabilitation required), and "Poor" (Should be replaced) (Seattle Department of Transportation 2010, 18).

Sidewalk Conditions

"Good" (3) = "Good" – Overall condition is "As new or requires routine maintenance." Flat surface throughout with no presence of uneven slabs or roots.
"Average" (2) = "Fair" – Overall condition is "Major rehabilitation required." Presence of uneven slabs or roots.
"Poor" (1) = "Poor" – Overall condition is "Should be replaced." Dangerous or missing segments of sidewalk.

**Accessibility for Everyone**

The Seattle Municipal Code defines a curb ramp as "that portion of the sidewalk area which provides a direct connection between the roadway level and the constructed sidewalk level, for the purpose of allowing persons operating wheeled devices to have convenient access between the roadway and sidewalk"(City of Seattle 2014). There are more than 26,000 curb ramps throughout Seattle. Curb ramps are generally present in the urban core, though in many cases the locations are inconsistent and they often do not align with crosswalks. Curb ramps are not present in many of the older residential neighborhood sidewalk networks. This presents mobility constraints for people with disabilities and is inconvenient for all users. The scale standard was set intentionally high, as this is an essential need for accessing the protection of sidewalks for elderly, disabled, or young children.

Curb Ramps

Present conditions of study area intersection curb ramps will be verified in person. Curb ramp sign locations and orientation will be recorded using diagraming. The final diagram will give me the information to total the number of possible intersection crossings and what actual exists. The numbers were added to a spreadsheet for storage and the percentage calculated (Total Actual Curb Ramps/Total Actual Intersection Crossings).

"Good" (3) – Curb ramps present in every direction at 100 percent of intersection crossings
"Average" (2) – Curb ramps present in every direction at 75-99 percent of intersection crossings
"Poor" (1) – Curb ramps present in every direction at 75 percent or less of intersection crossing

## 5. Opportunities to Stand/Stay

Ballard Avenue NW is interesting because of both its design and the materials it was built with from the early 1900s. Ballard Avenue features numerous points of entry due to its small blocks and narrow storefronts. This contributes to the idea of "edge effect." This idea mainly is in reference to the public/private interaction between the public realm and private property or uses. For example, building façades can provide visual interest to pedestrians walking along the sidewalk. The presence of windows, porches, decks, balconies, and outdoor cafés adjacent to streets provides activity along and surveillance of the streetscape.

### Edge Effect/Attractive Zones for Standing/Staying

Gehl talks about the "edge effect:" how "wherever people stay for a while, they seek out places along the edges of space"(Gehl 2010, 137). Most often, this job is performed by the fronts of buildings, which, if sufficiently porous and deep, attract both walkers and

lingerers (Speck 2012, 240). Speck defines "porous" as windows and doors that connect the interior of the store to the sidewalk. By "deep," Speck means the degree to which the front of the building provides opportunities for shelter, leaning, sitting and other physical engagement. Speck notes that sidewalk displays are perhaps the most common and impactful contributions to a deep façade.

Presence of Windows and Doors

Allan Jacobs assures us that it is usually windows and doors that give transparency. "On commercial streets, they invite you in, they show you where is there and, if there is something to sell or buy, they entice you"(A. B. Jacobs 1995, 286). Jacobs notes that some of the best streets have entryways as little as 12 feet apart.

To evaluate this metric, I will record the number of doors and windows facing Ballard Avenue NW for each building footprint in a spreadsheet. Windows were defined as glass with a clear frame to it. This means that long windows were counted as just one. Minimums of one door and two windows were set for each building. Totals for the actual and expected minimum were calculated for each block. Percentages of the minimum met were calculated for each block. Any blocks that fell under the minimums were highlighted. Calculating the percentage of windows and doors as a part of the walkway using measurements or GIS was considered but I decided there was little to no additional value in having more specific numbers.

"Good" (3) – 100 percent of buildings have at least two windows and one transparent door facing Ballard Avenue NW
"Average" (2) – 75 percent of buildings have at least 1-2 windows and one transparent door facing Ballard Avenue NW
"Poor" (1) – 60 percent of buildings have at least two windows and one transparent door facing Ballard Avenue NW

**Supports for Standing**

This metric was removed from this study, as it was difficult to measure with the time given. Ballard Avenue NW offers little to no objects to stand against with the exception of window ledges. This metric could have been evaluated by taking measurements of every available ledge determined to be deep enough for sitting or learning. This figure could then be calculated as a percentage of the total available building façade available in the study area and possibly mapped in a Geographic Information System.

**Façades with Good Details that Invite Staying**

This metric is highly subjective and was removed from this study. Ballard Avenue NW has historical value to the area. This makes the street unique from more modern areas of Seattle such as South Lake Union. Still, the task of quantifying the value and contrasting with other areas is beyond what can be undertaken given time constraints.

**6. Opportunities to Sit**

In considering the variables in creating a well-used public space in an urban setting, Whyte came to the conclusion that people are more likely to collect where there are places to sit (Whyte and Project for Public Spaces 2001, 24–39). Whyte found that the freedom to choose where to sit in a public space is more important to an individual than the comfort or aesthetics of a seat. The benefit, in Whyte's words, of social space is social comfort. People enjoy the freedom to sprawl, to create a barrier between themselves and others at lunch or a passerby on the street. They also depend on being able to choose between sitting in the sun or the shade, depending on the time of the year and the temperature of the weather.

This type of social freedom is more valuable to people than sitting somewhere that may be more comfortable, or interesting to look at.

**Zones for Sitting**

Sitting zones are defined in this study as permanent, publically accessible spaces dedicated for groups of 10 or more people to sit and socialize. Information on sitting zones was collected using a visual survey of the study area. Areas that met the criteria were noted on a diagram of Ballard Avenue NW (Figure 12). The diagram was used to visually evaluate where the study area fits on the scale.

"Good" (3) – One public seating zone per block
"Average" (2) – One public seating zone every other block
"Poor" (1) – No public seating zones

**Good Places to Sit**

This metric was removed because it is the most subjective of the metrics within this criterion. The other two metrics are adequate for revealing how the study area performs in terms of seating.

**Benches for Resting**

Benches are defined as an object dedicated to sitting that accommodates at least two users. Only publicly provided seating was counted since it is always accessible while privately provided seating requires either a vendor to open or the consumption of a good. Information on benches was collected using a visual survey of the study area. Areas that met the criteria were noted on a diagram of Ballard Avenue NW. The diagram was used to visually evaluate where the study area fits on the scale.

"Good" (3) – Minimum of two benches per block on each side of the street
"Average" (2) – Minimum of one bench per block on each side of the street
"Poor" (1) – One bench per block or less

## 7. Opportunities to See

### Reasonable Viewing Distances, Unhindered Sightlines, and Interesting Views

All metrics related to views were removed from the scope of this study. This is because all three are subjective and difficult to measure with any degree of accuracy. Ballard Avenue NW has many qualities such as its disjoined street grid and human that makes it a good place to take in views but developing a reliable way to quantify is outside the time allowance for this project.

### Lighting (When Dark)

Gehl remarks that lighting in a city space has a pronounced impact on "orientation, security and visual quality in the dark hours"(Gehl 2010, 180). A variety of lighting strategies are used around the world. Many cities are pragmatic and functional in their approach while others take a much more conscious approach to lighting, recognizing the great impact it has on city quality, as well as its potential as a form of artistic expression. Pedestrian lighting has multiple purposes including: 1) Helping pedestrians to safely navigate sidewalks and pathways, 2) Providing for visibility and security at all hours, 3) Extending the hours that a business district is active, and 4) Encouraging walking as part of an active lifestyle (City of Seattle 2012, 5).

For the purposes of this study I am using the City of Seattle's definition of pedestrian lighting, "Pedestrian lighting sources that are, in addition to roadway lighting, specifically used to address pedestrian lighting needs (City of Seattle 2012, 5). To confirm the complete

pedestrian-scaled street lighting system I checked the City of Seattle Department of Transportation GIS data and verified during field visits in person that the lighting system is in place from end to end of the study area. The focus is on the existence of the pedestrian-scaled system, which is not a standard in the city.

"Good" (3) – Presence of a pedestrian-scaled street lighting system
"Average" (2) – No pedestrian-scaled street lighting system; roadway lighting only
"Poor" (1) – No street lighting in place besides that provided by businesses

## 8. Opportunities to Talk and Listen

Low noise levels and city furniture can make a valuable contribution to meetings in urban space.

### Low Noise Levels

Protection from loud noise is important to allow for conversations and a pleasant environment for relaxing and socializing. The noise of car and diesel engines is a primary nuisance to a comfortable pedestrian environment (Gehl 2010, 153–155). Low noise levels were determined by verifying the classification of the study area as a street with the Seattle Department of Transportation.

"Good" (3) – Ballard Avenue NW is not categorized as an arterial or freight route
"Average" (2) – Ballard Avenue NW is categorized as either an arterial or a freight route
"Poor" (1) – Ballard Avenue NW is categorized as both an arterial and a freight route

### Street Furniture that Provides "Talkscapes"

While city benches are good for preserving private space and distance, they are no very good for communication (Gehl 2010, 155). A row of city benches is not particularly inviting. A far better solution is grouping benches into a "talkscape." Talkscapes allow flexibility to

accommodate the number of people and the type of conversation. A talkscape is defined as a minimum of two benches at an angle or moveable chairs in a grouping.

The present condition of study area talkscapes was verified during field visits. Talkscape locations will be recorded using diagraming (Figure 12). The final diagram gave me the information to sum the number of talkscapes and verify the number per block. The outcome was matched with the appropriate grade on the scale.

Number of talkscapes

"Good" (3) – Minimum of two talkscapes per block
"Average" (2) – Minimum of one talkscape per block
"Poor" (1) – The number of talkscapes is less than one block

### 9. Opportunities to Play and Exercise

Gehl discusses that the invitation to people to express themselves, play, and exercise in city space covers an important topic with the goal of creating lively, healthy cities.

**Invitations for creativity, physical activity, exercise and play**

While Gehl and other pedestrian focused planners would prefer streets safe and sidewalks safe enough for kids to play in, the reality is that Ballard Avenue NW is not currently setup for this. With this in mind, parks or playgrounds become the preference for this study. Parks were defined as only as those spaces maintained by the City of Seattle Parks Department. The quality of the park was determined by the existence of amenities related to play: 1) Play equipment (exercise equipment and playgrounds), 2) public art, and 3) water features (fountain, pool, or stream).

"Good" (3) – Study area park system contains all three amenities
"Average" (2) – Study area park system contains two amenities
"Poor" (1) – Study area park system contains one or less amenity

**By Day and Night, In Summer and Winter**

Gehl supports community programing on the principal of "fixed, flexible, and fleeting"(Gehl 2010, 159–161). The fixed element is the city space and the fixed daily framework on city life. The flexible element is the special temporary facilities and events that may take place in the city space during the year. The fleeting element is the large number of minor events in the city and also street music.

**ENJOYMENT**

Gehl mentions that no matter how much work is devoted to Protection and Comfort the effort is almost useless unless spatial quality, proportions and dimensions are subject to scrutiny (Gehl 2010, 162). Creating thoroughly enjoyable spaces is highly dependent on utilizing the qualities, attractions and special opportunities found in and around city spaces (Gehl and Gemzøe 2006, 106). It is vital to create city spaces on a human scale, with fine details, good materials, and good street furniture. Good city space must also provide opportunities to enjoy the positive aspects of the local climate. Finally, city space should offer good experiences, fine views, and interesting sensory impressions.

**10.Scale**

**Buildings and Spaces Designed to Human Scale**

Gehl dislikes tall buildings because of his concern for the public realm, and the fact that only people in the lower stories of a building can interact with people on the street (Gehl 2010, 40–42). Speck agrees but adds that small buildings provide the benefit of keeping

city blocks full and active instead of with empty properties and parking lots (Speck 2012, 220–221). Gehl asserts that contact is possible only from the lowest five floors, with a strong preference for two to three floors. Allan Jacobs, author of the influential book "Great Streets," agrees, concluding that a building height of three storeys is the maximum height for a building of human scale (A. B. Jacobs 1995, 278).

When the Ballard Avenue Landmark District Board considers new construction or the restoration and renovation of existing buildings, one of the Board's decision-making guidelines observes the important of scale. "The scale of all structures, in relationship to other structures and spaces is important. The scale shall continue to be small and relatively uniform" (The City of Seattle and Ballard Avenue Landmark District Board 2005, 6).

Building heights were collected during a visual survey of the study area. Heights of structures were recorded into a spreadsheet with the total number of structures for each respective height recorded per block. The totals for each block were summed and the percentage was calculated from the total structures in the study area.

"Good" (3) – At least 90 percent of buildings are three storeys or less
"Average" (2) – At least 75 percent of buildings are three storeys or less
"Poor" (1) – At least 50 percent of buildings are three storeys or less

## 11. Opportunities to Enjoy the Positive Aspects of Climate

### Sun/shade

Local climate in the built environment is influenced by the landscape and buildings (Gehl and Gemzøe 2006, 168). Because of this, building height was selected as a way to measure the amount of sun that is able to reach the street.

Building heights were collected during a visual survey of the study area. Heights of structures were recorded into a spreadsheet with the total number of structures for each respective height recorded per block. The totals for each block were summed and the percentage was calculated from the total structures in the study area.

"Good" (3) – At least 90 percent of buildings are three storeys or less
"Average" (2) – At least 75 percent of buildings are three storeys or less
"Poor" (1) – At least 50 percent of buildings are three storeys or less

**Heat/Coolness**

The City of Seattle encourages the planting of trees along public streets to reduce direct sunlight and heat radiating off of pavement and buildings. To provide the optimum canopy cover for a streetscape, the City of Seattle recommends a consistent planting for trees for complete street cover (Seattle Department of Transportation 2014c). While the consistent planting is important, what matters more is the size of the trees and the larger canopy that comes with their age. The size of a tree is measured by the trunk size. Tree trunk measurements were collected using the Seattle Department of Transportation Street Tree Inventory (Seattle Department of Transportation 2014d). The overall tree system was confirmed with a visual survey to identify any major gaps in coverage that should be noted. No measurements were taken but gaps were noted for suggestions for improvement.

"Good" (3) – Continuous line of street trees with a median trunk diameter of 12 inches or greater
"Average" (2) – Continuous line of street trees with a median trunk diameter of 0-11 inches
"Poor" (1) – Little to no street trees

**Breeze**

This metric was removed from this study because of lack of access to weather equipment that could record accurate wind speed information.

**12. Positive sensory experience**

**Good Design and Detailing, Good Materials, Fine Views**

These three metrics were removed due their high level of subjectivity. Both design and materials could have been visually benchmarked against what is common in the Ballard neighborhood. This option was not pursued as worth of the study and the limited time available favored their removal. Views were removed because of their inherent subjectivity in establishing a standard for evaluation.

**Trees, Plants, Water**

Trees, landscaping and plants play a key role among the elements in city space. Trees provide shade in warm months; they cool and cleanse the air, define city space, and help highlight important sites (Gehl 2010, 179–180).

Trees

The City of Seattle encourages the planting of trees along public streets. To provide the optimum canopy cover for a streetscape, the City of Seattle recommends a consistent planting for trees for complete street cover (Seattle Department of Transportation 2014c). While the consistent planting is important, what matters more is the size of the trees and the larger canopy that comes with their age. The size of a tree is measured by the trunk size. Tree trunk measurements were collected using the Seattle Department of Transportation Street Tree Inventory (Seattle Department of Transportation 2014d). The overall tree system was confirmed with a visual survey to identify any major gaps in coverage that should be noted. No measurements were taken but gaps were noted for suggestions for improvement.

"Good" (3) – Continuous line of street trees with a median trunk diameter of 12 inches or greater
"Average" (2) – Continuous line of street trees with a median trunk diameter of 0-11 inches
"Poor" (1) – Little to no street trees

Plants

Plants were defined as "Planting Areas" in this study and divided into the categories of "Planter Box/Pot" and "Planting Area." "Planter Box/Pot" is used for all plants that are within a container. "Planting Area" is for plants growing directly in the ground without a container. Information on plants was collected by a visual survey of the study area. Approximate locations of plants were recorded on a diagram of Ballard Avenue NW. Using the final diagram with locations, plant information was transferred to a spreadsheet to quantify and organize by block. The numbers were visualized into a stacked bar chart across the four blocks to identify gaps in the study area. The results were then matched with the scale.

"Good" (3) –5 or more planting areas per block
"Average" (2) – 3-4 planting areas per block
"Poor" (1) – Less than 3 planting areas per block

Water

Water is defined as the presence of a single stream, fountain, pond, spray-park, or public art featuring water. Information on water was collected by a visual survey of the study area. Approximate locations of water were recorded on a diagram of Ballard Avenue NW. Using the final diagram with locations, water locations counted manually. The results were then matched with the scale.

"Good" (3) – Two water features in the study area
"Average" (2) – One water feature in the study area
"Poor" (1) – No water features in the study area

**The Modified 12 Key Quality Criteria**

| | | Metric |
|---|---|---|
| 1 | **Protection against traffic and accidents - feeling safe** | Protection for pedestrians |
| 2 | **Protection against crime and violence - feeling secure** | Overlapping functions day and night<br>Good lighting |
| 3 | **Protection against unpleasant sensory experiences** | Rain/Snow<br>Heat/Cold |
| 4 | **Opportunities to walk** | Room for walking<br>No obstacles<br>Good surfaces<br>Accessibility for everyone |
| 5 | **Opportunities to stand/stay** | Edge effect/attractive zones for standing/staying |
| 6 | **Opportunities to sit** | Zones for sitting<br>Good places to sit<br>Benches for resting |
| 7 | **Opportunities to see** | Lighting (when dark) |
| 8 | **Opportunities to talk and listen** | Low noise levels<br>Street furniture that provides 'talkscapes' |
| 9 | **Opportunities for play and exercise** | Invitations for creativity, physical activity, exercise and play |
| 10 | **Scale** | Buildings and spaces designed to human scale |
| 11 | **Opportunities to enjoy the positive aspects of climate** | Sun/shade<br>Heat/coolness |
| 12 | **Positive sensory experience** | Trees, plants, water |

Table 1 Inspired by Jan Gehl's 12 Quality Criteria

## Fieldwork

The study area was set along Ballard Avenue between NW Market St and Ione PL (Figure 5). This matches closely with the Ballard Avenue Historic District boundaries and encompasses much of the commercial activity along the street. The length of the Historic District area is a ½ mile (800 meters). Fieldwork took the form of direct observation for the inventory of street features and pedestrian counts.


**Figure 5 Map of study area. Created with Apple Maps**

The majority of data was collected through direct observation by walking and diagraming the length of Ballard Avenue NW. Diagraming was performed using a 5.5-inch by 8.5-inch notepad and pen. Diagraming was used for it's flexibility, portability, and ease of use while walking and recording observations (Figure 6).

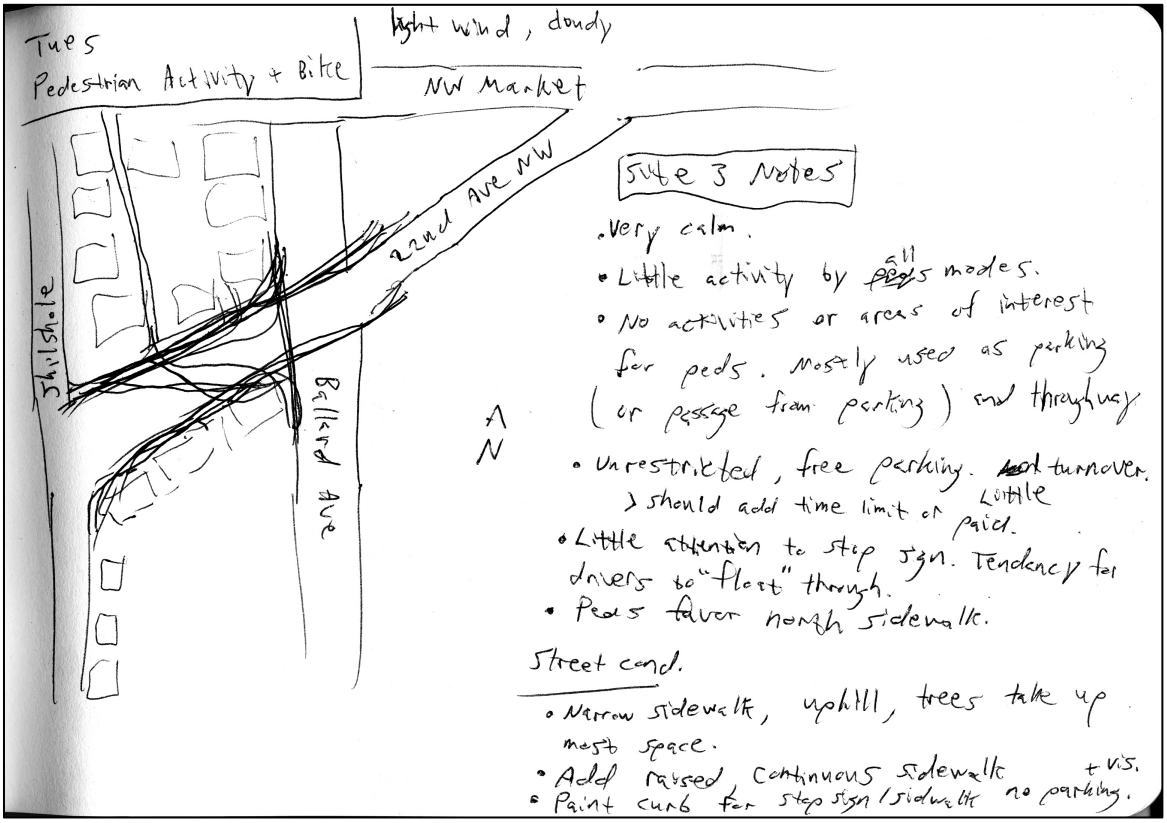



**Figure 6 Field notes and diagram from May 12, 2014**

Data was collected on both the eastern and western sides of the street each time. Observations would begin each time at the very northern part of the study area at Market Street NW and Ballard Avenue NW. Recording would begin on the on the western sidewalk and progress south until the end of the study are at Ione PL. I would then cross the street to the eastern sidewalk toward Ione PL. Next I would walk north while making recordings until reaching where I began at Market Street NW and Ballard Avenue NW. The approximate total length of the surveying walk is 0.6 miles (965 meters). This is equal to about a 13 minute dedicated walk round-trip.

Observations were made on the following days:

- Sunday April 20th, 2014 (Pedestrian Counts)
- Saturday May 3rd, 2014 (Pedestrian Counts)
- Tuesday May 13th, 2014 (Pedestrian Counts and Diagraming)
- Monday May 19th, 2014 (Pedestrian Counts and Diagraming)

Pedestrian counts were performed across late April through May. Spring weather is often highly variable in Seattle, bringing rain, overcast days, and sunshine all within the same day. The temperature range during this time was 55-61 F with both sunny and rainy days. Data collection was performed with the Multi Clicker Android smartphone application and a notepad and pen. Data was collected on pedestrians, bicyclists, and automobile traffic. Pedestrians include all traveling by foot expect infants in strollers and carried as they were not active users. Bicyclists included anyone on non-motorized wheels such as skateboards and foot-powered scooters. Cars were counted as one with no consideration for the number of passengers inside. People and vehicles were counted entering or leaving the observation area with no double counting.

The four locations were chosen based on their connections to the commercial core and parking of Ballard Avenue to the north, parking to the west along Shilshole Avenue, and connection to Leary Way NW – a significant arterial for those arriving from outside of the neighborhood. The intersection of NW Vernon and Ballard Avenue is often the center of activity along the street, especially in the evening hours.

| Location | Site Number |
|---|---|
| NW Market St & Ballard Avenue NW | 1 |
| NW Market St & 22nd Avenue NW | 2 |
| Shilshole Avenue NW & 22nd Avenue NW | 3 |
| NW Vernon PL & Ballard Avenue | 4 |

**Table 2 Field observation locations**

Pedestrian Count data was collected starting at 11:30 AM on each day. Counts began at Site 1 and would proceed to Sites 2, 3, and 4 immediately after each session. Counts were taken for 30 minutes at each site with totals recorded at 15 minutes and 30 minutes.

## Limitations

While the 12 Key Quality Criteria presented by Gehl is a major step forward for evaluating public spaces with consistency, the metrics within can often be vague and open for interpretation themselves. This vagueness may likely be intentional as the books can be considered marketing for potential clients so revealing the "Gehl method" could reduce business. An example of the imprecision is the criterion Protection Against Traffic and Accidents has the metric of "Protection for Pedestrians". This can be more easily agreed upon in terms of universally employed methods of physical protection such as presence of sidewalks, warning signage, and traffic calming measures. Conversely, the criterion "Opportunities to See" has the metrics of "Reasonable Viewing Distances" and "Interesting Views." These are very difficult to quantify and Gehl offers no specifics on how to measure. This allows a significant amount of flexibility and subjectivity regarding what data counts as evidence to arrive at a final rating for a criteria. Unfortunately this makes comparison with other spaces evaluated by Gehl imperfect, as the data used in my metrics for each criterion are likely different than used by Gehl.

Visual surveys of the study area were an important contributor to scoring various criteria. While every effort was made to remove data collection biases, there are shortcomings with the collection process. The most noteworthy is that these surveys were taken during the spring when weather can be highly variable and affect pedestrian counts. A survey on a sunny day can bring increased pedestrian numbers and affect the types of activities that occur when contrasted with a rainy spring day. Also, the time of year could also affect what outdoor setups commercial vendors provide. For example, a restaurant, bar, or café may bring out portable heating during the winter that was not present during surveying. Similarly, shops may provide outdoor seating once the weather is consistently warmer and dryer.

After completing the work, in retrospect, future research may consider Geographic Information System (GIS) analysis to locate, map, and control data. However, field observation provided essential information and knowledge that mapping data could not provide. Time was a major constraint on this project and did not allow for analysis of all metrics.

## Findings: Rating Ballard Avenue as a Pedestrian Street

What follows is a progression through the results of my modified list of Gehl's 12 Key Quality Criteria. Each of the 12 Key Quality Criteria is presented and explained.

**PROTECTION**

**1. Protection Against Traffic and Accidents – Feeling Safe**

***Protection for Pedestrians***

**Score – Good**

Seattle Department of Transportation GIS data confirms concrete sidewalks the entire length of Ballard Avenue NW (Department of Planning and Development 2014, 74). A visual survey of the study area also confirmed its completeness.

The study area contains four intersections, each with stop signs for traffic entering the street from the east and west (Figure 7). The study area has no stop signs for traffic traveling north and south and just one marked crosswalk along the length of the study area.

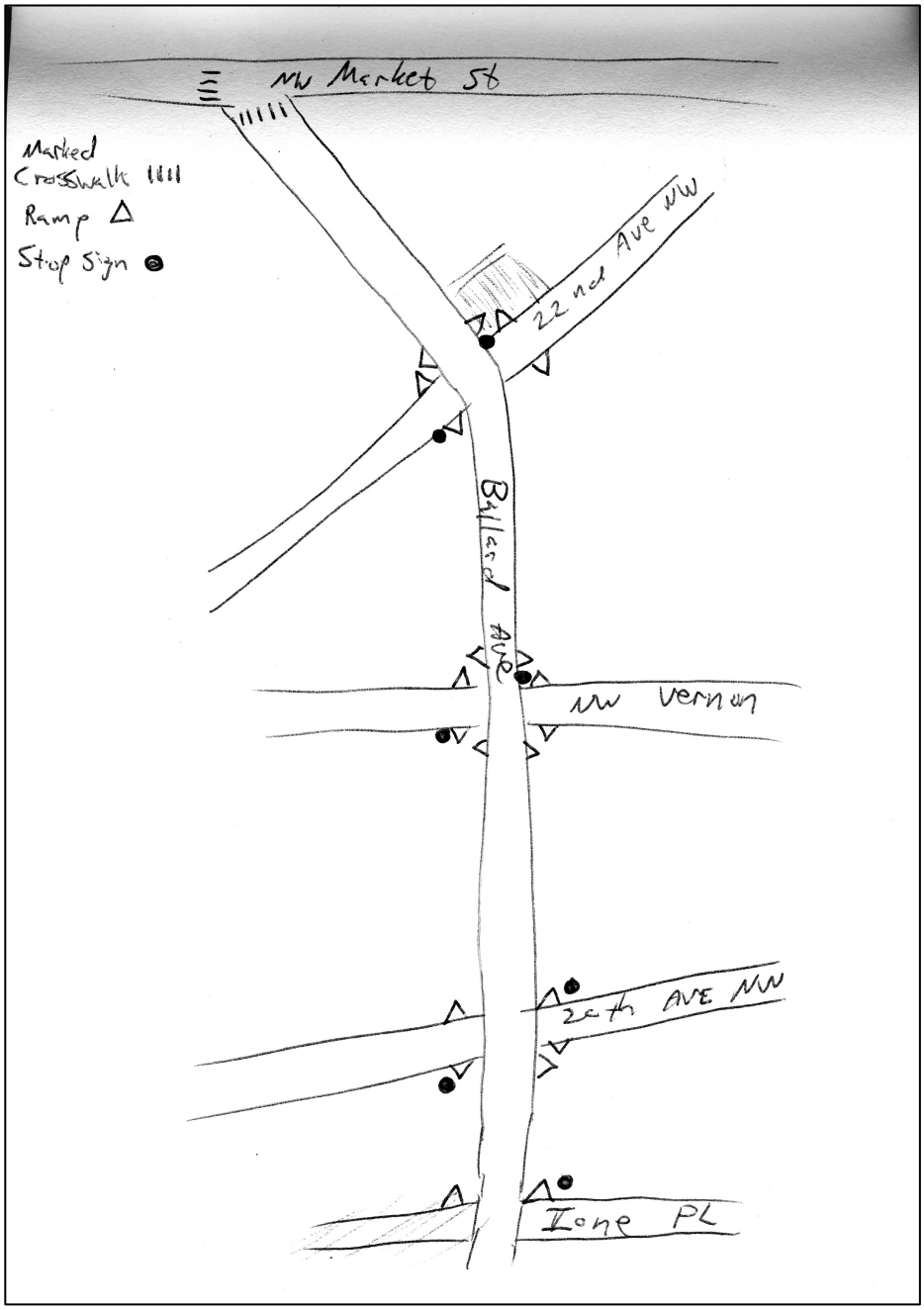



**Figure 7 Intersection diagram based on fieldwork**

**2. Protection Against Crime and Violence – Feeling Secure**

***Overlapping Functions Day and Night***

**Score – Good**

Ballard Avenue offers a mix of land uses in retail/service, hotel/motel, entertainment, mixed-use, and office. Over 80 percent of land use in the study area is a mix of retail, service, or mixed-use (Figure 8). The largest use was in retail and service. During the day these uses come in the form of cafes, lunch establishments, a gym, two hotels, offices, and a variety of boutique shopping and services. At night Ballard Avenue turns into a lively nightlife spot featuring famous small venues for music such as the Tractor Tavern, highly reviewed restaurants as the Walrus and the Carpenter, and a range of popular bars.

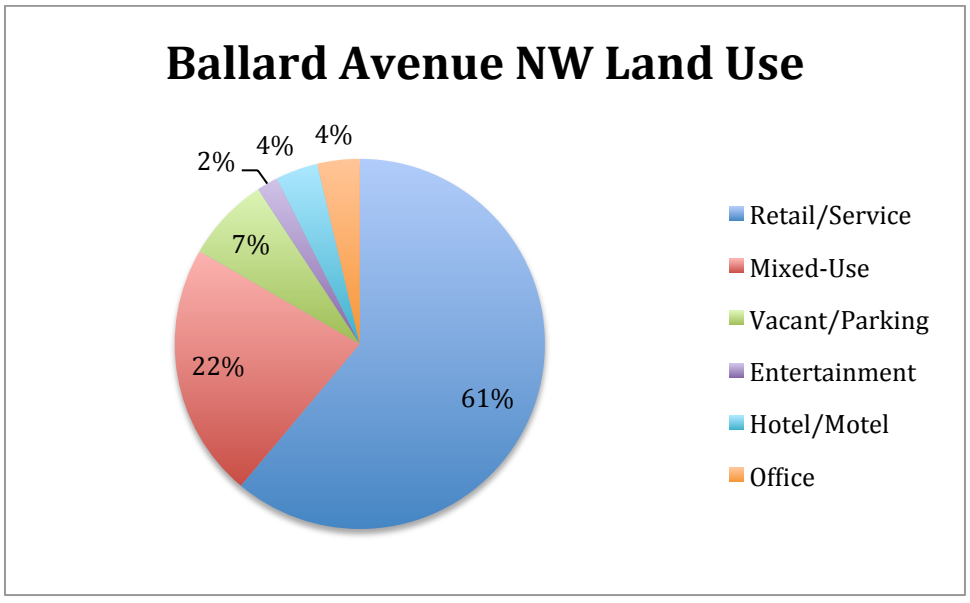



Figure 8 Land use based on fieldwork

***Good Lighting***

**Score - Good**

Ballard Avenue has an inventory of City of Seattle pedestrian-scaled street lighting (City of Seattle 2012, 16). A gap analysis by the City of Seattle in 2012 showed that Ballard Avenue is within a high priority area for pedestrian lighting due to the commercial activity and pedestrian zoning designation. The gap analysis results showed that the pedestrian lighting needs of Ballard Avenue were adequately met (City of Seattle 2012, 16–20). The relative rarity of pedestrian-scaled street lighting in the city gives Ballard Avenue NW an above average score.

**3. Protection from Unpleasant Sensory Experiences**

***Rain/Snow***

**Score – Poor**

Ballard Avenue NW has little overhead protection from rain and snow. Large gaps in overhead protection exist (Appendix A). The west sidewalk of the street has especially bad overhead protection, missing the minimum awning goal considerably three out of the four blocks. The east side performs much better, but barely meets the standard set for a score of Average (Table 3). As a whole, the entire study only reaches 52% of the minimum goal of one awning per building. Ballard Avenue NW's commercial fronts have either retractable awnings or marquees. Retractable awnings are the preferred awning type within the Ballard Avenue Landmark District (The City of Seattle and Ballard Avenue Landmark District Board 2005, 7). The retractable awnings add flexibility to adjust to the weather on the side of the vendor. However, I observed that this could make the availability of

protection less consistent for the public as a vendor may forget to adjust or not have open during periods of poor weather.

| Ballard Avenue NW Awnings | | |
|---|---|---|
| | **Number of Awnings West** | **Number of Awnings East** |
| **NW Market St – 22nd Ave NW** | 9 | 3 |
| Expected | 10 | 5 |
| Percent of Goal Met | 90% | 60% |
| **22nd Ave NW – NW Vernon St** | 1 | 6 |
| Expected | 11 | 10 |
| Percent of Goal Met | 9% | 60% |
| **NW Vernon St – 2oth Ave NW** | 2 | 3 |
| Expected | 9 | 5 |
| Percent of Goal Met | 22% | 60% |
| **20th Ave NW – Ione PL** | 0 | 4 |
| Expected | 1 | 3 |
| Percent of Goal Met | 0% | 133% |
| Total | 12 | 16 |
| Total Expected | 31 | 23 |
| Percent of Expected Goal | 39% | 70% |

**Table 3 Awning data based on fieldwork**

***Heat/Cold***

**Score – Poor**

The study area offers good protection from the heat but poor protection from the cold. Protection from the heat was supported by the abundant and mature trees lining the east and west sides of the street (Appendix B). Awnings from commercial tenants also add supplemental protection from the heat.

Protection from the cold is scarce. A visual survey showed no hardware was present at any of the restaurants, cafes, or bars to address either wind or cold (Figure 9). It should be noted that the site survey was performed during spring and some of this equipment may have been uninstalled as the area shifts to warmer weather.

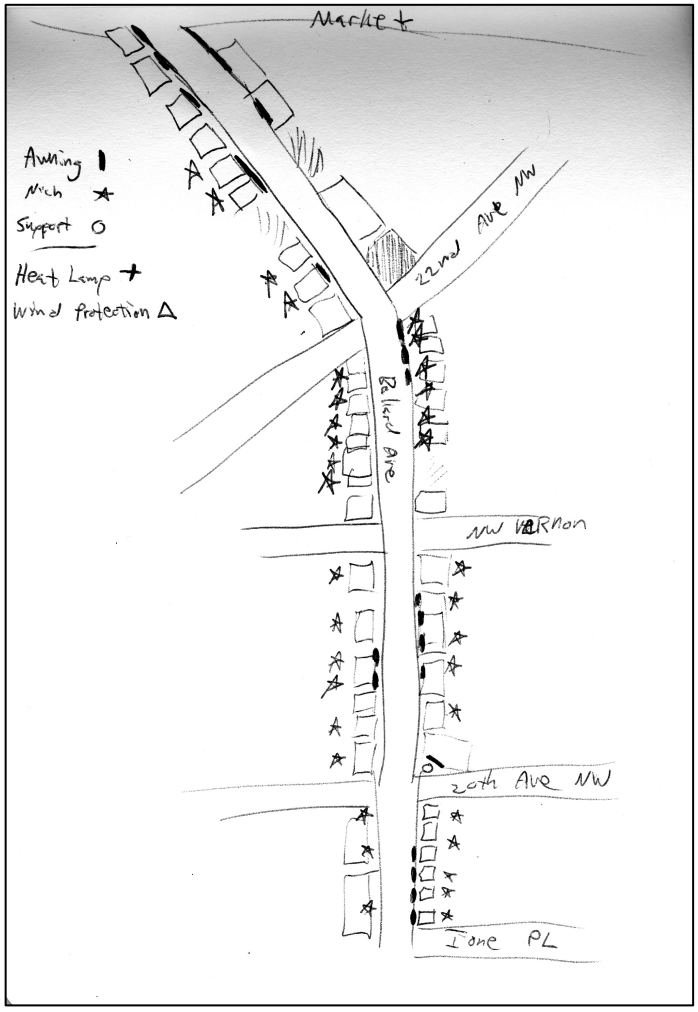



Figure 9 Diagram of weather protection based on fieldwork

**COMFORT**

**4. Opportunities to Walk**

***Room for Walking***

**Score - Average**

Ballard Avenue NW has narrow sidewalks, with the average for the entire street at approximately 4.5 feet (Figure 10). While at times the sidewalk is a total width of 10-12 feet, the actual usable walking space is narrowed substantially by obstructions on both sides of the pedestrian zone. The landscape/furniture zone nearest the street has obstructions such as mature street trees, signage, bike racks, and utility poles. Further

reducing space is the frontage zone, where sidewalk cafes reduce space. This reduces the actual usable space to an average of 4 feet. The west side of the street is the narrowest, likely because of the higher density of uses and the greater share of cafes and bars.

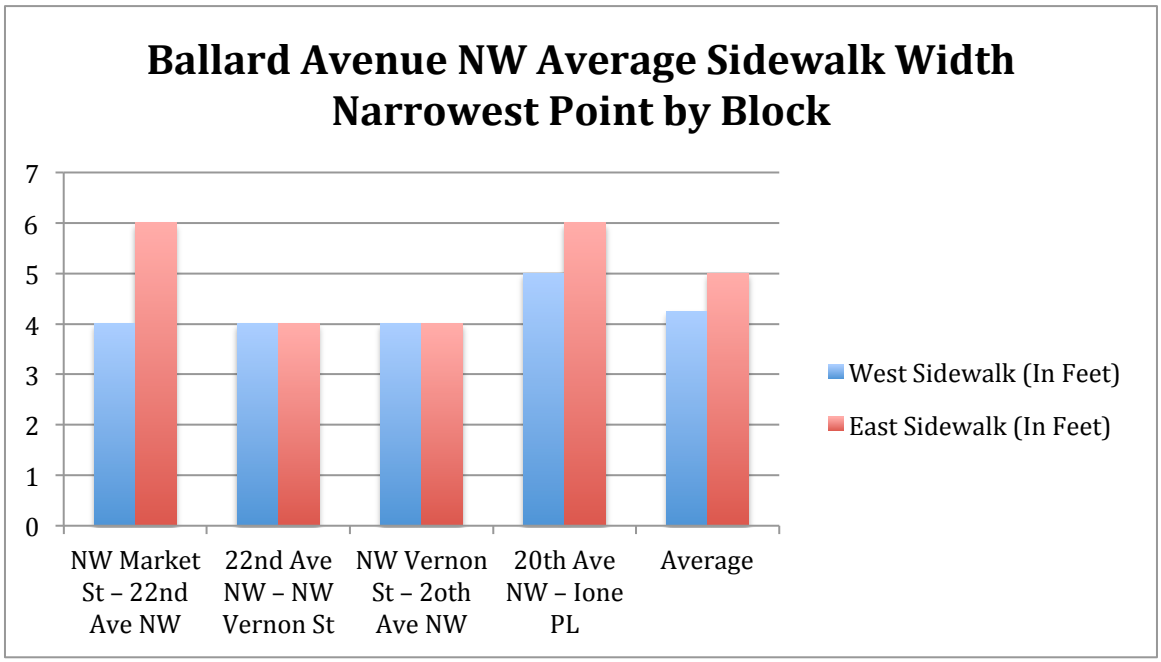



Figure 10 Sidewalk width based on fieldwork

***No Obstacles***

**Score – Good**

During the visual survey the study area had one obstruction that crossed into the pedestrian zone (Figure 11). The obstruction was a street board sign placed in the middle of the pedestrian zone instead of near the curb as most retail and service establishments do.

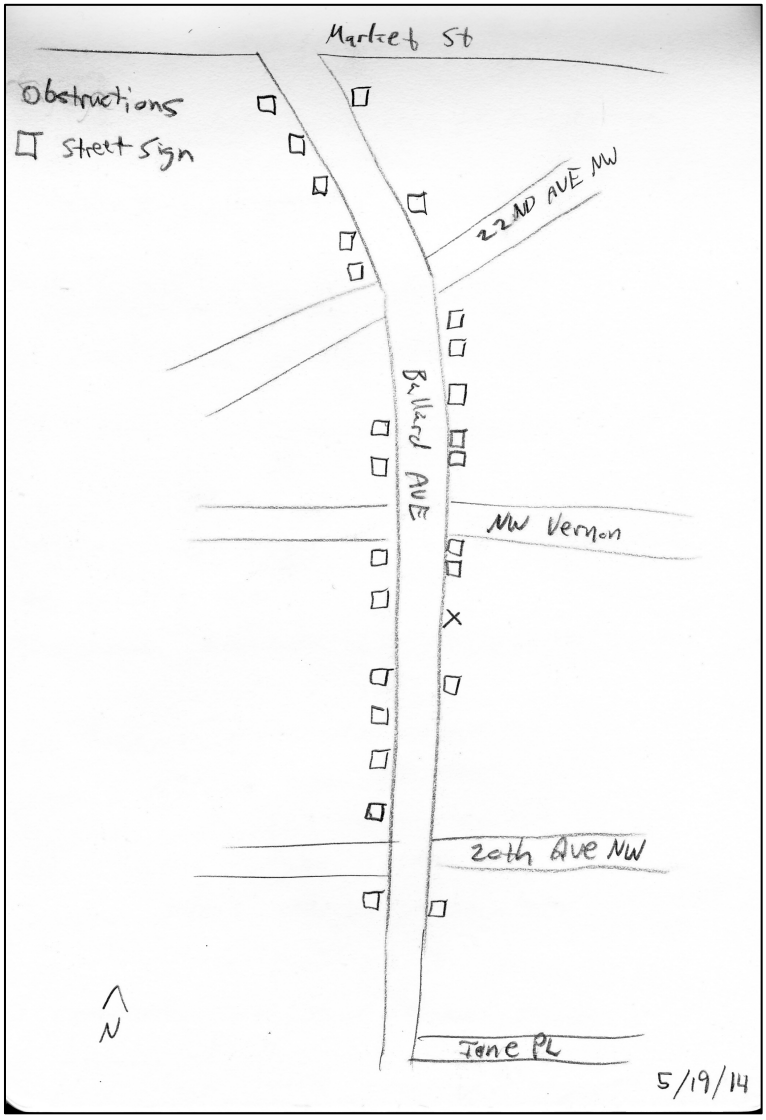



Figure 11 Diagram of obstructions based on fieldwork

***Good Surfaces***

**Score - Good**

Seattle Department of Transportation GIS data confirms concrete sidewalks the length of Ballard Avenue NW (Department of Planning and Development 2014, 74). A site survey of surface conditions on May 16, 2014 showed sidewalk surface conditions as "Good" on both the east and west sides. The sidewalks provide a flat walking surface without roots, holes, or other foot hazards throughout the length of Ballard Avenue.

***Accessibility for Everyone***

**Score - Average**

The study area has 4 intersections, 14 corners, and 20 curb ramps. The curb ramps cover 71 percent of the corner crossings in the study area (Table 4).

| Ballard Avenue NW Curb Ramps | Number of Intersections | Number of Corners | Number of Possible Curb Ramps | Number of Actual Curb Ramps |
|---|---|---|---|---|
| NW Market St – 22nd Ave NW | 1 | 4 | 8 | 6 |
| 22nd Ave NW – NW Vernon St | 1 | 4 | 8 | 8 |
| NW Vernon St – 2oth Ave NW | 1 | 4 | 8 | 5 |
| 20th Ave NW – Ione PL | 1 | 2 | 4 | 1 |
| **Total** | **4** | **14** | **28** | **20** |
| **Percentage of Corners with Curb Ramps** | **71%** | | | |

**Table 4 Curb ramp data based on fieldwork**

## 5. Opportunities to Stand/Stay

***Edge Effect/Attractive Zones for Standing/Staying***

**Score – Good**

Ballard Avenue NW has good façade transparency through an abundance of transparent doors and windows. A visual survey on May 31, 2014 showed that 100 percent of all buildings exceeded the minimum of one entrance and two windows facing the street (Table 5, Appendix B).

| Ballard Avenue NW Windows and Doors | West Doors | West Windows | East Doors | East Windows |
|---|---|---|---|---|
| **NW Market St – 22nd Ave NW** | 18 | 28 | 9 | 16 |
| Minimum | 10 | 20 | 8 | 16 |
| Percent of Minimum | 180% | 140% | 113% | 100% |
| **22nd Ave NW – NW Vernon St** | 20 | 40 | 17 | 30 |
| Minimum | 11 | 22 | 10 | 20 |
| Percent of Minimum | 182% | 182% | 170% | 150% |
| **NW Vernon St – 2oth Ave NW** | 15 | 26 | 5 | 11 |
| Minimum | 9 | 18 | 5 | 10 |
| Percent of Minimum | 167% | 144% | 100% | 110% |
| **20th Ave NW – Ione PL** | 3 | 6 | 4 | 10 |
| Minimum | 1 | 2 | 1 | 2 |
| Percent of Minimum | 300% | 300% | 400% | 500% |
| Total Actual | 56 | 100 | 35 | 67 |
| Total Minimum | 31 | 62 | 24 | 48 |
| Percent of Minimum | 181% | 161% | 146% | 140% |

**Table 5 Windows and doors data based on fieldwork**

## 6. Opportunities to Sit

### *Zones for Sitting*

**Score - Poor**

Ballard Avenue offers scarce dedicated zones for sitting. Marvin's Garden, a City of Seattle park, offers just two benches, with capacity for approximately four to six people total. The steps of the Ballard Centennial Bell Tower can accommodate large groups of ten or more.

### *Benches for resting*

**Score – Poor**

Opportunities to sit along Ballard Avenue are rare. A site survey on May 3, 2014 showed just two publically provided benches along the length of Ballard Avenue NW (Figure 12). These benches are located within Marvin's Garden Park, maintained by Seattle Parks and

Recreation. Most of the seating is provided by commercial activity. Cafes, restaurants, and shops combined to provide fifty spaces, though this is largely only accessible if you are a patron. Over half of the fifty spaces are from eating establishments.

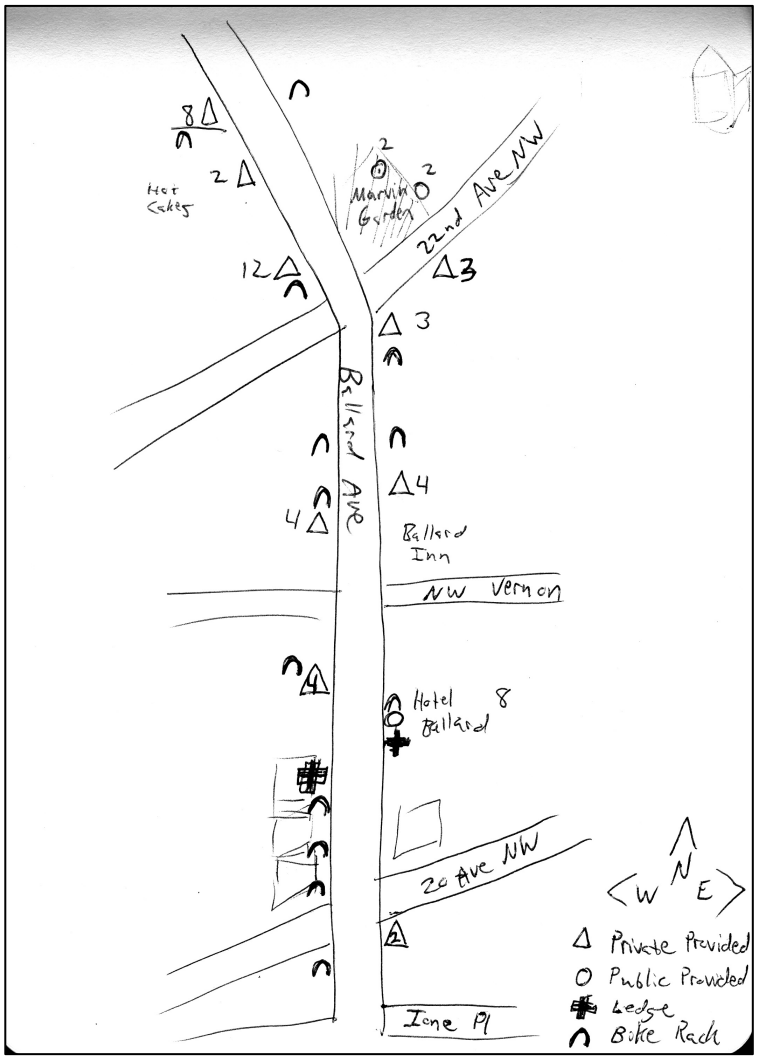



**Figure 12 Diagram of seating based on fieldwork**

**7. Opportunities to See**

***Lighting (At Night)***

**Score – Good**

Ballard Avenue NW has a complete pedestrian-scaled street lighting system. This was confirmed with City of Seattle Department of Transportation GIS data and on a visual survey of the street (City of Seattle 2012, 16).

**8. Opportunities to Talk and Listen**

***Low Noise Levels***

**Score – Good**

Ballard Avenue NW is not an arterial, transit, or freight route. Ballard Avenue is classified by the Seattle Department of Transportation as a Commercial Access Street (City of Seattle 2003). The Street is also not a chosen freight route (City of Seattle 2003). The study area thus has an absence of high speeds, high volume of vehicles, public transit, and large trucks that arterials accommodate. This results in less perceived and actual noise and pollution in the immediate area.

***Street furniture that provides 'talkscapes'***

**Score – Poor**

There is a severe lack of talkscapes along the study area. A site survey on May 3, 2014 showed one site that qualifies as a talkscape (Figure 12). Marvin's Garden Park has the steps of the Ballard Centennial Bell Tower. This is a flexible seating space that can accommodate various groups of people and activities. Any other seating that would qualify is provided by commercial activity. Cafes, restaurants, and shops combined to provide fifty

spaces, though this is largely only accessible if you are a patron or when the business is open. Over half of the fifty spaces are from eating establishments. This is seen in the earlier diagram of public and private seating under Opportunities to Sit.

**9. Opportunities for Play and Exercise**

***Invitations for creativity, physical activity, exercise and play***

**Score – Poor**

Ballard Avenue has only one park - Marvin's Garden - but it is not designed for play or exercise. The lot is very small at 0.1 acres and has no play equipment, public art, or water features (Department of Planning and Development 2014, 53).

**ENJOYMENT**

**10. Scale**

***Buildings and spaces designed to human scale***

**Score – Good**

Ballard Avenue NW buildings are largely two stories or less. Two stories is the most common, however there are a couple of more modern additions that extend to 3-4 stories (Figure 13). A visual survey of the study revealed that 98 percent of its buildings are 3 storeys or less and 94 percent 2 storeys or less (Appendix D). There are only two 3-story buildings and one 4-story building, Hotel Ballard, on Ballard Avenue. The study area height is squarely within the threshold of the ideal human scale as defined by Gehl, Speck, and A. Jacobs.

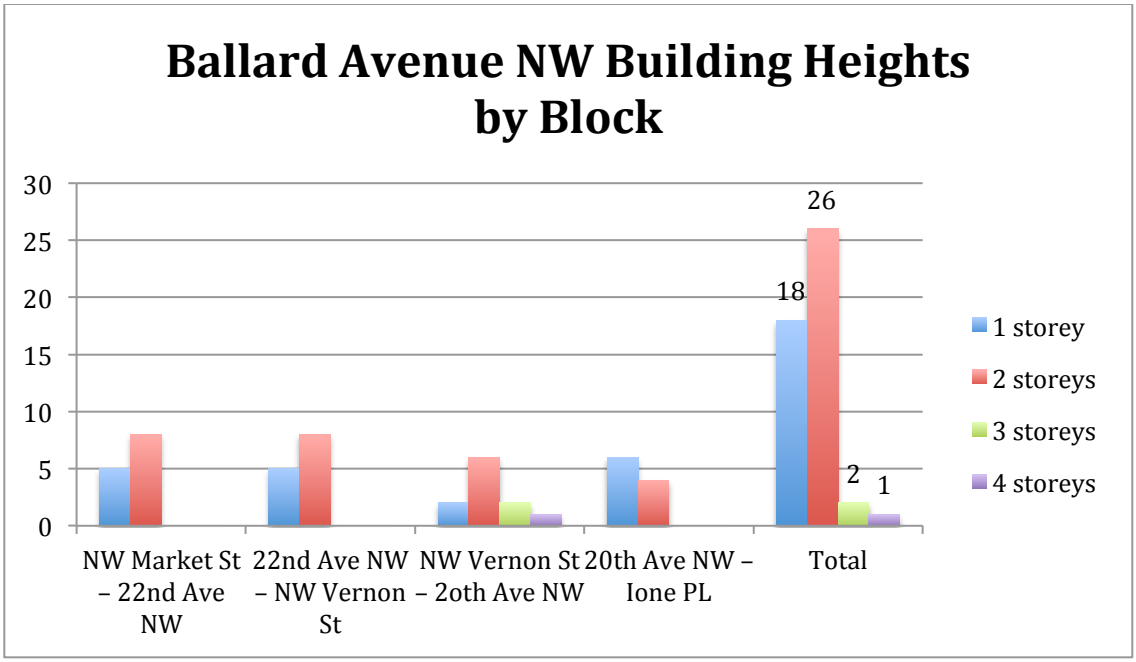



Figure 13 Buildings heights data based on fieldwork

**11. Opportunities to Enjoy the Positive Aspects of Climate**

***Sun/shade***

**Score – Good**

Low buildings provide overhead access to sunlight. Buildings in the historic district date back to the early 1900s and have historically been limited to 1-2 floors with a scattering of taller buildings (Department of Planning and Development 2014, 60–61). The study area has 98 percent of buildings between one and three stories (Figure 14). The one exception along Ballard Avenue is the 4-storey Hotel Ballard, the newest building in the study area (Appendix D).

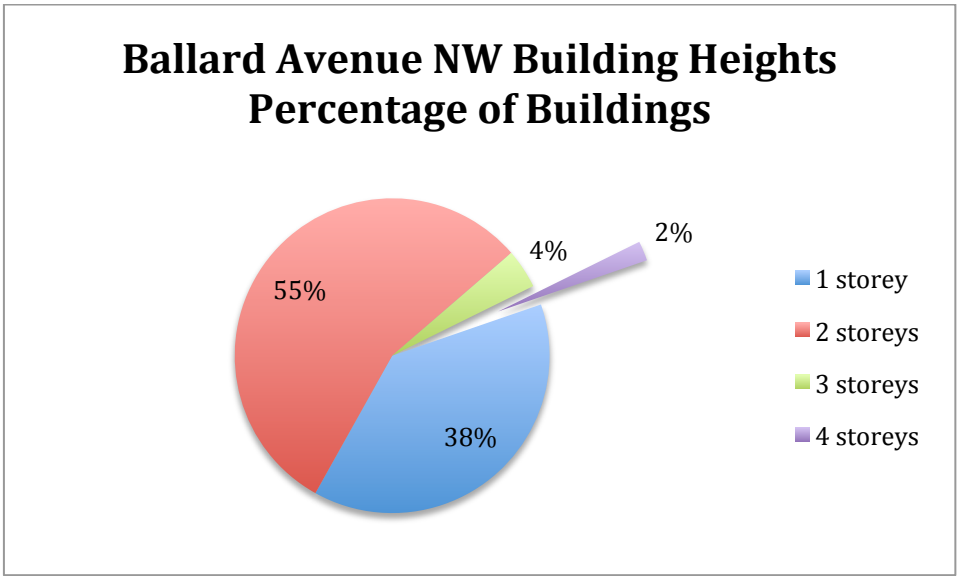



Figure 14 Building heights data based on fieldwork

***Heat/Coolness***

**Score – Good**

Ballard Avenue has a mature street tree inventory that provides ample shade with 74 trees within the study area. This can be compared to the adjacent Leary that runs parallel with 43 trees between Market St and Ione PL (Seattle Department of Transportation 2014d). The consistent coverage and maturity of the trees provides protection from sun exposure for all activities, such as walking and dining, throughout the length of the study area. Ballard Avenue offers a range of street tree size from 3-24 inch diameter trunks (Appendix B). The study area median of 12 inches places the trees of Ballard Avenue well above the trunk diameters of the rest of the city. In Seattle, 80 percent of the inventoried street trees were between 0 to 12 inches with just 17 percent between 12 inches to 24 inches (Seattle Department of Transportation 2014f). Well over half of the trees on Ballard Avenue are 12

inches and larger (64 percent). The largest collection of older trees tend is in the northern part of the study area between Market St and 22nd Avenue NW.

**12. Positive Sensory Experiences**

***Trees, plants, water***

**Score – Average**

Ballard Avenue has a strong street tree inventory with 74 trees within the half-mile length study area. The consistent coverage and maturity of the trees provides protection from sun exposure but also creates an interesting and scenic place to relax, dine, socialize, and shop. Ballard Avenue NW features seven varieties of tree species, the majority being the Honey Locust and Shumard Red Oak (Appendix B).

Plants are less common but are added into the soil or in planter boxes and pots. A visual survey on May 19th, 2014 reveals that the majority of plants (92 percent) are in the northern half of the study area, north of NW Vernon Street (Appendix D). South of NW Vernon Street plants decline substantially, especially the block of NW Vernon Street and 20th Avenue NW, where no plants exist (Figure 15).

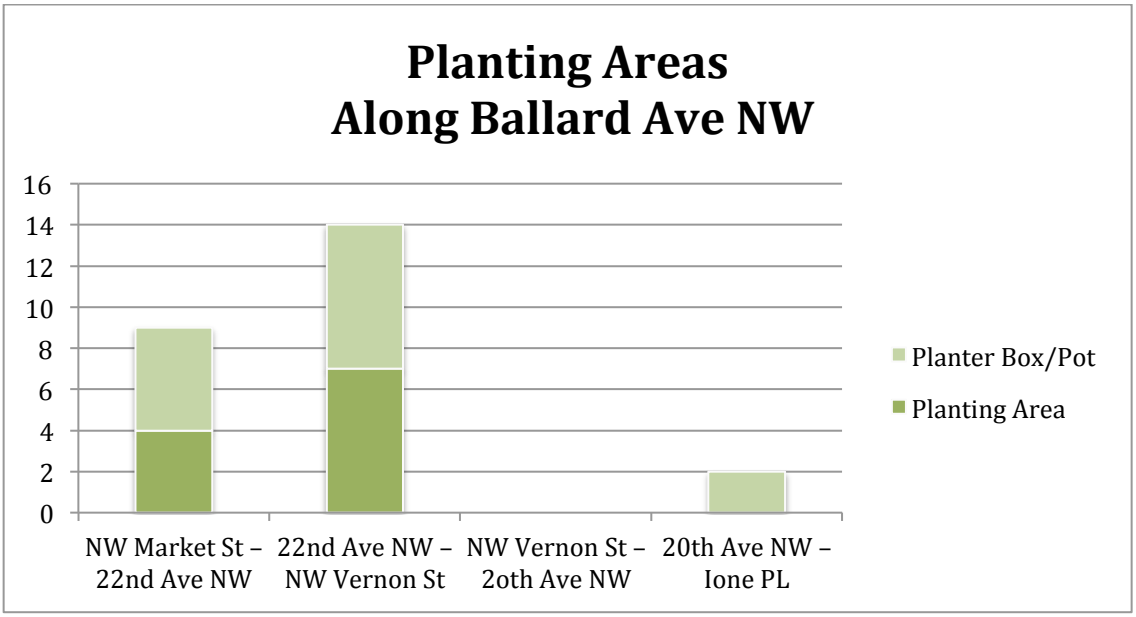



**Figure 15 Planting area data based on fieldwork**

Water is not located in any form in the study area (Appendix D).

The results of the evaluation are organized in Table 6. Prior to my evaluation of the street using the Quality Criteria, I informally scored each criterion based off of my own knowledge of the study area .

| Results - Applying the Modified 12 Key Quality Criteria to Ballard Avenue NW | | | | |
|---|---|---|---|---|
| | **Criteria** | **Score** | **Final Evaluation** | **Before Evaluation** |
| 1 | **Protection against traffic and accidents - feeling safe** | **2.5** | Average | Average |
| 2 | **Protection against crime and violence - feeling secure** | **3.0** | Good | Good |
| 3 | **Protection against unpleasant sensory experiences** | **1.7** | Poor | Good |
| 4 | **Opportunities to walk** | **2.3** | Average | Average |
| 5 | **Opportunities to stand/stay** | **3.0** | Good | Good |
| 6 | **Opportunities to sit** | **1.0** | Poor | Poor |
| 7 | **Opportunities to see** | **3.0** | Good | Average |
| 8 | **Opportunities to talk and listen** | **2.0** | Average | Average |
| 9 | **Opportunities for play and exercise** | **1.0** | Poor | Average |
| 10 | **Scale** | **3.0** | Good | Good |
| 11 | **Opportunities to enjoy the positive aspects of climate** | **3.0** | Good | Average |
| 12 | **Positive sensory experience** | **1.7** | Poor | Good |

| | |
|---|---|
| Protection Overall Score | 2.4 |
| Comfort Overall Score | 2.5 |
| Enjoyment Score | 2.6 |
| Average of all criteria | 2.3 |

**Table 6 Final evaluation scores based on fieldwork analysis**

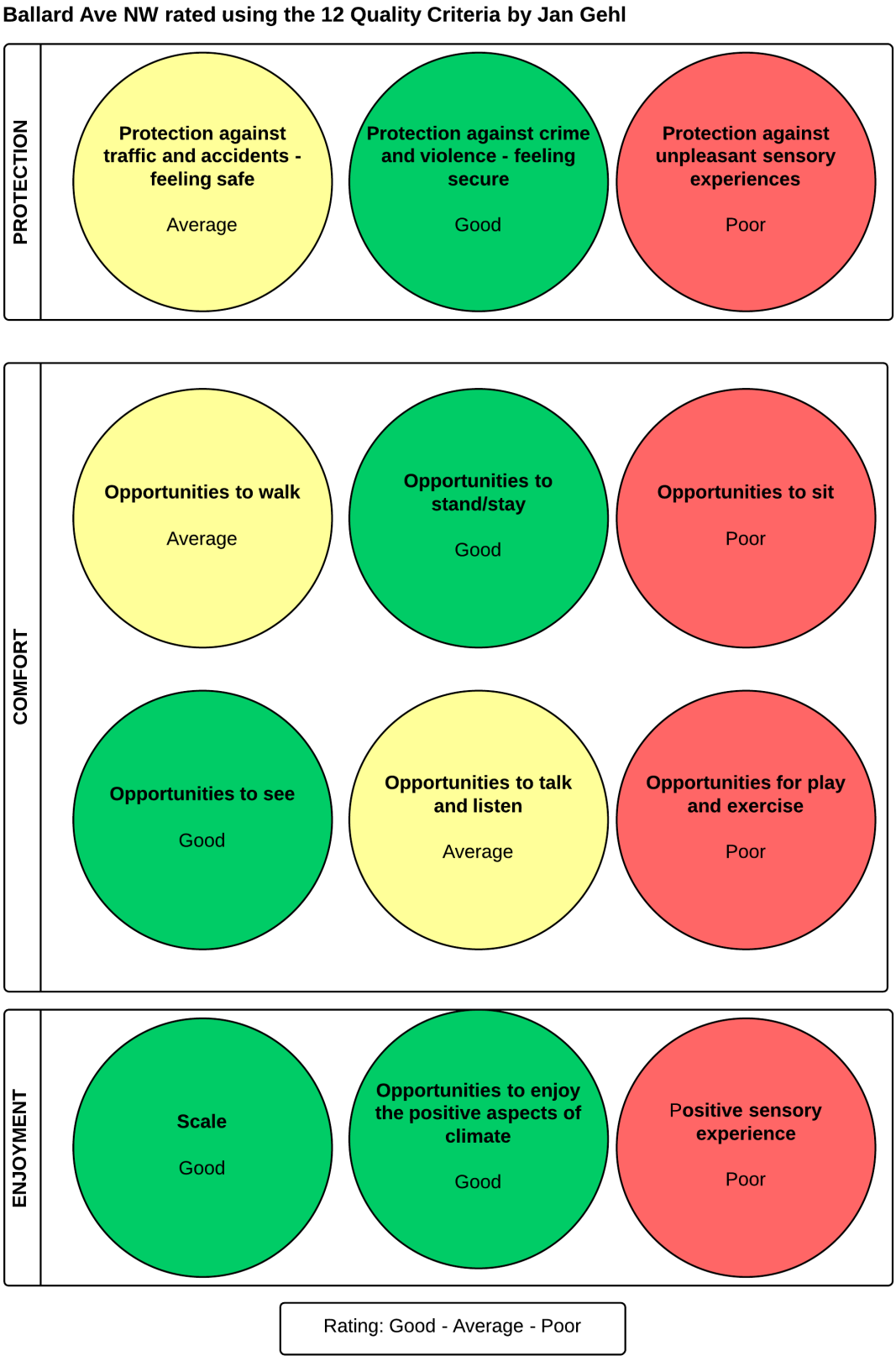



Figure 16 Based on Jan Gehl's 12 Quality Criteria

## Discussion and Suggestions for Improvement

Overall Ballard Avenue NW scores slightly above average. My results show that Ballard Avenue NW relies heavily on its historical character and the design of the past but both the City and the Ballard Avenue Landmark District do little to improve upon it. In general, Ballard Avenue NW performs best in the areas it has the least control over and the worse in areas it has the most control over. For instance, the street scores highly for mature street trees, human scale, and attractiveness of the store façades, all a product of the historical setting of the street. Conversely, the street has an incomplete curb ramp system at intersections, severe lack of seating and weather protection throughout the street, and large gaps in landscaping.

**Historical District Complicates Street Changes**

The responsibility for these low performing areas involves the Seattle Department of Transportation and the Ballard Avenue Landmark District. The Seattle Department of Transportation is responsible for the street and sidewalk infrastructure while the Ballard Avenue Landmark District has solely responsible for the location, design, and frontage of structures (*SMC 25.16* 1998). The problem seems to occur as duty blurs as we cross into the pedestrian and frontage zones. The Seattle Department of Transportation uses the Complete Streets Checklist; a tool for helping ensure a street project meets various Complete Street goals. The checklist items focus largely on transportation modes but do address some aspects of the pedestrian environment such as sidewalk infrastructure, street lighting, and neighborhood Streetscape Concept Plans if applicable. The Seattle Department of Transportation looked to improve upon the Complete Streets and other programs

related to the pedestrian environment with the Seattle Pedestrian Master Plan that attempts to unify the various plans, standards and policies that influence street design.

The biggest barrier to not improving on many of the lowest scoring criteria is the Ballard Avenue Landmark District Guidelines. Since 1970, Seattle has established seven historic districts, one of which is Ballard Avenue NW. The Ballard Avenue Landmarks Preservation Board regulates the appearance and historical integrity of structures and public spaces within Ballard Avenue as established by City ordinance 105462. Therefore, "pedestrian improvement projects that are to be constructed within a historic district or which will impact historic structures must be reviewed and approved by the Landmarks Board" (Seattle City Council 1976). This means that even standards and suggestions set by the City of Seattle Pedestrian Plan and other essential documents for helping guide development towards improvement of the pedestrian environment such as the Right-of-Way Improvement Manual and Complete Streets, do not apply. Instead, Ballard Avenue NW is governed by the standards set by the Ballard Avenue Landmark District Guidelines.

All of the lowest scoring areas are the responsibility and result of the Ballard Avenue Landmark District Guidelines. The only exception is curb ramps, which is the responsibility of the Seattle Department of Transportation. The poor scoring areas include landscaping, seating, parks, and awnings. These areas affect the scores of multiple Quality Criteria. In every case the Landmark District Guidelines "encourages" but does not require their inclusion (The City of Seattle and Ballard Avenue Landmark District Board 2005, 6–7). This explains a great deal of why there is an overall lack of consistency and significant gaps between these many elements that add to the overall street experience. All of these items

are an added expense and effort for new construction or an existing business, so the incentives to add appears to be too low for many businesses both existing and new. The Ballard Avenue NW sidewalk environment thus faces an added layer of ambiguity and complexity when it comes to accomplishing streetscape improvements beyond what a typical street in Seattle experiences.

**Protection**

Protection had the lowest overall average at 2.4 (Average) of the three general areas for the 12 Quality Criteria. The highest scores were achieved by the Protection against Crime and Violence through mixed uses and pedestrian-scaled lighting. The lowest scores were taken in Protection against Sensory Experiences through the lack of weather protection.

The requirement of providing awnings would create the large gains in improving the protection score for pedestrians. To gain support with the business community, the Landmark District could require a palatable minimum of awnings or marquees above or on both sides of buildings entrances. This would quickly create a much more complete and consistent pattern of overhead protection without a large financial burden to businesses while providing shelter from the rain. A similar, but more complicated task is getting sidewalk cafes to provide heating and wind protection during the cooler months of the year. Music venues, restaurants, bars, and cafes could all benefit from adding protection from the wind and cold in the form of transparent windshields and heat-lamps for outdoor seating and waiting in lines. It is unrealistic to set a requirement but a possible first step would be adding as a suggestion to sidewalk café standards and Landmark District Guidelines or making the process to add administratively easier. The City of Seattle allows

for heating elements and overhead weather protection but it is not a requirement (Seattle Department of Transportation 2014g).

With regards to traffic safety for pedestrians, a simple, low cost, and effective way improving the safety for all modes would be adding stop signs for all directions at intersections. This would effectively reduce high speeds, as cars traveling north and south would need to stop multiple times. This increases awareness by drivers as they need to take turns at the intersection with other drivers and more importantly, gives drivers pause to look for pedestrians. This is a common form of traffic calming, inexpensive, and universally understood to drivers and pedestrians. This also mandates a setback of at least thirty-feet from the stop sign, improving visibility at street corners (Figures 17 and 18). The extra space could be used for planting areas, outdoor seating, or bike parking. When combined with the natural traffic calming from parking and pedestrian activity, irregular intersections, and brick surface, this could help signal to both drivers and pedestrians that the priority is pedestrians. By slowing vehicular traffic, pedestrians feel more welcome into the public right of way which encourages walking, creates more vibrant business districts and promotes a more equitable public realm.

Figure 17 Intersection of Ballard Avenue NW & NW Vernon, western view

Figure 18 Intersection of Ballard Avenue NW & NW Vernon, northern view

A more interesting but logistically more difficult and expensive improvement would be to increase spacing between parked cars (Figures 19 and 20). This could be done by simply painting lines or boxes to guide drivers or with physical objects like bollards, planter strips or wheel stops. This creates provides increased traffic calming by encouraging space for pedestrians to move across the street to access sidewalks in addition to enhancing views of street and sidewalk activity, reduces illegal parking, and discourages parking along the street in general. In general, Ballard Avenue NW needs the majority of street signs replaced, fresh curb paint, and increased parking patrols to enforce against illegally parked cars.

Curb ramp at Ballard Avenue NW & Ione PL

Figure 19 Intersection at the corner of Ballard Avenue NW & Ione PL

Figure 20 Parked cars along Ballard Avenue NW

**Comfort**

Comfort had an overall average of 2.45 (Average) of the three general areas for the 12 Quality Criteria. Despite being the largest area, with six instead of three criteria, this area scored pretty high, with perfect scores on half of the metrics. These were achieved through areas such as good walking surfaces, pedestrian-scaled lighting, and low street noise. The lowest scores were taken in accessibility and all metrics related to seating.

One of the greatest needs of Ballard Avenue NW is seating. Through thoughtful design and placement seating would have a positive effect on socializing and activity on the sidewalk. Seating could also integrate into art installations to add character and topics of conversation. Another type of outdoor seating option is the table and chairs permit issued in SDOT's Street Use Division. This permit may allow a maximum of four tables with two chairs per table per permit depending on site characteristics (Figure 21). While the tables and chairs are available to the patrons of an adjoining business, they must be open for use

by the general public (Seattle Department of Transportation 2014e). With improvements in seating, comfort would be the highest scoring of the three general areas with a near perfect score.

Figure 21 Permit sidewalk seating at a Ballard Avenue NW coffee shop

**Enjoyment**

Enjoyment had an overall average of 2.56 (Average) of the three general areas for the 12 Quality Criteria. The highest scores were achieved through areas such as human scale buildings and access to sun and shade. The lowest scores were taken in the lack of plants and water.

Of all of the lowest scoring metrics, the easiest, cheapest and most impactful way to improve the score of Ballard Avenue NW would be to require the addition of any form of plants. Even the smallest additions would boost the enjoyment of the sidewalk environment (Figures 22 and 23). These plant additions could take form of sidewalk planter boxes or make use of planting areas under trees. Native evergreen plants such as lavender, sage, and rosemary are low cost and will keep a space green year-round with little maintenance by businesses.

Figure 22 Plants at the intersection of 20th Avenue NW

Figure 23 Sidewalk without plants

The district should pursue more programing on Ballard Avenue. While not included as a metric in this study, programing such as street performances, food events, and street music would be a positive addition. The street is used as the focal point for community events but events such as the Norwegian Independence Day parade, Ballard Seafood Festival, and Ballard Bicycle Criterion tend to cluster during the sunny summer months. Presently the only reoccurring events are the weekly Ballard Sunday Farmers Market and the monthly Art Walk. Adding creative events throughout the year would maintain and increase activity on the street. An example special event would be a Christmas Market, which are held throughout Scandinavia and matches perfectly with the unique cultural heritage of Ballard.

## Conclusion

The process of applying a methodology that looks holistically at a street offers great insights for those involved with street design. The Gehl methodology and the modified version I used in this research are not perfect but it teaches us that the tools we use for evaluation drive our end suggestions for improvements. My study also showcases that there is a need for research that shows the value of streets as places in order to give credibility to the ideas, which may be perceived as mostly as intuitive. We need to develop methods for evaluating spaces that add to establishing standards.

Yet, design standards are not enough, as even if you follow all of them, it does not guarantee that the space will work as a place. It is more than putting all of the required qualities on a street, and it is more than having a few or many of the physical, desirable things that contribute to them. As I learned from my literature review and establishing my methods, streets are complicated spaces.

Ballard Avenue NW already functions naturally in many ways as a shared street, providing a comparatively safe, comfortable, and enjoyable setting to pursue a large variety of social and shopping needs that is unique from many street experiences in Seattle. People flock to Ballard Avenue NW weekly for this unique setting, a setting that is not easily replaced or replicated in the current urban environment. Nonetheless, as the results of my evaluation show, even a street with flaws can be a successful street. This highlights the continued need to focus more on learning how successful places are created and learning from the projects that have been implemented in terms of their success or failure in creating a place and why or why not. Ballard Avenue NW is a model that the city can learn from, both in its triumphs

and its faults. The City of Seattle should be creating a collection of model streets, taken from within the city, to use for reference when designing new or improving old streets.

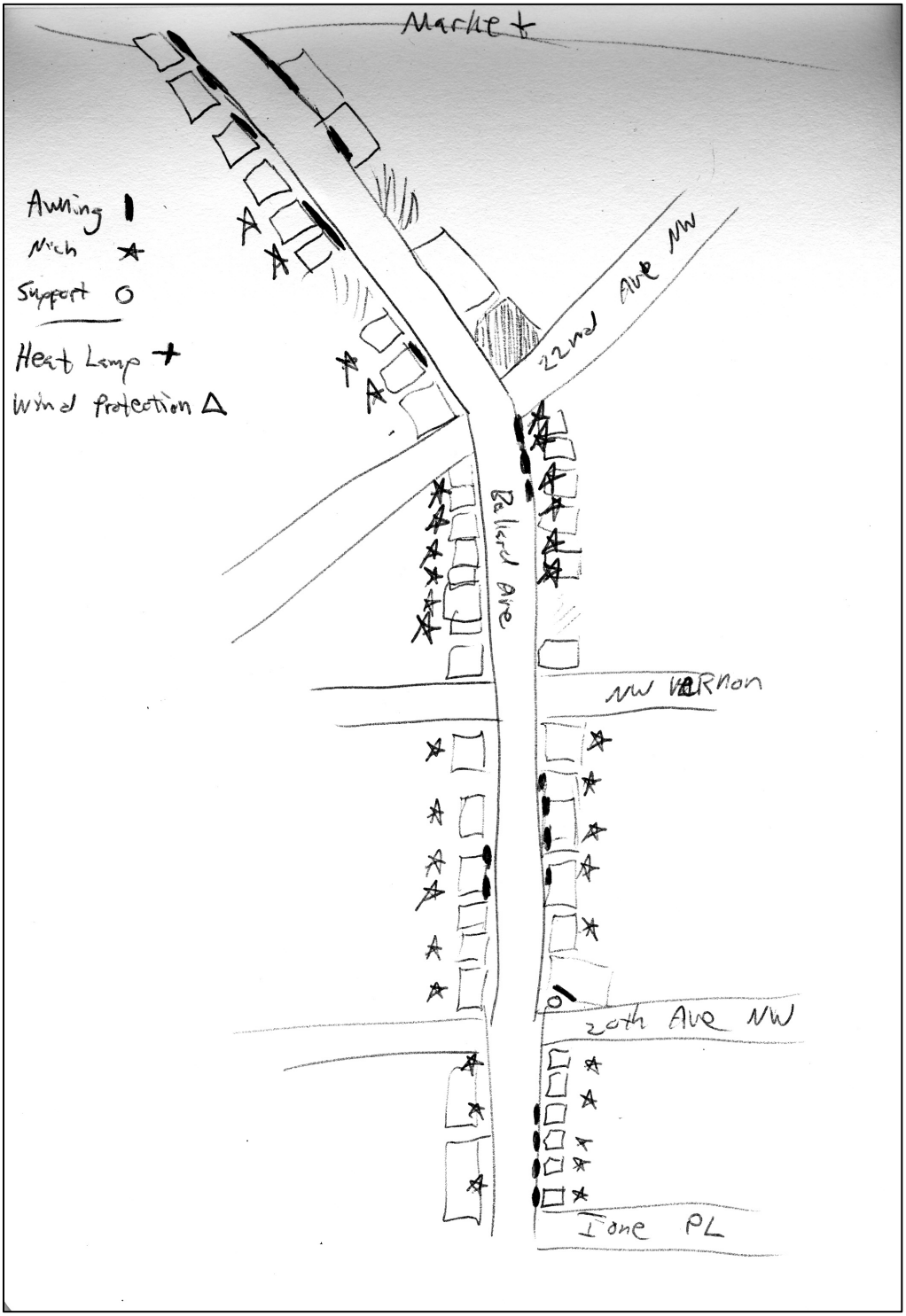
But design still counts. Allan Jacobs found through his exhaustive study of streets that "Overwhelmingly, the best streets are a product of a deliberate act of conception and creation of the street as a whole" (A. B. Jacobs 1995, 314). Efforts to develop a more comprehensive process such as the City of Seattle's Complete Streets checklist and the Pedestrian Master Plan are a positive step forward, improving over what has been done in the past by opening new ways of thinking on how the transportation profession should approach streets and also aggregating resources and knowledge. Despite this change the Complete Streets checklist still lacks the level of attention that is needed to achieve a truly complete street. Similarly, works such as the Pedestrian Master Plan and the Seattle Right-Of-Way Improvements Manual offer guidance towards improving the pedestrian environment but rarely require even the most fundamental needs such as weather protection or seating. Also, not all streets require or need the same remedies. Some streets are very much suited for transportation, while others are better for people.

One glaring reality is that the City of Seattle has numerous street classifications such as Principal Arterial, Collector Arterial, and Minor Arterial but they mostly tell us what we should expect in terms of vehicle transportation, not the public life experience. The addition of a pedestrian specific street classification could be both a symbolic and structural way to signal to citizens that Seattle is dedicated to high quality public life on our streets and also set expectations for how we want a street to develop.

In the case of Ballard Avenue, perhaps the largest problem Seattle faces with it and the other seven historic districts in the city is the confusion over responsibilities of sidewalk space and most importantly the coordination between the City of Seattle and outdated Landmark District Guidelines that do not synchronize with city initiatives. All of these complications over jurisdiction and design recommendations highlight that communities cannot get complacent and expect transportation planners to carry the whole weight of creating great places. Instead, community leaders and advocates need to collaborate with the street planners to tap into their engineering skills to help build streets that are places.

Although Seattle has taken notice to changing street needs and has begun changing policies and codes regarding street design standards, there are still opportunities to improve city streets through evaluation tools better equipped to consider the entire street environment and not just movement. As cities again address changing transportation and social needs with street design, holistic street evaluation tools, a model street inventory, and the establishment of a pedestrian specific street classification may offer the best chance at recreating the good qualities of historical Ballard Avenue NW for other Seattle streets. The best new streets need not be the same as the old, but by serving as models, our successful old streets still have much to teach us about designing streets for today and tomorrow.

## Appendix A: Field Diagram of Weather Protection in Study Area



# Appendix B: Street Tree Inventory of Study Area, Data from the City of Seattle

**Ballard Ave Street Tree Inventory**

Source: Seattle Department of Transportation Street Tree Inventory "Online Tree Map"

NW Market St - 22nd Ave NW

| Tree Type | Trunk Width (inches) | Ownership |
|---|---|---|
| Emerald Queen Norway Maple | 12 | SDOT |
| Emerald Queen Norway Maple | 18 | SDOT |
| Shumard Red Oak | 26 | SDOT |
| Pin Oak | 22 | SDOT |
| Shumard Red Oak | 22 | SDOT |
| Shumard Red Oak | 21 | SDOT |
| Shumard Red Oak | 22 | SDOT |
| Pin Oak | 20 | SDOT |
| Shumard Red Oak | 24 | SDOT |
| Shumard Red Oak | 21 | SDOT |
| Shumard Red Oak | 21 | SDOT |
| Pin Oak | 16 | SDOT |
| Shumard Red Oak | 18 | SDOT |
| Shumard Red Oak | 18 | SDOT |
| Armstrong Freeman Red Maple | 22 | SDOT |
| Shumard Red Oak | 14 | SDOT |
| Pin Oak | 15 | SDOT |
| Armstrong Freeman Red Maple | 20 | SDOT |
| Persian Ironwood, Parrotia | 3 | SDOT |
| Armstrong Freeman Red Maple | 7 | SDOT |
| Shumard Red Oak | 24 | SDOT |
| Emerald Queen Norway Maple | 18 | SDOT |
| Shumard Red Oak | 10 | SDOT |
| White Ash | 10 | Private |

22nd Ave NW - NW Vernon PL

| Tree Type | Trunk Width | Ownership |
|---|---|---|
| White Ash | 9 | Private |
| Pin Oak | 10 | SDOT |
| Honey Locust | 9 | SDOT |
| Honey Locust | 11 | SDOT |
| Honey Locust | 9 | SDOT |
| Honey Locust | 12 | SDOT |
| Honey Locust | 8 | SDOT |
| Honey Locust | 10 | SDOT |
| Honey Locust | 12 | SDOT |
| Honey Locust | 11 | SDOT |
| Honey Locust | 11 | SDOT |
| Honey Locust | 8 | SDOT |
| Honey Locust | 10 | SDOT |
| Honey Locust | 10 | SDOT |
| Honey Locust | 9 | SDOT |
| Honey Locust | 8 | SDOT |
| Honey Locust | 12 | SDOT |
| Honey Locust | 10 | SDOT |
| Honey Locust | 7 | SDOT |
| Honey Locust | 12 | SDOT |
| Honey Locust | 9 | SDOT |
| Honey Locust | 6 | SDOT |
| Honey Locust | 11 | SDOT |
| Honey Locust | 14 | SDOT |
| Honey Locust | 11 | SDOT |
| Honey Locust | 12 | SDOT |
| Honey Locust | 13 | SDOT |

NW Vernon PL - 20th Ave NW

| Tree Type | Trunk Width | Ownership |
|---|---|---|
| Honey Locust | 12 | SDOT |
| Honey Locust | 13 | SDOT |
| Honey Locust | 12 | SDOT |
| Honey Locust | 12 | SDOT |
| Honey Locust | 12 | SDOT |
| Honey Locust | 13 | SDOT |
| Honey Locust | 14 | SDOT |
| Honey Locust | 3 | SDOT |
| Honey Locust | 12 | SDOT |
| Honey Locust | 12 | SDOT |
| Honey Locust | 14 | SDOT |
| Honey Locust | 12 | SDOT |
| Honey Locust | 13 | SDOT |
| Pin Oak | 10 | SDOT |

20th Ave NW - NW Ione PL

| Tree Type | Trunk Width | Ownership |
|---|---|---|
| Pin Oak | 20 | |
| Armstrong Freeman Red Maple | 20 | |
| Armstrong Freeman Red Maple | 12 | |
| Armstrong Freeman Red Maple | 34 | |
| Armstrong Freeman Red Maple | 18 | |
| Armstrong Freeman Red Maple | 18 | |

| | | | |
|---|---|---|---|
| Number of Trees | 24 | | |
| Median Trunk Width | 19 | | |
| Public Ownership | 23 | 96% | |
| Private Ownership | 1 | 4% | |
| Total Trees Under 12 inches | 27 | | |
| Total Trees 12 inches and above | 47 | | |
| Percentage of Trees under 12 inches | 36% | | |
| Percentage of Trees 12 inches and above | 64% | | |
| Smallest Tree Diameter | 3 | | |
| Largest Tree Diameter | 34 | | |
| **Total Trees (Study Area)** | **74** | | |
| **Median Tree Width in Inches (Study Area)** | **12** | | |
| **Public Ownership (percent)** | **97%** | | |

| | | |
|---|---|---|
| Persian Ironwood, Parrotia | 1 | 1% |
| White Ash | 2 | 3% |
| Emerald Queen Norway Maple | 3 | 4% |
| Pin Oak | 7 | 9% |
| Armstrong Freeman Red Maple | 8 | 11% |
| Shumard Red Oak | 12 | 16% |
| Honey Locust | 41 | 55% |
| **Total** | **74** | |

| | | |
|---|---|---|
| Number of Trees | 28 | |
| Median Trunk Width | 10 | |
| Public Ownership | 27 | 96% |
| Private Ownership | 1 | 4% |

| | | |
|---|---|---|
| Number of Trees | 16 | |
| Median Trunk Width | 12 | |
| Public Ownership | 16 | 100% |
| Private Ownership | 0 | 0% |

| | | |
|---|---|---|
| Number of Trees | 6 | |
| Median Trunk Width | 19 | |
| Public Ownership | 6 | 100% |
| Private Ownership | 0 | 0% |

## Appendix C: Door, Windows, Awning and Land Use Inventory in Study Area

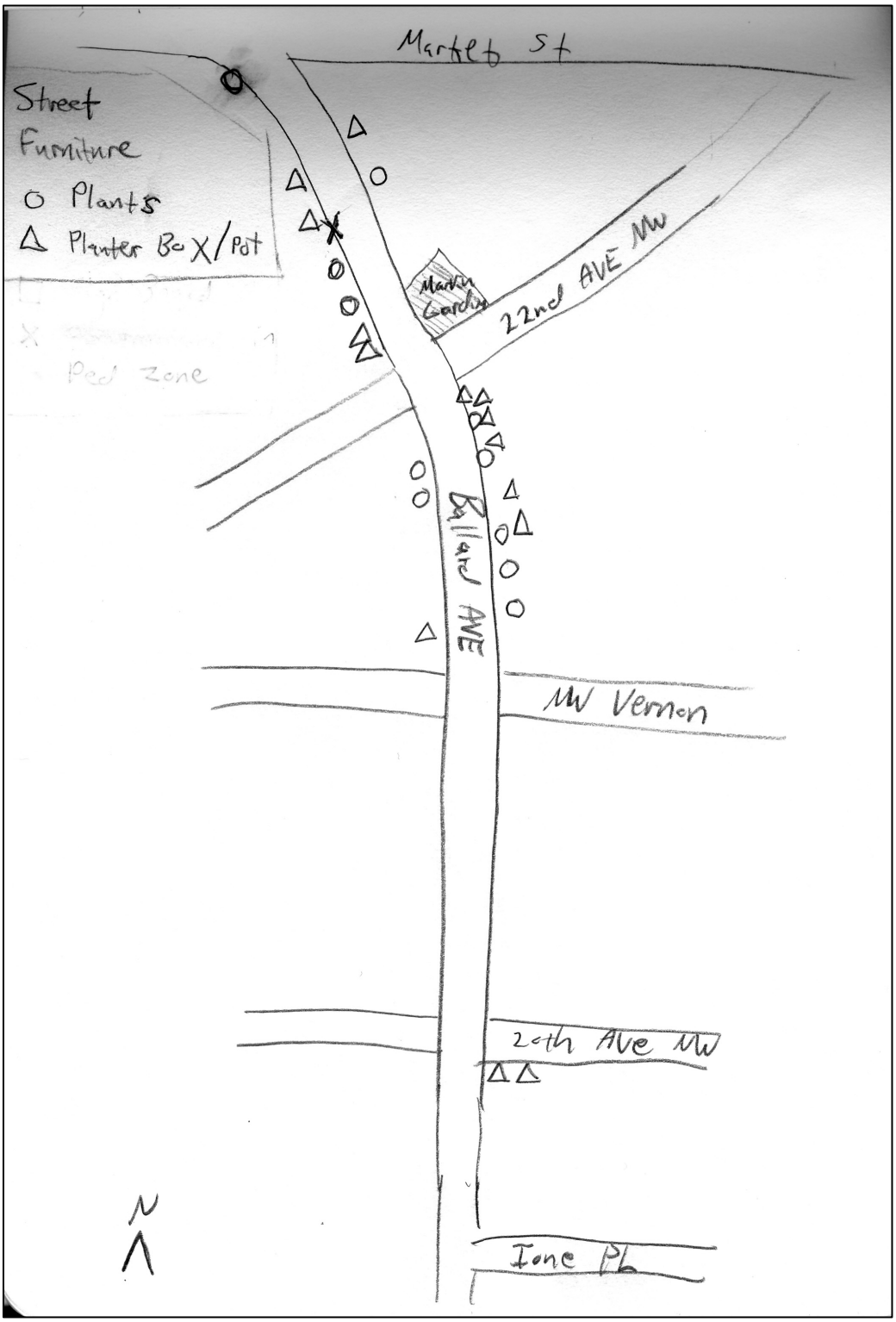
Ballard Avenue NW Doors, Windows, Awnings and Land Use

**Saturday, May 31, 2014**

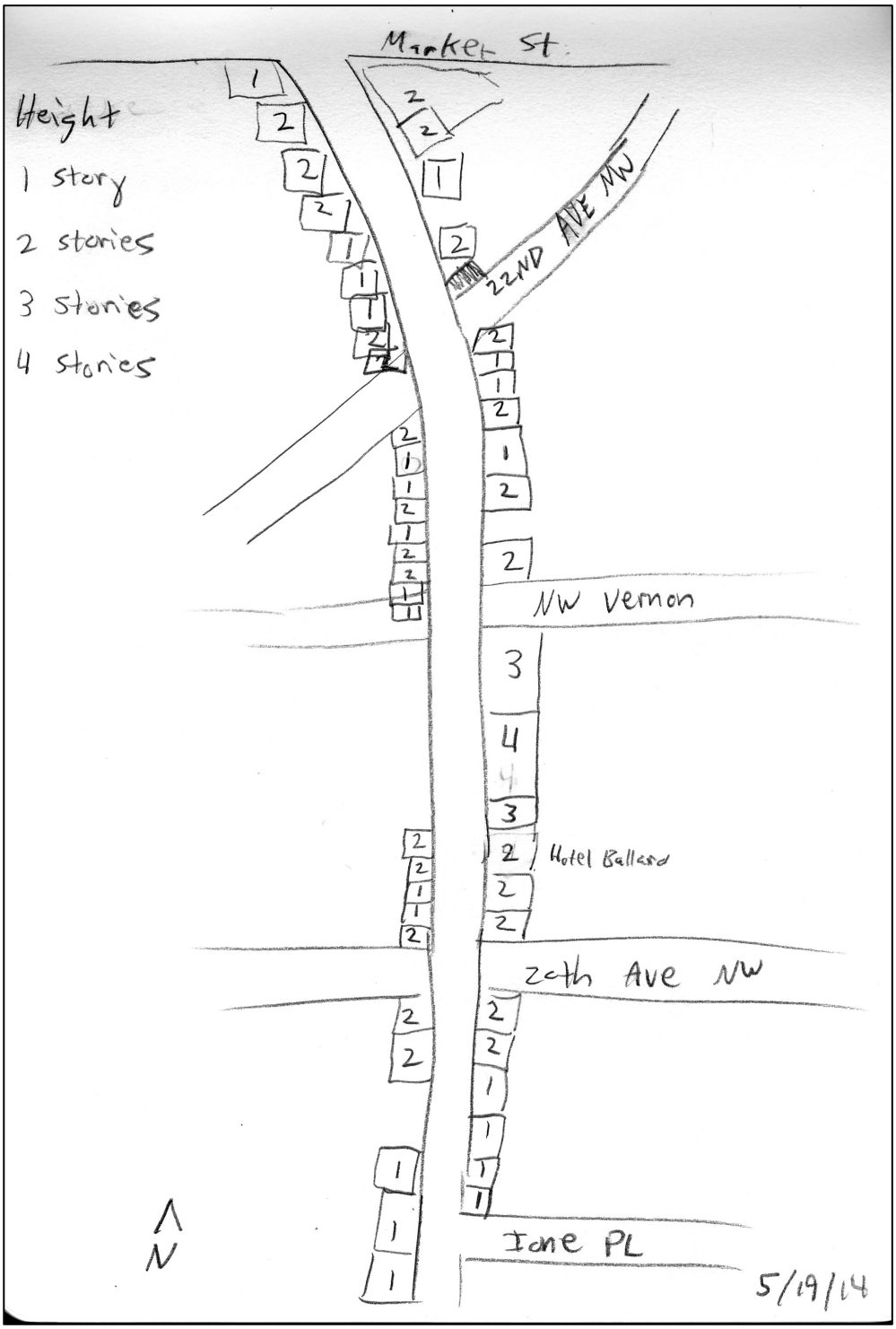
| | West | | | | East | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Doors | Windows | Awnings | Land Use | Land Use Number | Doors | Windows | Awnings | Land Use |
| **NW Market St – 22nd Ave NW** | | | | | | | | | |
| 1 | 1 | 2 | 1 | Retail/Service | 1 | 1 | 2 | 0 | Retail/Service |
| 2 | 3 | 3 | 3 | Mixed-Use | 2 | 0 | 0 | 0 | Vacant/Parking |
| 3 | 2 | 2 | 0 | Mixed-Use | 2 | 2 | 2 | 1 | Retail/Service |
| 4 | 2 | 4 | 1 | Retail/Service | 1 | 1 | 2 | 1 | Retail/Service |
| 5 | 2 | 2 | 1 | Retail/Service | 1 | 1 | 5 | 1 | Retail/Service |
| 6 | 3 | 4 | 3 | Retail/Service | 1 | | | | |
| 7 | 2 | 2 | 0 | Retail/Service | 1 | | | | |
| 8 | 0 | 0 | 0 | Vacant/Parking | 3 | | | | |
| 9 | 1 | 7 | 0 | Retail/Service | 1 | | | | |
| 10 | 2 | 2 | 0 | Mixed-Use | 2 | | | | |
| Total | 18 | 28 | 9 | Retail/Service | 6 | 9 | 16 | 3 | Retail/Service |
| Minimums | 10 | 20 | 10 | Mixed-Use | 3 | 8 | 16 | 5 | Mixed-Use |
| Minimum | 0 | 0 | 0 | Vacant/Parking | 1 | 1 | 2 | 0 | Vacant/Parking |
| | | | | Entertainment | 0 | | | | Entertainment |
| | | | | Hotel/Motel | 0 | | | | Hotel/Motel |
| | | | | Office | 0 | | | | Office |
| **22nd Ave NW – NW Vernon St** | | | | | | | | | |
| 1 | 3 | 3 | 0 | Mixed-Use | 2 | 1 | 3 | 0 | Hotel/Motel |
| 2 | 2 | 2 | 1 | Vacant/Parking | 3 | 0 | 0 | 0 | Vacant/Parking |
| 3 | 1 | 4 | 0 | Retail/Service | 1 | 3 | 4 | 0 | Mixed-Use |
| 4 | 2 | 2 | 0 | Mixed-Use | 2 | 2 | 4 | 0 | Retail/Service |
| 5 | 2 | 2 | 0 | Retail/Service | 1 | 1 | 2 | 0 | Retail/Service |
| 6 | 3 | 6 | 0 | Mixed-Use | 2 | 2 | 4 | 2 | Retail/Service |
| 7 | 1 | 4 | 0 | Vacant/Parking | 3 | 1 | 2 | 0 | Retail/Service |
| 8 | 3 | 6 | 0 | Retail/Service | 1 | 3 | 6 | 1 | Retail/Service |
| 9 | 3 | 4 | 0 | Retail/Service | 1 | 1 | 1 | 0 | Retail/Service |
| 10 | 1 | 5 | 0 | Retail/Service | 1 | 3 | 4 | 3 | Mixed-Use |
| 11 | 1 | 2 | 0 | Vacant/Parking | 3 | | | | |
| Total | 20 | 40 | 1 | Retail/Service | 5 | 17 | 30 | 6 | Retail/Service |
| Minimums | 11 | 22 | 11 | Mixed-Use | 3 | 10 | 20 | 10 | Mixed-Use |
| Minimum | 1 | 2 | 0 | Vacant/Parking | 0 | 0 | 0 | 0 | Vacant/Parking |
| | | | | Entertainment | 0 | | | | Entertainment |
| | | | | Hotel/Motel | 0 | | | | Hotel/Motel |
| | | | | Office | 0 | | | | Office |
| **NW Vernon St – 20th Ave NW** | | | | | | | | | |
| 1 | 1 | 2 | 0 | Retail/Service | 1 | 1 | 2 | 0 | Retail/Service |
| 2 | 1 | 2 | 0 | Retail/Service | 1 | 2 | 2 | 0 | Vacant/Parking |
| 3 | 1 | 3 | 0 | Retail/Service | 1 | 2 | 4 | 0 | Retail/Service |
| 4 | 3 | 4 | 0 | Mixed-Use | 2 | 2 | 4 | 3 | Hotel/Motel |
| 5 | 1 | 2 | 0 | Vacant/Parking | 3 | 2 | 4 | 0 | Retail/Service |
| 6 | 3 | 4 | 2 | Entertainment | 4 | | | | |
| 7 | 2 | 4 | 0 | Retail/Service | 1 | | | | |
| 8 | 1 | 2 | 0 | Retail/Service | 1 | | | | |
| 9 | 2 | 3 | 0 | Mixed-Use | 2 | | | | |
| Total | 15 | 26 | 2 | Retail/Service | 5 | 5 | 11 | 3 | Retail/Service |
| Minimums | 9 | 18 | 9 | Mixed-Use | 2 | 5 | 10 | 5 | Mixed-Use |
| Minimum | 1 | 2 | 0 | Vacant/Parking | 0 | 0 | 0 | 0 | Vacant/Parking |
| | | | | Entertainment | 1 | | | | Entertainment |
| | | | | Hotel/Motel | 0 | | | | Hotel/Motel |
| | | | | Office | 1 | | | | Office |
| **20th Ave NW – Ione Pl** | | | | | | | | | |
| 1 | 3 | 6 | 0 | Office | 6 | 4 | 10 | 4 | Retail/Service |
| 2 | | | | | | 1 | 2 | 0 | Mixed-Use |
| 3 | | | | | | 2 | 5 | 0 | Retail/Service |
| Total | 3 | 6 | 0 | Retail/Service | 0 | 4 | 10 | 4 | Retail/Service |
| Minimums | 1 | 2 | 1 | Mixed-Use | 0 | 1 | 2 | 3 | Mixed-Use |
| Minimum | 3 | 6 | 0 | Vacant/Parking | 0 | 4 | 10 | 4 | Vacant/Parking |
| | | | | Entertainment | 0 | | | | Entertainment |
| | | | | Hotel/Motel | 0 | | | | Hotel/Motel |
| | | | | Office | 1 | | | | Office |

| Land Use Number | Available Land Use Categories | Number of Uses | Percent of Total |
|---|---|---|---|
| 1 | Retail/Service | 33 | 61% |
| 2 | Mixed-Use | 12 | 22% |
| 3 | Vacant/Parking | 4 | 7% |
| 4 | Entertainment | 1 | 2% |
| 5 | Hotel/Motel | 2 | 4% |
| 6 | Office | 2 | 4% |
| | | 54 | 100% |
| 1 | Retail/Service and Mixed-Use | | 83% |

## Appendix D: Field Diagram of Plants in Study Area



## Appendix E: Field Diagram of Building Heights in Study Area



## Appendix F: Master Scorecard for the Modified 12 Quality Criteria

**The 12 Key Quality Criteria**

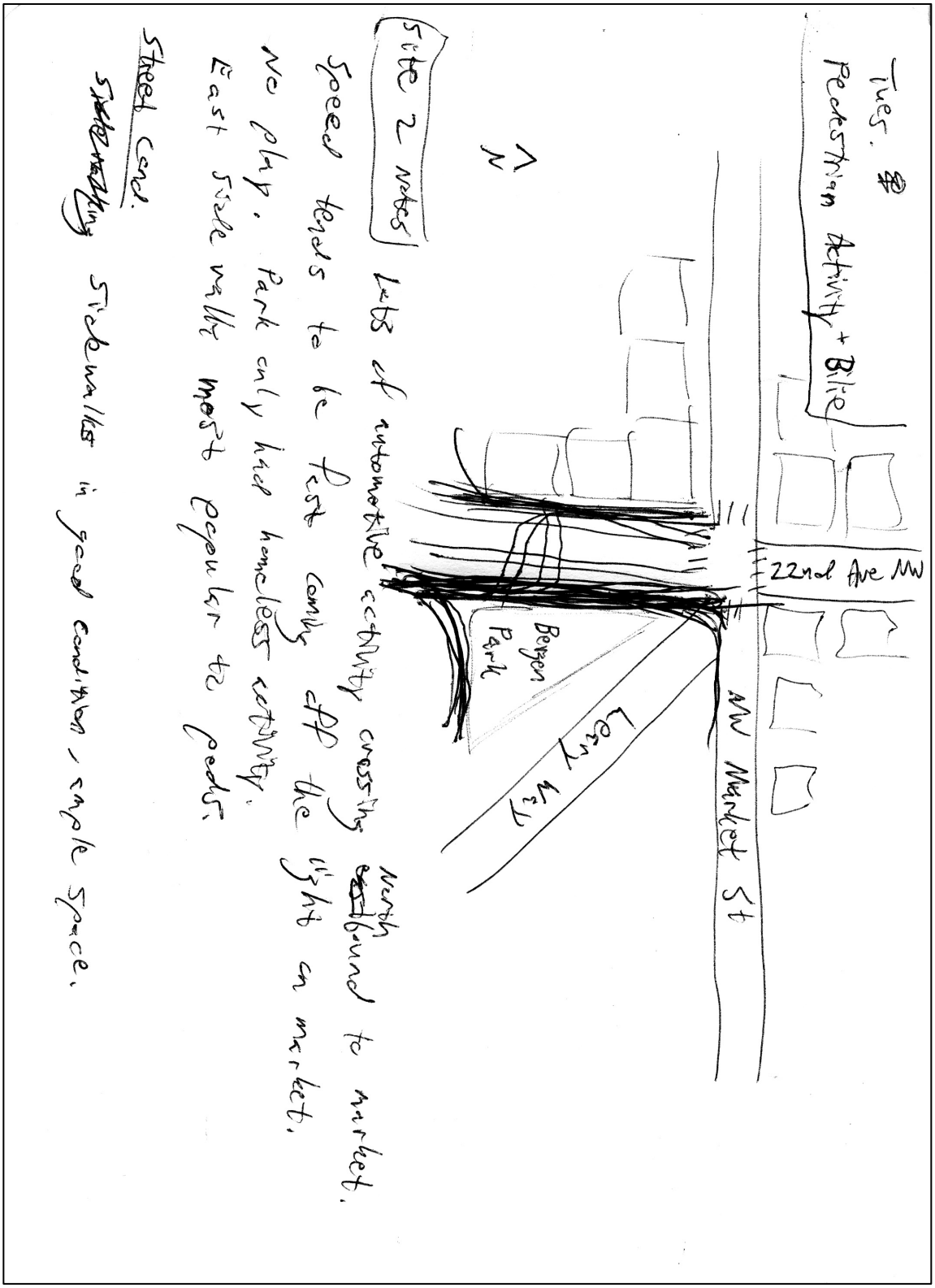
| Protection | Protection against traffic and accidents - feeling safe | Methods | Protection against crime and violence - feeling secure | Score | Methods | Protection against unpleasant sensory experiences | Score | Methods | Score |
|---|---|---|---|---|---|---|---|---|---|
| | Protection for pedestrians | Sidewalks | Overlapping functions day and night | 3 | Percent mix of uses | Rain/snow | 3 | Minimum of 1 awning per building | 1 |
| | | Intersections | Good lighting | 2 | Pedestrian scaled lighting | Cold/heat | 3 | Street Trees | 3 |
| | | | | | | | | Outdoor heating, wind protection | 1 |
| Average | | | | 2.5 | | | 3.0 | | 1.7 |
| **Comfort** | **Opportunities to walk** | | **Opportunities to stand/stay** | | | **Opportunities to sit** | | | |
| | Room for walking | | Edge effect/attractive zones for | 2 | Windows and Doors | Zones for sitting | 3 | Number of public seating | 1 |
| | No obstacles | Space is typically ranges | standing/staying | 3 | | Benches for resting | | Number of benches | 1 |
| | Good surfaces | Physical obstructions (signs, etc) | | 3 | | | | | |
| | Accessibility for everyone | Condition of sidewalk | | 3 | | | | | |
| | | Curb ramps | | 1 | | | | | |
| Average | | | | 2.25 | | | 3.0 | | 1.0 |
| | **Opportunities to see** | | **Opportunities to talk and listen** | | | **Opportunities for play and exercise** | | | |
| | Lighting (when dark) | Pedestrian scaled lighting | Low noise levels | 3 | | Physical activity, exercise | 3 | Exercise equipment, play equipment | 1 |
| | | | Street furniture that provides 'talkscapes' | 1 | | | | | |
| Average | | | | 3.0 | | | 2.0 | | 1.0 |
| **Enjoyment** | **Scale** | | **Opportunities to enjoy the positive aspects of climate** | | | **Positive sensory experience** | | | |
| | Human scale buildings 3 stories or less | Average building height | Sun/shade | 3 | Building heights | Trees, plants, water | 3 | Trees | 3 |
| | | | Heat/coolness | | Street trees | | | Plants | 1 |
| | | | | | | | | Water | 1 |
| Average | | | | 3.0 | | | 3.0 | | 1.7 |

| | |
|---|---|
| Protection Overall Score | 2.4 |
| Comfort Overall Score | 2.45 |
| Enjoyment/Delight Score | 2.56 |
| Average of all criteria | 2.26 |

Good = 3
Average = 2
Poor = 1

| Poor Scoring Areas | | Who owns? | Complete streets? |
|---|---|---|---|
| | Protection from rain/snow and cold | Landmark board | No |
| | Curb ramps | SDOT | Yes |
| | Seating (zones, benches, street furniture) | SDOT, Parks, Landmark board | No |
| | Exercise/play | Parks, Landmark, City of Seattle | No |
| | Plants | Landmark board | Yes |

## Appendix G: Field Notes at NW Market ST and Ballard Ave NW



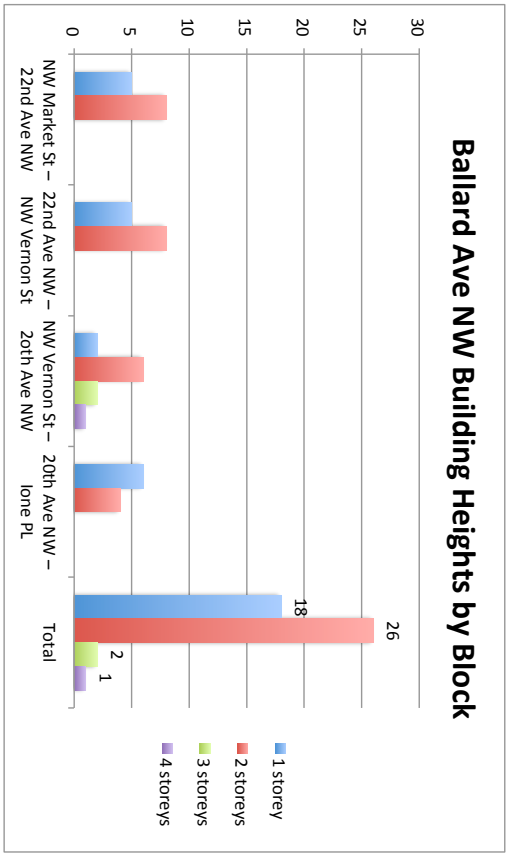
## Appendix H: Inventory of Plants in Study Area

**Ballard Ave NW Plants**

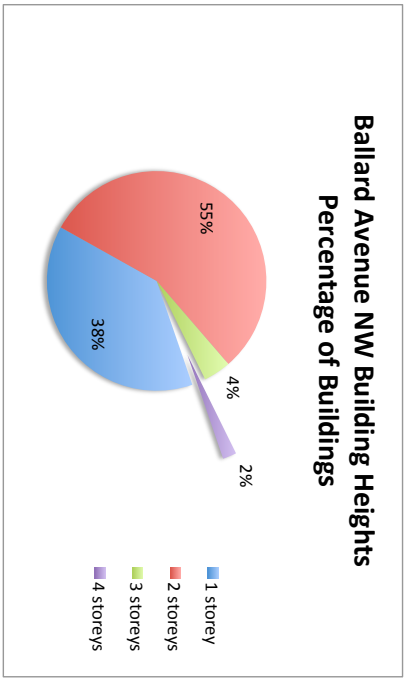
| | Planting Area | Planter Box/Pot | | |
|---|---|---|---|---|
| NW Market St – 22nd Ave NW | 4 | 5 | 36% | Tree Score 3 |
| 22nd Ave NW – NW Vernon St | 7 | 7 | 56% | Plant Score 1 |
| NW Vernon St – 20th Ave NW | 0 | 0 | 0% | Water Score 1 |
| 20th Ave NW – lone PL | 0 | 2 | 8% | Total 5 |
| Total | 11 | 14 | 25 | Possible 9 |
| Percentage of total | 44% | 56% | | 56% |
| Average | 3 | 4 | | 1.67 |
| Percentage North of NW Vernon | | | 92% | |

# Appendix I: Inventory of Building Heights in Study Area

| | 1 storey | 2 storeys | 3 storeys | 4 storeys | |
|---|---|---|---|---|---|
| NW Market St – 22nd Ave NW | 5 | 8 | 0 | 0 | |
| 22nd Ave NW – NW Vernon St | 5 | 8 | 0 | 0 | |
| NW Vernon St – 20th Ave NW | 2 | 6 | 2 | 1 | |
| 20th Ave NW – Ione PL | 6 | 4 | 0 | 0 | |
| Total | 18 | 26 | 2 | 1 | 47 |
| Percent of total buildings | 38% | 55% | 4% | 2% | |
| Percent of buildings 3 storeys or less | 98% | | | | |
| Percent of buildings 2 storeys or less | 94% | | | | |




| | 1 storey | 2 storeys | 3 storeys | 4 storeys |
|---|---|---|---|---|
| | 38% | 55% | 4% | 2% |



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