

Lan[d]tern:

Designing the Transit-Oriented Pedestrian Nightscape

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Abstract

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This thesis looks at the challenges and opportunities associated with designing pedestrian routes and public spaces near transit for safe and enjoyable use at nighttime. Since most commuters in northern latitudes spend several months a year commuting in the dark, landscapes that help them access transit more easily in evening hours should increase willingness to use public transit. In particular, illuminated art or light art integrated into the urban landscape can be used for wayfinding, placemaking, visibility, and increasing natural surveillance. Research into the history of public space at night, the psychology and physiology of experiencing public night time spaces, and the current state of lighting standards and technology focuses on the dichotomy of night as a time for both festivity and caution. A station area is then proposed for a subdistrict in Ballard, Seattle with future anticipated transit development and current nighttime workers. The subdistrict site is analyzed for its current lighting situation and circulation. Light, art installations, and other suggested treatments are grouped by function and applied to the site in conceptual design sketches. Finally, recommendations and design suggestions are given according to street and lighting typology for nighttime-oriented interventions to improve the pedestrian experience in the proposed station area.

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Introduction

The Urban Nightscape and the Blankets of Night

Introduction

The inspiration

In the late afternoon of a semi-dry February Sunday one year ago, I staked a claim to a window seat at Seattle Coffee Works, arranged my coffee, croissant, journal and notes on the history of transportation landscapes in early 1900s Seattle and Ballard before me, and barely stirred from my seat for several hours. The window of this particular coffee shop looks out over the busy intersection

of NW Market Street, Leary Way NW, and Bergen Plaza. Being in the heart of the Ballard commercial and historic district, the intersection on that afternoon was nearly as heavily trafficked by pedestrians as by automobiles. Shoppers carried bags of baked goods and locally made condiments from the farmers' market a block away, friends stopped for coffee, parents pushed strollers to the architecturally dramatic Ballard Library, seniors purchased movie tickets, couples browsed book and art

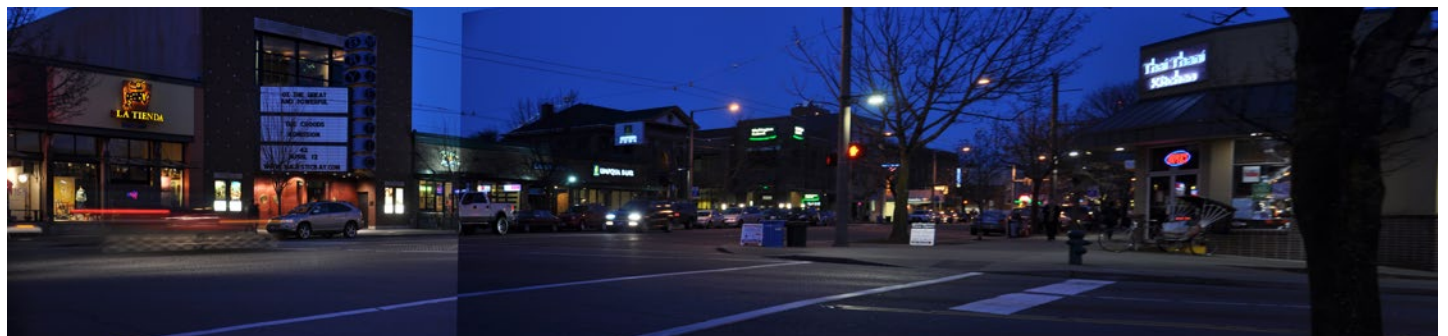


Figure 1-1. View from Bergen Plaza, Ballard at 7:30 PM in early March. Photo by author

shops, and animated groups went into the Thai and Vietnamese restaurants on the other side of the street. I stayed past 3 p.m.: the farmers market had closed. The coffee shop was crowded; a few individuals sat at tables outside, seemingly content to chat in



Figure 1-2. Seattle Coffee Works
“Drinking Man” by Western Neon.
Photo by author

the 40-plus degree weather with hands wrapped around warm drink containers. I stayed past 4 p.m.: sunset was still an hour away, but the cloud cover and approaching dusk had already made the interior lighting seem noticeably brighter. I stayed past 5 p.m., and the changes in the scene shifted rapidly. Although there were still plenty of pedestrians on the street, the coffee shop had quieted some, and there no more readers or chatters in the chairs outside. The distinctive neon man of the Seattle Coffee Works sign, designed by Seattle-based Western Neon, lifted his orange coffee mug in a toast to the night. Streetlamps, neon signs, and shop windows glowed up and down the street, and the white lights of the trees along Ballard Avenue marked the appropriate pathways along streets that were still populated. At 5:30, the transition to darkness was complete, and I stepped outside into a new scene from the one I had left three hours prior.

It struck me that what came after this hour of transition is somewhat neglected in landscape theory. The hours after dark but long before bed (or after bed but before sunrise) are of tremendous value to us: they are the hours of leisure, of festivity, socializing, of pursuing the arts and interests outside of our school and work day lives, but also of retreat, wariness, of the physical transition between workplace and personal places. Yet there was little I had learned in my studies that addressed how we experience in dark the public spaces and pedestrian paths that we generally think of

as being in light. A few safety principles, yes; an occasional pretty night time rendering; not much more. For comprising such a large portion of our waking hours for so much of the year, the night seems quite underrepresented. Many designers (although not all) seem to design as if not much use of landscapes will occur at night time, that discomfort, safety and the perceived lack of it, and reduced visibility make most nighttime landscapes into no-man’s (and even more so, no-woman’s)-land. Yet urban nightscapes have plenty to attract us: when I walked back onto the changed street, I saw differently. Colors had changed, my attention was directed by the placement of lights, and the vintage and custom neon signs of Ballard drew my gaze more than the enormous sculptures of Bergen Plaza.

How could these observations apply to landscapes of rail transportation, the ostensible topic of my thesis?

During my years in Japan, one of the greatest conveniences of urban life was the remarkably accessible and well-provisioned train stations. The stations, whether massive express train hubs in business districts or small neighborhood single-line stops, are active nearly as long as trains are running; a variety of daily errands can be accomplished within their complexes or on their peripheries; and pedestrian corridors known as *shotengai*, lined with goods and services, radiate out from stations, all of which makes train stations places where nearly everyone spends some time whether they are catching a train or not. The stations serve as meeting places for friends and business contacts, gateways to festive events, and places to grab a cheap meal or groceries on one’s way home. Some of these characteristics were undoubtedly due to particular Japanese planning and development conditions, but the point is that comfortable, intuitive access to the station made riding the train a natural and desirable choice, even on the darkest, coldest nights. Valuable evening and night time hours were easy to utilize for place-dependent activities. Public spaces remained active (and therefore safer) when they were close to transit. I have observed a similar pattern in other cities with strong public transit systems: in Chicago, New York, and Copenhagen, for example, successful transit locations are frequently in close proximity to successful public spaces.



Figure 1-3. Food carts in New York (above) and Portland (below). Photos courtesy of loadedlens.wordpress.com / Brian Sekkle at flickr.com

A ride does not begin with stepping onto the transit vehicle. It begins with the path of access to that vehicle. It begins with the decision to make one's way to the point of stepping onto the train or bus. At no time do there appear to be more obstacles to making such a decision than during winter darkness, and therefore that is when the landscape architecture and urban design of the route can do

the most to help make that decision easier.

The goal of this thesis is to take one interesting neighborhood location and demonstrate how, working within Seattle's climate and culture, qualities inspired by other places and by Seattle itself can bring a sense of warmth and humanity to the trek across a currently rather deserted-feeling space.

Commuting in Dark Seattle

Urban nightscapes have the potential to be exciting, vibrant places—and in many places in the world, they are. It's easy to point to Asian night markets, thriving night life districts in major

North American cities, the predominance of the evening hours for attending all kinds of arts and cultures events everywhere, bustling well-lit pedestrian avenues in California, plazas in Rome and Barcelona full of people criss-crossing the cobblestones until the early hours of the morning (and often beyond). These places have an atmospheric air of festivity at night, the darkness hardly slowing down the human activity from daytime.

Of course, Seattle does not have the climate of Los Angeles, the late-night culture of Barcelona, or the density of Taipei or Tokyo. And indeed, Seattle is not world-renowned as a nightlife city, and it will probably never rival large subtropical cities in that regard, although it has a few energetic nighttime spots. Like any large city, Seattle has a range of public nighttime activities and amenities, commercial districts with eating and drinking establishments (the Ballard Historic District, for example), places for entertainment, and a maintained city-wide set of about 84,000 streetlamps¹. Still, moving around Seattle at night is often a quiet experience. Most pedestrians and bike riders out and about night will probably be walking or riding through some areas of minimal street activity and low lighting. Perceptions of danger, actual danger, and various psychological effects of navigating an urban environment at night will probably be familiar to most Seattle residents who have been out and about outside of daytime and bright summer evenings.

In spite of the length of time that Seattle spends in the dark, many valuable urban spaces are unutilized. Although some designers do good nighttime work, most public spaces and landscapes are designed mainly for use and interaction in sunny, warm conditions, the easiest situation in which to plan a landscape. Renderings of future spaces usually show people socializing and lingering in attractive daylight sans umbrellas or heavy coats. Yet a large percentage of our annual hours outside of a traditional daytime work and school schedule, hours when we might be enjoying or passing through such spaces, are spent under conditions that would benefit from careful nighttime and cold weather design.

Much potential in Seattle for a better nighttime experience is untapped. Temperatures in Seattle are fairly mild and the public is

1 Wright, Maury. "Seattle Conducts LED Street Light Testing and Hosts Symposium."

generally supportive of arts- and pedestrian-oriented endeavors; neighborhood art walks, for example, continue year-round. Light art and nighttime winter events occur, but are strongly focused on the brief, traditional holiday season, such as the Green Lake Pathway of Lights community-driven event and the Redmond Lights festival, both in early/mid-December. Lighting technology is becoming cheaper and more environmentally efficient; the 31,000-41,000 LED lights installed in Seattle streetlamps as of 2013² have been even more successful than anticipated. While the association of nightlife with increased noise, rowdiness, and bad behavior may exist, there are far more kinds of people who could benefit from well-considered night spaces than there are troublemakers — night-shift workers, regular workers, travelers with a plane to catch, senior individuals with reduced vision and navigation abilities, and so on.

In fact, there are positive aspects to Seattle’s long winter nights. Daytime is beautiful, but night is beautiful too. There is poetry in the darkness, and the contrast with the evening conditions makes the flare of a fire, a light installation, or a glowing interior far more powerful. The darkness encourages the light. Even the rain has a positive effect on Seattle’s aesthetics: more classic neon, a highly skilled but sometimes-maligned art form, has survived in Seattle than in most North American cities, and neon art is still being created in Seattle. Could it be because the wet streets reflect the neon back into the air and down the road, creating a uniquely urban, immersive effect?

This is an important time to be thinking about access to transit at nighttime. Seattle is currently in a transit-expanding phase. Its light rail system is under construction, with several new stations set to be opening within the next 10 years. While the future of further transit construction is ever uncertain, there is popular support and grassroots organizations, such as Seattle Subway, working towards continued expansion and creation of new lines for high-capacity, grade-separated transit.

Seattleites on a standard daytime work schedule are commuting in the darkness of northern latitudes for a significant portion of the year. If public transit investments in Seattle are to be



Figure 1-4. Neon reflecting off a wet Seattle street. Photo by author.

successful, and indeed if ridership is anticipated to grow, provisions must be made to ensure not only the safety and comfort of the people passing through stations and stops at night, but to make those points of access to transit

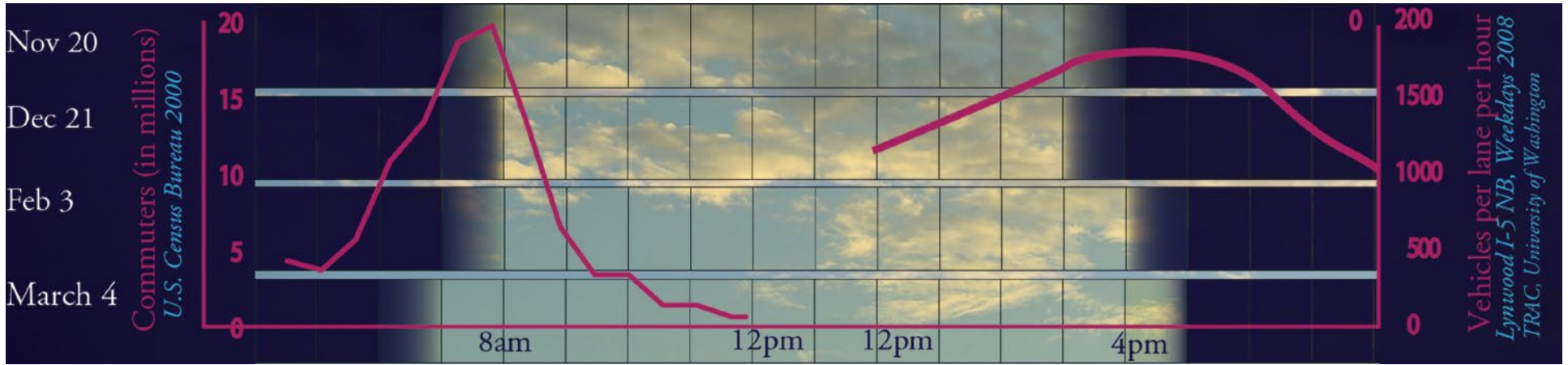


Figure 1-5. National and local data on commute times compared to winter daylight hours in Seattle



Figure 1-6. A cheery Seattle outdoor rendering / The experience of a dark Seattle winter. Images courtesy of Waterfront Seattle and Examiner.com

themselves attractive to access and use at all hours.

PEAK COMMUTING HOURS AND DARKNESS

It is no secret that Seattle in the winter months does not experience an abundance of natural light: cities in the Puget Sound region make up 100% of the 15 cities in the U.S. with the lowest amount of sunlight per year³. As seen in Figure 1-5, the peak commute times between November and February – a full third of the year – fall in the dark or near-dark. By March, the daylight hours are considerably longer, but a substantial portion of workers are still commuting in pre-dawn and post-sunset murk.

Idealistic summery renderings are not wrong, but they are irrelevant to such a large portion of the year that only showing such utopias is taking the easy way out in design. A realistic design approach starts with acknowledging the range of conditions in which the site can be expected to be experienced. The climate receives few daylight hours between November and March; numerous sources report rates of Seasonal Affect Disorder as about 10% at this latitude. With the dimness of the overcast daylight hours in the maritime Pacific Northwest, the result is that

3 “Top 101 Cities with the Lowest Average Sunshine Amount (population 50,000+).”



Seattle receives the lowest light levels in winter of any major city in the continental U.S.

In dark, wet, cold conditions, people are moving quickly, with huddled body language. They are not interested in lingering on seating or contributing to a framed ambience by strolling about leisurely with a friend. Our dominant information-gathering sense is hindered after daylight hours. With the

increased darkness and decreased enthusiasm for pedestrianism, perceived safety issues arising out of visibility difficulties and lack of human presence on the street take on greater significance. The lack of street interest—little activity or visual stimulation—on bleak days, or even moderate ones, is another hindrance to vibrant pedestrian activity. Yet encouraging carless transportation by encouraging pedestrians and bicyclists is possible: Scandinavian countries have even less light than we do, being further north, and have managed to maintain good public spaces through which to access transportation throughout the year.

Elements of the urban nightscape

The themes of this thesis will be arranged around four major concepts important to understand regarding our experience of the urban nightscape. These four concepts, or elements, can be pictured as a pile of blankets, referencing our need for warmth and comfort at night, that make up our multilayered sensory and psychological perceptions of after dark hours.

THE ARTS, SOCIALIZING, AND FESTIVITY



Figure 1-9.

The top blanket on the pile, this is a positive outcome of a well-designed (or fortuitous) combination of lower elements. We can spend our leisure hours enjoying the creativity and company of others in a myriad of ways, one of the great dimensions of urban life. Night time in the public sphere is the prime time

for holding festivals, events, and performances, for gathering at bars, cafes, and restaurants, for parties, for entertainment, for relaxation, for pursuing one's own interests and skills.

TECHNOLOGY + PHYSICS

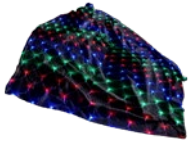


Figure 1-10.

This blanket contains the technical know-how and artistic inspiration for lighting and light art. To make a successful night environment, we need some understanding of basic physics, materials, and information on the creation of structures both complicated and digital, and simple and low-tech.

SAFETY + SUSTAINABILITY



Figure 1-11.

What happens when an urban environment interacts with the night? The first consideration, when contemplating a trip in the darkness, is usually to do with personal safety, both physical (senses are impaired) and social (the intentions of others). In addition, our attempts to carve out a space of light from the original darkness has ecological implications, in our use of energy

and in the effect our nightless nights have on light-sensitive plant and animal species.

MYSTERY & DARKNESS



Figure 1-8.

Here is the poetic and philosophical underpinning of all the later, cultural and technical layers piled on top of the night. Before the modern city, before crime studies, before the advances in lighting technology, before the concerts and cafes and illuminated facades, it was dark at night. What about our perception of the urban night is still responding to this blanket? What does the darkness represent to us?

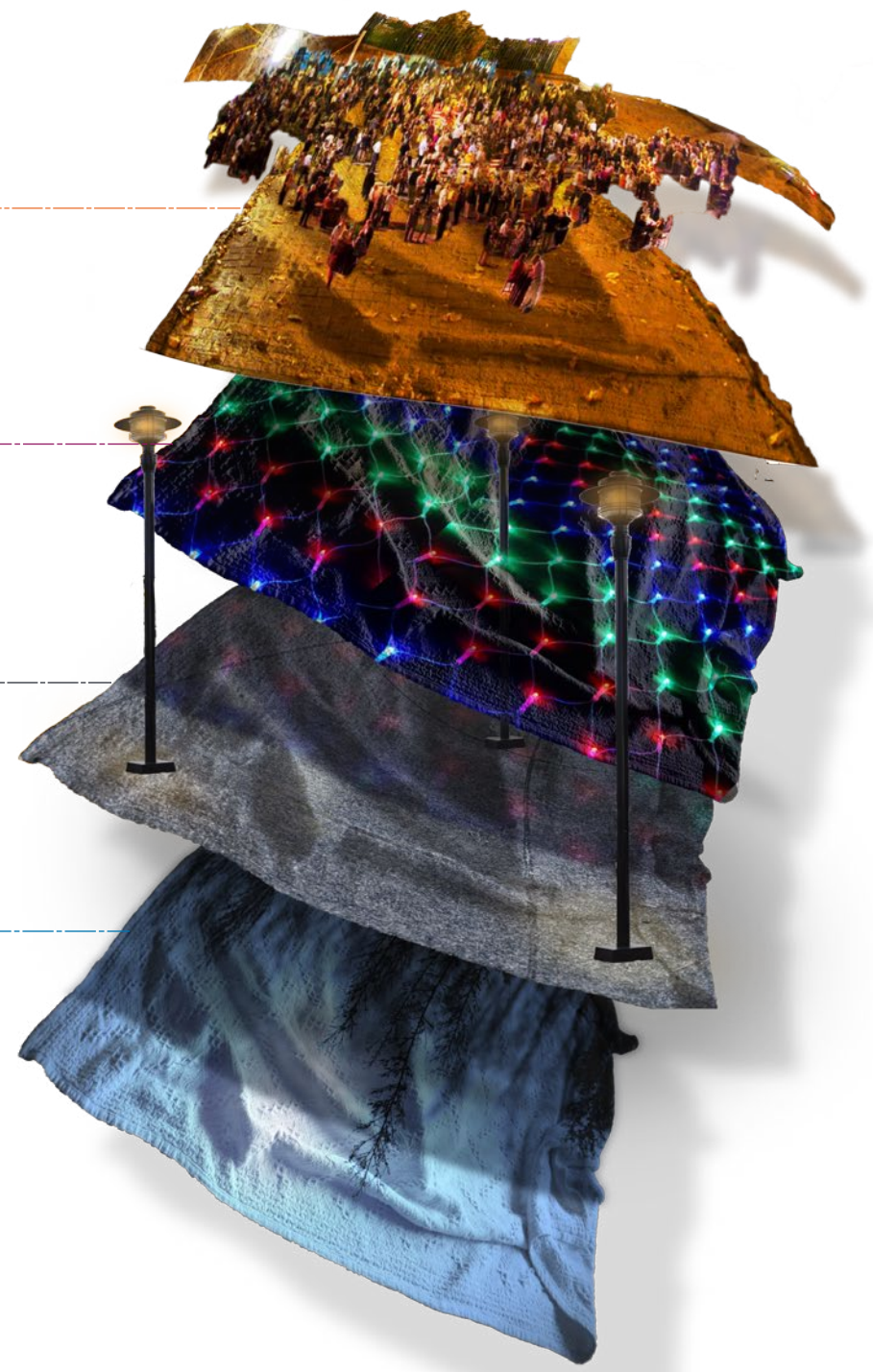
Figure 1-7. The Blankets of Night (opposite)

Arts + Social + Festivity

Technology + Physics

Safety + Sustainability

Mystery + Darkness





Goals + Methodology

A Look at the Site



Goals + Methodology

Application of the study to current and future projects

If lighting can engage public space on a human level through mindful design, then the public perception of the role of urban lighting may break through that of mere functionality or security.¹

The end product of this project will be to suggest a typology of design interventions for a specific site, with a few samples of how those types might take form. The primary desired outcome from that typology will be to create an expanded network of pedestrian routes across the site that better enable access to and from transit during nighttime hours. The main strategy employed will be the use of artistic installations at strategic points around the site. The hope is that these installations and treatments will:

¹ "Light and the Urban Nightscape."

- Engage the nighttime atmosphere as a positive time of day, associated with the festivity and arts;
- Make paths across the district purposeful and approachable; increase comfort and safety both perceived and actual;
- Give the sub-district an identity that links it to the vibrant and historically rich sub-districts on its periphery;
- Increase economic activity for the neighborhood business district; and
- Increase the number of people on the street, for a sense of safe activity and reduction of isolated areas.

These outcomes also stand as general goals for other areas and districts that might be able to use the typologies and recommendations from this process.

In order to achieve these goals, it is possible to use lighting and night-appropriate strategies to make pathways between neighborhood nodes that are easy to find and comfortable to walk along, enhance visibility along streets and at corners and create interest and focal points that make crossing the site a pleasant and engaging experience. Achieving these goals in relation to nighttime transit access would have the positive benefit of also meeting the goals of other neighborhood & planning organizations for Ballard, such as creating pleasant streetscapes and public spaces to increase the attractiveness of the business area, encourage mobility and use of transit, and other goals relating to Ballard's arts, culture, and identity.

Over the course of this thesis, several related questions will be explored. How can art in the landscape be used to encourage nighttime pedestrian use? Working within Seattle's climate and culture, how can urban nightscape design bring a sense of warmth and humanity to the trek across a currently rather deserted-feeling space? What criteria are needed to establish a framework of interventions? What factors need to be addressed to make the urban nightscape more welcoming?

Scope of study

This thesis will focus on the role of interventions in the night landscape that are both artistic and practical, in order to increase safety, comfort, interest, and wayfinding potential for pedestrians. Certain lessons and attributes will be taken from literature on architectural illumination for aesthetic purposes, from technical lighting references on lamp types and installation of equipment, and from municipal code for utilitarian public nighttime lighting standards, but this is not intended to be a thorough exploration of any of those subjects. Ample literature is available to draw on regarding architectural illumination/lighting technology and safety codes, but the first, focused particularly on aesthetics, is generally not overly concerned with the cumulative experience of a person passing through over a distance through and past various facades at night, and the second, focused on safety, does not much address the energizing social and artistic potential of non-standardized design.

This thesis is also not an attempt to defend or establish the many benefits of encouraging use of public transit in a city with a rapidly growing population, but takes as a baseline assumption that increased ridership (and its corollary, funding to support extensive transit) is a goal to be sought. There are certainly many positive effects of developing pedestrian- and business-friendly nighttime environments that will come up in the following chapters, but the vast amount of discourse in books, journals, online debate, policy recommendations, and other literature that has been written about the links between density, climate change, urban economic development, and transit, would make any reiterations here cursory.

Site introduction

As an exercise in applying the lessons derived from my research and case studies, I selected a site in Ballard with a number of factors making it an interesting location to test nightscape ideas. Although this combination of factors and conditions makes it an ideal site to explore establishing a hierarchy of nightscape interventions, the design proposed in a later chapter should be considered an example of a larger catalog of parts and ideas that could be readily adapted to multiple situations.

The site contains a slice of Ballard located between Bergen Plaza, at the current heart of the Ballard commercial and nightlife district, and Swedish Hospital. The hospital is one-quarter mile away from the plaza, a standard distance in planning literature that people are considered to be willing to walk to access transit.

Regarding my choice of location for a hypothetical transit stop, it is unknown yet whether on-grade streetcar or underground light rail will ultimately be constructed. It is important to note that although there is much ongoing discussion at SDOT and independent grassroots organizations like Seattle Subway about extension of some form of mass transit to Ballard, to my knowledge no one but myself has specifically proposed a station at Bergen Plaza. Projected ideas for potential future lines do show, among other options, a line running north/south on Leary, past this particular location, but suggestions for stops along this hypothetical line are



Figure 1-12. Site in relation to North Seattle



Figure 1-13. Location of Bergen Plaza and Swedish Hospital

vague, either left unplanned or marked as a couple of blocks to the north or south of Market Street. I have selected Bergen Plaza as a central location with an already-existing open space that would be a convenient and easy-to-access stop for many commuters and visitors from outside Ballard.

FUNDED STUDY & ONGOING LIGHT RAIL CONSTRUCTION

Figure 2-14 is from a 2013 study by the City of Seattle on potential routes for a streetcar, one of several options currently under consideration for improving high-capacity transit in the Ballard area. While multiple routes and modes are being studied and offered for comment at public meetings, placing stations or stops along Leary Way is a common proposal for many of the alternatives.

DEMOGRAPHICS & DEVELOPMENT IN BALLARD

Ballard is undergoing an intense period of development and densification. Originally an independent community incorporated into Seattle in 1907, it maintained a distinct character derived from its large Scandinavian immigrant population, industry- and fishing-oriented economy and its geographical detachment from most of the rest of Seattle through much of the 20th century. Being rather removed from the main parts of Seattle (one bridge connects it across the cut between Lake Union and Elliott Bay, and the steep

topography of Phinney Ridge on the eastern border of Ballard channels most east-west traffic onto just a few roads), for many decades Ballard was a quiet area with little new housing stock and demographics skewed towards an older, long-settled population.

In the past 20-some years, the character of the neighborhood has changed substantially. The Seattle City Council designated the area a Hub Urban Village in 1998, with a projected large population growth into the foreseeable future. Centered on the intersection of Market Street with Leary Avenue, a thriving commercial strip along Market is connected to a historical district running along Ballard Avenue, both lined with restaurants, bars, music venues, theaters, and shopping. As predicted/determined, the population of Ballard has grown tremendously, and the demographics now skew much younger as tech workers and young professionals under 35 have moved in. 1500 residential units were built in the Urban Village area between 2006 and 2012, and many more development projects are still under construction or on the way². The historic district has an active nightlife, and with the increased population and entertainment has also come an increase in vagrancy, panhandling, and crime (how much is perceived versus actual is difficult to say, although reports of home burglaries did rise 50% between 2012 and 2013³).

2 “The Two Faces of Ballard- City Living Seattle- Seattle, WA.”
 3 “Ballard Reports 50% Increase in Home Burglaries.”



Figure 1-14. Potential streetcar routes. Green line on far left travels on Leary. Image courtesy of City of Seattle.

While the historic district and several blocks of Market Street are active until late and well illuminated, the surrounding areas are neither. Ballard's historic working waterfront is also still active, and leaving the main hubs of activity one quickly finds oneself in areas of warehouses, light fabrication/material processing shops, and

auto repair and sales lots, all of which are important for the local economy but not particularly conducive to a comfortable nighttime stroll. Swedish Hospital, a major location of night time work, lies in a borderline area between these two zones, a few blocks from the lights of Ballard Avenue. There are gaps in the street lighting, and the streets are laid out in a confusing diagonal pattern rather than a traditional rectangular grid.

Methodology

I began by identifying distinct areas around the station (within a quarter-mile radius) and observing some important needs and characteristics of each. I first defined what I considered the limits of each of these wedges or subdistricts, and then I selected one particular wedge on which to focus my analysis and design proposals. My methods included the following.

- Research.** My research into the role of public art and festivity in establishing an active and accessible nightscape, safety in the city, the history of public lighting, and technical and qualitative aspects of illumination was both literature- and interview-based. This research was important in establishing a set of criteria for making later design proposals.
- Site visits.** I made a series of site visits, most extensively in the early spring of 2013 and fall and winter of 2013/4, to get a full impression of winter nighttime conditions. During these visits I kept records of factors such as lighting types and spacing, number of pedestrians, effect of lighting on vegetation, alleys and parking lots used as shortcuts, and areas that were dark, neglected, or under construction.
- Identify important nodes and subdistricts.** Simultaneous with site visits, I cross-referenced my own notes and maps of the area to determine over 20 points for further analysis and action. The rationale for choosing these points and the outcome will be discussed in Chapter 5. I also determined the limits of my study area, based on a ¼ mile walking distance between place of employment and the future station, and the limits of other areas within the neighborhood that would be interesting to

study at a future date.

- **Photo inventory.** I took a complete photo inventory of all 20+ locations around the subdistrict. I took photos of each spot from the same angle both in the day and at night for quick comparisons.

- **Photo analysis.** I analyzed each stitched-together panoramic photo according to a metric of criteria for determining appropriate intervention typologies.

- **Create typology.** Based on my research, I created several typologies that can be used as a catalog of parts for other neighborhoods following a similar process. I created a typology of paths and spaces in the neighborhood that can be used for determining appropriate locations for interventions; I created an adaptable typology of illuminated interventions and other, low-tech, night ideas that can be applied to the specific spaces of this neighborhood and generally to spaces in other neighborhoods.

- **Propose design.** I proposed a design that mixes elements from the research, site analysis, precedents, and developed typology and applies them to appropriate locations around the neighborhood. The design is intended to present a system of nighttime interventions that will connect nodes in the neighborhood to the proposed transit and give subdistricts a cohesive night-time identity. To do this I designed at the scale of the individual art installations as well as the scale of the subdistrict in placing the installations as part of one organized site.

Organization

The rest of this document will follow a design process moving from initial research to a set of proposals for design implementations.

1. **Literature Review.** I will begin with a fairly wide-ranging selection of research topics building a theory of urban nightscape experience. The lessons and ideas I take from this research will be structured to correspond with the four blankets of night discussed earlier: arts + social + festivity, technology + physics, safety + sustainability, mystery + darkness.
2. **Precedent Studies.** I will go more in depth with examples of specific light art installations, night gardens, and other interventions; and with inspiration from Seattle and around the world for interventions applicable to this site, focusing on artistry and on essential elements for nighttime urban public space.
3. **Site Analysis.** I will use maps, diagrams, historical research, and the results of my photo inventory and analysis to examine the specific challenges and opportunities presented by this site.
4. **Design proposals.** This section will show the outcome of my design process and application of intervention typology to appropriate nodes and subsites within the area of study.
5. **Recommendations.** I will propose suggestions for how these ideas could be implemented over the short or long term, and how the typology developed through the design process could be applied to other districts in Ballard and the rest of the city.

3

Literature Review

Night & Light

3 Literature Review

Introduction

This review will touch on some of the most important issues and design considerations relating to creating urban nightscapes for pedestrians. I will look at the history of how lighting technology has affected the accessibility of public space at night, how night affects our psychology and physical senses, social issues connected to night such as the nighttime workforce, and the relationship between lighting design and crime, physical qualities of light and light technology, and finally, how light art installations can contribute to the nocturnal built environment. On the way I will include some thoughts on the importance of darkness itself as a daily and seasonal rhythm to be acknowledged and allowed.

History of public space at night

“London was beginning to illuminate herself against the night. Electric lights sizzled and jagged in the main thoroughfares, gas lamps in the side-streets glimmered a canary gold or green. The sky was a crimson battlefield of spring, but London was not afraid. Her smoke mitigated the splendor, and the clouds down Oxford Street were a delicately painted ceiling, which adorned while it did not distract. She has never known the clear-cut armies of the purer air.”
- E.M. Forster, *Howards End*, Ch. 14

The history of the urban nightscape is, in large part, a history of the technology of lighting. While the rural night was originally lit only by fire and celestial light sources, urban environments have generally required more than that for inhabitants to venture out at night. Here, a brief overview shows that urban nightscapes

through the ages have developed through technological advances to reach our present assumption that all hours of the night are available to us for travel, but that the perception and reality of night as a time of danger remains.

ANCIENT & MEDIEVAL URBAN NIGHTSCAPES

Before the advent of officially funded public lighting, nighttime cities were very dark and dangerous. Since ancient times, a fear of



Figure 1-15. Reflective marbles embedded in pavement, Pompeii. Photo courtesy of Roark Congdon

night has been common across cultures. Mythologies and religions often told stories of sickness and malicious spirits as nighttime hazards; a common name for the onset of night in western Europe throughout medieval times was “shutting-in”⁹ since few sensible people would risk the violence of the streets at night. In Rome, for example, all the way to the 1600s going out at night required carrying a flare (or hiring someone to carry it for you), although the flare would be immediately extinguished by any criminals encountered. The danger of pedestrianism in the dark did not stop young men from enjoying social night life activities, but most other people would have been deterred.¹⁰ Some ancient cities, such as Pompeii, made efforts to increase available light by installing reflective bits of marble in public paving.

Another early attempt at providing some public lighting for safety comes from medieval England, where in some places property owners were expected to burn candles outside their houses for some illumination on public pathways.¹¹ In China, while there was probably no coordinated system of public lighting, early medieval restaurants, taverns, and teahouses hung brightly colored lanterns outside their doors¹², an ever-recognizable symbol of warmth and festivity.

- 9 Ekirch, *At Day's Close*.
 10 Phillips, *The Lit Environment*.
 11 *Ibid*.
 12 Tuan, *Topophilia*.

BEGINNING OF MODERN LIGHTING

Public lighting did not begin to become common until the mid-18th century with the introduction of oil lamps and the fleet of workers that lit them nightly.¹³ Although cities were growing rapidly by the 1700s, the narrow pre-modern streets and dense buildings created a very dark and unsavory streetscape, easy to get either lost or mugged in, for those not fortunate enough to travel by carriage.¹⁴ It was in the mid-1800s with the introduction of gas lamps that public lighting really began to take on significant widespread distribution. Gas lamps technology had a direct effect in expanding the public sphere of nighttime to a wider demographic group; public lighting made access to the nighttime societies popular in the Victorian era more possible, for example. However, it was still considered inappropriate for women to go out alone; the presence of women on the streets at night was charged with sexual connotations.

EARLY 20TH CENTURY: THE JAZZ AGE, NEON, AND WIDESPREAD PUBLIC LIGHTING

By the early 1900s, cities glowed, and by the jazzy 1920s, urban illumination was in full cacophonous swing. Throughout the late 1800s and early 1900s, cities installed municipal street lamps, often bestowing main urban boulevards with ornamental lampposts and luminaires designed in numerous forms, from old-fashioned lantern imitations to more contemporary globes. Neon technology, invented in France, came to North America in the 1920s, exploded in popularity in the 1930s, and reached its height of distribution in the 1950s. Primarily used for commercial purposes, neon signs were usually produced by local shops with little design training; the images they used reflected a kind of folk art¹⁵, with cartoonish animals and characters, extravagant imagery, and little taste for subtlety.

Although neon acquired a reputation for glitz and gaudy commercialization, the levels of craft involved in the production of the colored tubes are not insignificant. Neon itself was a cheap product, and signs were once sold cheaply, but the signs were hard to fabricate and a large pictorial sign might involve complex

- 13 Phillips, *The Lit Environment*.
 14 Ekirch, *At Day's Close*.
 15 Davidson, *Vintage Neon*.

layers of tubes. Neon, while more expensive to produce and maintain than colored LEDs, is still an efficient lighting technology, and is more appreciated for its aesthetic qualities now that it no longer dominates urban commercial districts. The vernacular iconography of mid-century neon signs, in the line of tradition of pictographic shop signs dating back to medieval artisans and merchants, is now nostalgic. Further, the techniques of neon manufacture are not limited to the bold and kitschy commercial applications we are familiar with.

While neon brought a sense of fun (depending on your perspective) to public night scenery, by the 1960s it had become dated and lost popularity. As public lighting law enforcement officials in the U.S. took an increased interest in the public safety functionality of street lighting, the urban experience of light shifted to being flat and bright, with little regard for atmosphere, pedestrian quality, or ecological sensibility. High-intensity lights, intended to chase away all shadows and shadowy characters, were widely installed. Bright, vertically elevated cobra head-style lighting mainly benefitted automobile traffic.¹⁶ More pedestrian-scaled lighting was left up to communities themselves to provide, meaning that as an optional amenity less affluent locations were often left without.¹⁷

PRESENT DAY: STREET LIGHTING, DISCHARGE LAMPS, AND UPCOMING APPLICATIONS OF TECHNOLOGY

Current street lighting systems are in a transition period between the high-pressure sodium (HPS) discharge lamps that have been commonplace since the 1960s and new LED-based lighting that has a much longer lifespan and more accurate color rendering, as will be discussed more later. When well done, attention is given to multiple zones of lighting – for traffic, for pedestrians, and for architectural structures and facades. Theatrical lighting of buildings has been more common since the introduction of the HPS lamps, and has to be thoughtfully designed with sensitivity to the suitability of light intensity and color to the building material, color, texture, and reflectivity. As with lights designed to be viewed at the speed of car traffic, non-adjustable lights are often too strong for a good streetscape and can appear to flatten a building

16 Beth, “Seattle Puts Street Lights to the Test | Clearlysapphire.”

17 Tillett, Linnaea and Kate Gardner, “From Safe to Lively Streets.”



Figure 1-16. Cobra head street lights in Seattle. Photo courtesy of Clearly Sapphire

façade or create glare.

In relation to public transit, ensuring that streets leading to and away from transit access points are visible and attractive to pedestrians is an essential part of establishing overall efficiency and quality of public transportation systems. In a compact, walkable, transit-oriented city, “walking along beautiful streets and squares is an important part of the total journey.”¹⁸

Urban nightscapes, historically and still in the present, have been less socially and psychologically accessible to women than to men; a modern design for a good public nightscape should pay particular attention to the concerns of women and vulnerable populations like the elderly. The 20th century emphasis on lighting for safety and road visibility, however, should not be allowed to override softer, more pedestrian-oriented lighting that is easier for nighttime eyes to adjust to.

The psychological effect of night

FESTIVITY, PUBLIC ART, SPECTACLE

From Grecian festivals that stretched late into the night to modern nighttime light festivals meant to dazzle and overwhelm, night has been perceived as a time to revel in

18 Gehl, *Cities for People*.

human-produced light, to gather in groups to celebrate, and to take advantage of the non-working hours for recreation and amusement. An extremely diverse span of human cultures show this tendency towards merriment in the night: the hunter-gatherer Bushmen of southern Africa, for example, interrupt their regularly scheduled, mundane activities for “acts of another kind, not tied to physical necessity and out of step with the normal rhythms of human relationships... Dancing... always takes place at night and around a fire... during which the constraints and obligations of daily life are put aside.”¹⁹ At the other end of the urbanization spectrum, modern cities fill their nighttime hours with entertainment; bars, restaurants, clubs, shops, and galleries cast their light onto the street, and movies entertain us, on a basic physical level, with their shifting patterns of light. Night, for the Bushmen and modern city dwellers, implies the release from daily obligatory activities conducted by bright and free lighting. The more limited availability of light at night clusters people around light sources less far-reaching than the sun.

After-dark social life is exciting and carries all kinds of cultural images of rowdiness, glamour, elegance, and so on. For workers who are released for the evening, those hours represent the freedom to pursue personal interests.

Technological advances in our lighting has extended the visual intensity of our festivities (although conversely it has also extended the hours available to us for working). We associate festivals with thousands of colorful lights that unfurl over our heads, beckon us to eat, and accompany music and crowds. Numbers feel safer on the nighttime street; most people would rather walk along a street with plenty of pedestrian activity at night than a quiet, unpopulated street. The music, color, and noise of a nighttime festival, or of active nighttime districts, stands in marked contrast to the darkness that exists every day outside of direct human intervention.

FEAR, DISCOMFORT, AND MELANCHOLY

“None of the many histories of lighting... is able to dispense with a preliminary description of the impenetrable terrain of the nocturnal as an alien region

19 Tuan, *Topophilia*.

*of fear that is conquered and finally subjugated.”*²⁰

The flip side of the hours of festivity and socialization is the side that strikes us in a primal place of caution and retreat. Nighttime is also a time of melancholy and reflectiveness; the reduced physical vision of night affects our emotional selves as well. Poetically, metaphorically, night corresponds to a more somber state of the soul.

As will be discussed more in the next section, night is not our biological niche. We are primarily diurnal beings, and the reluctance we feel to peregrinate at night is based on valid evolutionary and social reasons that transcend place and time; the universal fear that children have of the dark was recorded in literature by as early a writer as Aristotle.²¹ Modern culture may not explain our reluctance through a mythology of dangerous, supernatural nocturnal creatures the way other cultures have, but we still have a sense of the unknown at nighttime that can be either mysterious or disconcerting.



Figure 1-17. Starry Night. Edvard Munch, 1893. Image courtesy of the Getty Museum

The illumination of city streets at nighttime serves its purpose of helping us navigate those streets, but it also has the effect of destroying our night vision, making the less illuminated areas seem even darker in comparison. Areas that are not lit at all, or are only lowly lit, emanate an aura of hostility; they “seem to be the left-over remains of a dark past, a region which does *not yet*

20 Schlör, *Nights in the Big City*.

21 Ekirch, *At Day's Close*.

enjoy the pleasure of illumination.”²² Most urban lighting seeks to remove those dark areas as far as possible; this is a view of lighting that pushes the night away, symbolizing “progress as distance from nature.”²³

DICHOTOMY OF NIGHT

So night is the time of loneliness, and the hours of socializing. It is a time for exploring and displaying the latest products of human creativity, and a time when biologically rooted instincts from before civilization demand our attention; it surrounds us with mystery and the power of our imaginations, with a heightened sense of smell and sound and connection to the natural world, and with darkness-defying brilliant displays and lights.

As Yi-Fu Tuan points out, “The appeal of cities lies in large part on the juxtaposition of the cozy and the grand, of darkness and light, the intimate and the public. ... Much of the attraction of old European cities resides in the juxtaposition of crowded residential quarters (the dark warrens of life) and spacious public squares.”²⁴ The “entertainment, lively streets, bright window displays, neon signs with their colorful promises, cinemas and restaurants, the parade of the many who ‘go out’” exist in parallel with “empty streets, dark corners, the play of shadow on sinister doorways, disturbing noises, and single, apprehensive, solitary wanderers”²⁵

There is a conflict of interest between the importance of avoiding dark, shadowy areas in places where people need to walk or be, and in preserving some of the essence of night, to retain its mystery and to be ecologically and energy-use conscious. Designing for public nightscapes takes advantage, as it should, of our control over light, but that control should be used wisely to enhance the night rather than to destroy it.

Commercialized ‘night life’ has made many streets so bright that they can hardly be distinguished from the day, while others are left to emptiness – and so to real danger. Both developments are linked to the fatal

22 Schlör, Nights in the Big City.

23 Ibid.

24 Tuan, Topophilia.

25 Schlör, Nights in the Big City.

*tendency to shift much of what made the nocturnal street attractive back into enclosed spaces. With this the diversity of appearance is lost, and many people, many women in particular, shy away, for good reasons, from walking through the nocturnal city; but they may also feel that in their withdrawal they are missing something that only the street can give, and will perhaps succeed in rediscovering the trail of what has been lost.*²⁶

Night time and identity in Northern climates

The long nights of Northern regions are inseparable from their identity of place. When daylight hours drop below eight per day at the nadir of winter, the darkness becomes an essential quality of the experience of living in a northern latitude. It is possible to embrace this condition; the Nordic countries, in fact, self-identify as the Nightlands.²⁷

Scandinavians “take a positive attitude towards this darkness ... They consider the darkness to be a protecting spirit.”²⁸ They light candles, celebrate the warmth of winter dinners shared with friends around a comforting light, and “place objects [in their windows]... which emit warm light towards the outdoors at night.” The loss of light for so much of the year is as much a cause for socializing and engaging in art and environmentally-responsive architecture as the long days of summer are.

There is a particular aesthetic attractiveness in the muted tones and soft, overcast light of winter. In a quote that seems as relevant to Seattle as to Sweden, grey and water come together to form a local and elegant palette.

Grey has a thousand shades... Grey is the colour of the North ... unlike the South... where the shades are hidden in explosions of bright and hard and warm colors. In overcast weather the materiality of things is accentuated, and new moods and atmospheres

26 Ibid.

27 Kjeldsen et al., New Nordic Architecture & Identity.

28 Maia Brindley Nilsson, “Bringing Light to the Dark.”



Figure 1-18. Stockholm: Adventsljusstake candles in a private window visible from a public streetspace; fire pots in a public space. Photos courtesy of Maia Brindley Nelson.

are created and recreated in a calm rhythm... In the North we live with all the states of water all the time... the sea fog, the water, the reflections, and the rain.²⁹

The difficulty of the climate and length of nights for a good portion of the year do not stop Swedes and Danes from having engaging public spaces where they can sit outdoors and engage in active enjoyment of exterior urban places. Such has not always been the case—the climate was for much of history considered unsuitable, especially compared to the café culture-fostering climate of more Mediterranean European zones, although a generation of determined urban designers has fostered a change of public heart³⁰. As Jan Gehl notes and anyone who has ever been outside in unpleasant weather can attest, lingering in the street when one is uncomfortable is a nonstarter. “People move more quickly when it is raining, windy or cold. On Copenhagen’s main walking street, Strøget, pedestrian traffic on cold winter days is 35% faster than on good summer days.”³¹

Seattle has the wintertime advantage of being not nearly as far north as the Scandinavian countries, at 47° north to Stockholm’s 59°. It is, in fact, slightly south even of Paris or Vienna (48°). Although Seattle has its own wintertime challenges in terms of precipitation, Scandinavian countries’ even more protracted cold and darkness supplies plenty of lessons and inspiration in embracing rather than shuddering at the winter season.

29 SLA in Kjeldsen et al., *New Nordic Architecture & Identity*.

30 Ibid.

31 Gehl, *Cities for People*.

Nocturnal perception

Our perception of the nightscape is not the same as the daytime landscape with a lowered light level. As our main sense, sight, is handicapped by darkness, the character of our surroundings shift, our awareness of other humans on the street takes on a more alert edge, and our ability to navigate is challenged. We have little sense of distant vistas after dark; topography beyond our immediate surroundings is lost to us, only hinted at by the position of distant lights. Even the way in which land forms are revealed to us by light direction, color, and shadow is not explored much in landscape architecture theory; our perception of topography and environment without natural illumination even less so. In Ballard, for example, views of surrounding hills and mountains in the day are replaced at night by vaguely floating lights at a difficult-to-determine distance. Our eyes have some ability to adjust to darkness, but urban illumination prevents our eyes from making this shift. Darkness takes us out of our biological comfort zone, and the lighting that seeks to alleviate our native awkwardness at night by pushing off the dark also keeps us in a state of vision somewhere between day and night.

HOW VISION WORKS AT NIGHT

Our normal, daytime vision (*photopic* vision) is our dominant sense as humans, the sense we rely on most to continually assess our environmental conditions. We are fully in photopic vision mode when luminance levels are around 10 candelas.

At nighttime, our *scotopic* vision takes over; at light levels only a few-hundredths of a candela, we are purely using it. This mode of seeing relies on the less-color-aware rods at the edges of our eyes. With far less ability to perceive warm colors, seeing scotopically means that our environment will be much more monochrome; our sensitivity at low light levels is concentrated in the blue-green range of the spectrum, which partially explains why we perceive



Figure 1-19. *The Purkinje effect demonstrated with a red geranium: photopic, mesotopic, and extremely scotopic vision. Photo courtesy of Wikipedia*

moonlight as being a much cooler color temperature than sunlight even though moonlight is reflected sunlight. Objects that seemed brightly colored at 3 in the afternoon will seem dull and more neutral at 3 in the morning (this perceived color shift in objects is known as the Purkinje effect.³²). Since the rods are arranged at the edges of our eyes, our central vision is poorer at night time: looking straight ahead provides us with fewer details than our accustomed daytime awareness. Our depth perception is affected as well. Bright lights and large luminous areas appear closer than they actually are.³³ Strongly drawn to light, our eyes rapidly shift to photopic vision, but only slowly to scotopic vision (about 10 minutes for a full adjustment)³⁴. Because of our quick adjustment to the highest level of adjacent light, excessively bright light (known as glare) actually hinders us in our ability to read darker areas—any area outside the circle of bright light—and reduces the impact of more subtle or smaller lighting nearby such as illuminated objects, facades, etc. In areas of high contrast, or of medium-low lighting, we use mesotopic vision, an intermediate mode between scotopic and photopic.³⁵

It is also worth noting some of the vision changes that come with

32 "Purkinje Effect."

33 Narboni, *Lighting the Landscape*.

34 Ibid.

35 Gregory, *Eye and Brain*; Wittgenstein, *Remarks on Colour*.

age, particularly since the site of this study contains a hospital and an assisted living complex. In addition to the well-known tendency towards nearsightedness (reducing the distance to the spatial horizon), older eye lenses gradually become more yellow, filtering out ultraviolet and some of the violet wavelengths.³⁶ This makes providing particularly visible wayfinding clues and easily navigable underfoot surfaces especially important.

OTHER SENSES AT NIGHTTIME

Although our color and depth perception are reduced at nighttime, our other senses are unaffected by darkness and are worth giving more prominence to in a nightscape design. Hearing, for example, helps us mark time; without it "life seems frozen and time lacks progression... soon the silence, the severe loss of information, induces anxiety, dissociation, and withdrawal."³⁷ We also gain spatial cues from our sense of hearing—the sound absorption or reflection of materials tells us something about the material quality of our surroundings, and the sonic character of voices or other sound sources tells us about the location of those sources and generally from which direction it is coming. Our sense of touch tells us about our footing. People are more susceptible to uneven footing, like cobblestones, and small obstacles without an acute sense of vision, but still find such things navigable.

We also have a hormonal and chemical response to nighttime: periods of dark appear to be necessary for melatonin production and maintaining a natural circadian rhythm, which in turn lead to other health benefits. Increased nighttime light exposure may even have negative health effects from the consequently reduced melatonin production.³⁸

OUT OF OUR COMFORT ZONE

"At night we step into an environment where—in an evolutionary sense—we're not supposed to be. As a species, we have less than stellar vision in the dark; we can't see detail or color. We lack all the basics that nocturnal species have: we don't glow like cephalopods, nor do we have eyes that enhance and

36 Tuan, *Topophilia*.

37 Ibid.

38 Bogard, *Let There Be Night*.

*collect light like cats.*³⁹

Our discomfort with the night stems from our inherent biological disadvantages without sufficient light to evaluate threats and environmental conditions. With all senses fully functioning, our internal monitor runs along almost unconsciously, navigating any unusual social situations with strangers, taking unexpected noises in stride, navigating off clearly visible landmarks. At night, doing all of these things is pushed to our consciousness, and we go on uncomfortable alert. With facial expressions less visible, how can we tell the intentions of approaching strangers? Does a noise with no visible cause have an ominous meaning? Nothing clearly dangerous is visible, but nothing is clearly visible, so danger can't be ruled out.

Our fears of the night may not be based in any kind of statistical analysis of actual likelihood of danger, but that does not make them unfounded or irrational. The universal fright of children at night points to a genetic component to our unease; our imagination busily fills in all kinds of possibilities and keeps us vaguely anxious when our physical senses are diminished. Night was not considered aesthetic in many places and cultures, but something to barricade oneself against. The difficulty of identifying the faces or intentions of others at night does contribute to actual nocturnal danger. And so we turn to lighting to alleviate our anxiety, push away the darkness, and restore our more comfortable vision.

The cycles of the night

*In the hours just before dawn, Kerry [a child oncology nurse] goes silently from room to room on a meds round. In one room, a young mother is awake. She sits in the window seat, a blanket wrapped around her shoulders, staring at the city twinkling far below... Kerry imagines the young mother is thinking [the households below] all have healthy children, tucked snugly into their beds.*⁴⁰

39 Tillett, Linnaea, "Light After Dark."

40 Gies, Up All Night.

Like the day, the night follows a consistent rhythm of activity, the evocative street ballet of Jane Jacob's description⁴¹.

Understanding the dynamics of human travel patterns as the night waxes and wanes not only helps to design more effective pathways and transit stations, but makes it possible to design for a less energy-consumptive lighting system that is responsive to shifting need for luminance levels hour to hour. This rhythm also reveals the needs of those who must be awake at night, often a neglected class: the service workers, hospital workers, emergency personnel, and the keepers of vigils at hospital bedsides.

Leni Schwendinger, a public lighting designer in New York, has complemented the idea of the street ballet with her "Eight Shades of Night—Public Space during the Darkened Hours,"⁴² a framework that identifies distinct temporal stages of activity. Her categories are shown here in blue.

THE DAY SHIFT ENDS/DUSK

On the shortest days of winter, night begins even before the traditional morning-evening workers and students start their trek home. On all days, November through to the beginning of Daylight Savings in March, a minimum of nearly half these commuters make their way home after twilight. The streets reach their peak of commuters between 4 and 6 pm.

EVENING SOCIAL HOURS/HAPPY HOUR—DINING OUT—CULTURAL EVENTS

"The social extension of the work day," happy hour, fills bar windows with people transitioning between work and returning to their private spheres. The restaurant hours follow closely, keeping districts with restaurants active with diners, shoppers, people strolling down streets, meeting friends, dates, and business connections. Cultural events occur simultaneously: theater, performances, other arts events.

41 Jacobs, *The Death and Life of Great American Cities*.

42 "Public Lighting Theory – Developing the Nexus of Lighting and Urban Design | Leni Schwendinger."

ARRIVAL OF THE NIGHT SHIFT

Not all people on the move in the evening are in pursuit of leisure or going home to bed; there are also the night workers of the city, the workers who provide 24-hour service for necessary emergencies and repairs, for late-night entertainment, and for cleaning and construction done out of the way of the daily hubbub.

NIGHT LIFE/AFTER HOURS

Bars, late night restaurants, and clubs claim the hours after many restaurant diners and culture hounds have gone home. Many of the places where these activities occur can be seen as “third places,” reliably bringing (previously unknown to each other) individuals into social contact. These places generate much enthusiasm—nightlife districts are perennially popular with a wide range of people. They can, however, also lead to conflicts with adjacent less night-oriented communities, as well as contribute to alcohol-related problems, and propagate unequal and stereotypical gender roles and relationships.⁴³ In terms of urban design, they contribute to the local economy, to quality of life for their customers, and keep eyes on the street after office business hours, but they may also be a source of noise pollution and, depending on the type of establishment, may not contribute to feelings of safety on the street, particularly among women.

SERVICES/NIGHT SHIFT

In the modern city, there is always someone working somewhere. After the bars have closed and before the morning commute begins, off-hours construction, repairs, cleaning, and other essential yet often invisible city services are being undertaken by workers. Our Pacific Northwest cities are generally quiet at night compared to larger cities,

“but the quiet at Portland’s center doesn’t mean that nothing’s happening: it’s just happening elsewhere

... Here, as in every other American city, people are at work in the hospitals, offices, warehouses, and factories; meanwhile, buses, taxis, ambulances, and patrol cars cross and re-cross the city, be it noon, dusk, midnight, or dawn.... In addition to the classic night chores—those related either to emergency services or keeping an eye on things in the dark—many industrial jobs presume shift work.”⁴⁴

These workers, navigating a lonely streetscape, have just as much need for good urban night design as the commuters who travel in crowds.

EARLY MORNING/EARLY RISERS—DAWN

The city prepares for its day; busses resume running; early shift workers arrive to open shops, cafes, set up outdoor markets; deliveries are made; and before the sun is up, the crush of rush hour is on again.

safety / crime

Although crimes of property and violence are commonly and not inaccurately associated with night hours and dark places, for the purposes of this review, the most important thing to note regarding safety at night is that anxiety for one’s personal safety is disproportionately experienced by women. Caution at nighttime is experienced across genders, but the experience of the female gender when deciding on a route to take across an urban landscape is much more cautious and self-aware than that of the male gender, in most cases. This is very important in planning for access to transit and in increasing ridership numbers among women. Other design considerations regarding crime, particularly CPTED, will be covered in a later section.

WOMEN AND TRANSIT

A poll of public transport users in Toronto, Canada, in 1986 found that 45 percent of women felt unsafe using services after dark, as compared with 13 percent

of men (in Whitzman, 2002, p.102).⁴⁵ “A New York City Subway Safety Survey of almost 2,000 women in 2007 found that two-thirds of women reported past experiences of sexual harassment, and one in ten reported sexual assault on trains... in Edinburgh, Scotland, in 1998, 43 per cent said they had been harassed by rude or abusive comments on the street, and nearly one in five had been followed by strangers.

⁴⁶

Writing about the experiences of women using transit, Anastasia Loukaitou-Sideris points out that although most transportation safety resources are concentrated on the vehicle of transit, women feel much more vulnerable and anxious waiting outside at a bus stop or transit station. In addition, technologically-based forms of safety monitoring—cameras or CCT technology—do little to increase feelings of safety. The most comforting factor is the presence of other (non-threatening) people, a strong point in favor of designing stations and access to stations so that they have good natural surveillance (other people are present, can be seen, and could potentially intervene if a threatening situation occurred). Access to stations is key here—it is standard practice for waiting areas at stations to be well lit, but if the parking lot at a distance from the station is dark and ominous, or if the walk from another point nearby feels isolated, people will avoid the entire trip.⁴⁷

Some perception of safety is involved here—few people consult actual crime statistics between choosing whether or not to walk a few hundred feet through an unilluminated and deserted parking lot. As can be seen from the quote introducing this section, however, the fear of sexual harassment is based on a very common experience. Official statistics are highly misleading anyways: sexual crimes are extremely underreported, particularly the kind of low-level harassment or groping that seems unlikely to be followed up on by police but still is very intimidating and unpleasant and leads women “to avoid certain transit modes or use them only during specific times of the day or only when they are accompanied.” And returning to the importance of the approach to the station as the key to using transit, “there are studies in Chicago that find block-

45 Carolyn Whitzman, Building Inclusive Cities.

46 Ibid.

47 “Women, Transit, and the Perception of Safety | Planetizen.”

by-block that more crime tends to happen in the vicinity of the station than within the station, and [Loukaitou-Sideris’s] studies show the same... [transit officials] need to look at all of these components and how they link to the rest of the city, because a lot of the crime happens in these in-between spaces.”⁴⁸ Whether or not a particular area is actually prone to be dangerous, the intentions of strangers are difficult to determine at night, and most women, whether they have had previous bad experiences or not, are acutely aware of this.

It is worth noting in terms of wider applicability of nighttime design beyond the site of this study, conditions for women in the city are much more difficult in many places of the world where women have fewer options for mobility while simultaneously facing greater harassment or cultural restrictions on the street.⁴⁹

PUBLIC SPACES & TRANSIT

*Potential for a lively city is strengthened when more people are invited to walk, bike and stay in city space... The potential for a safe city is strengthened generally when more people move about and stay in city space.*⁵⁰

Jan Gehl, like Loukaitou-Sideris, says that public transport becomes much more appealing when riders feel safe accessing it via whatever mode they use to get between the transit vehicle and their points of origin and destination. He particularly equates the quality of public space—which describes most routes that pedestrians and cyclists take in the city—to the quality of the public transport system. Distances covered on foot should pass through a number of attractive open spaces and a diversity of uses, which increases the presence of other people. More eyes on the street means a greater feeling of security in public spaces.⁵¹

Nighttime Design Standards

CPTED + DEFENSIBLE SPACE

48 Ibid.

49 Carolyn Whitzman, Building Inclusive Cities.

50 Gehl, Cities for People.

51 Ibid.

CPTED (Crime Prevention Through Environmental Design) has been a standard theory since the 1970s for developing built environments via a series of principles meant to psychologically deter criminal behavior. A similar set of principles developed at the same time, known as defensible space, also emphasizes designing environments to prevent crime, especially by maximizing visibility of other persons at all times so that wrongdoers can be easily seen and identified by bystanders. The two theories have a lot of overlap and are used together. Key components include the broken windows theory (that unmaintained places signal neglect and freedom to behave badly), natural surveillance (defending space through use of particular kinds of structures and unapproachable plants, keeping eyes on the street, maintaining visibility at all times by clearing face-obscuring vegetation)⁵², natural access control (creating limited entry points to a given area and having activity around those points to provide natural surveillance), design lighting appropriately (supply lights at face-illuminating levels, avoid glare and hard-to-read contrast of overly bright security lights, and make sure that “problem areas” where a person is likely to feel isolated are well lit).⁵³

Some have observed that CPTED’s emphasis on defense and control may not lead to the most welcoming environments but rather “tough, ‘prickly’ environments.” An additional element not mentioned by CPTED is “cultural animation” or the “promotion of feelings of safety through programmes of temporary events and management, as important components of any crime prevention strategy.”⁵⁴

MUNICIPAL PEDESTRIAN LIGHTING IN SEATTLE

The Seattle Pedestrian Master Plan 2009 acknowledges the need for pedestrian-oriented lighting (under 20’ high) in addition to the high (25’ and over) and bright lights designated for automobile traffic on arterial roadways. A Walking Preference Survey conducted by the city determined that low light levels on streets are a major deterrence to pedestrian activity. Since no one overseeing body controls all light planning for the city, but

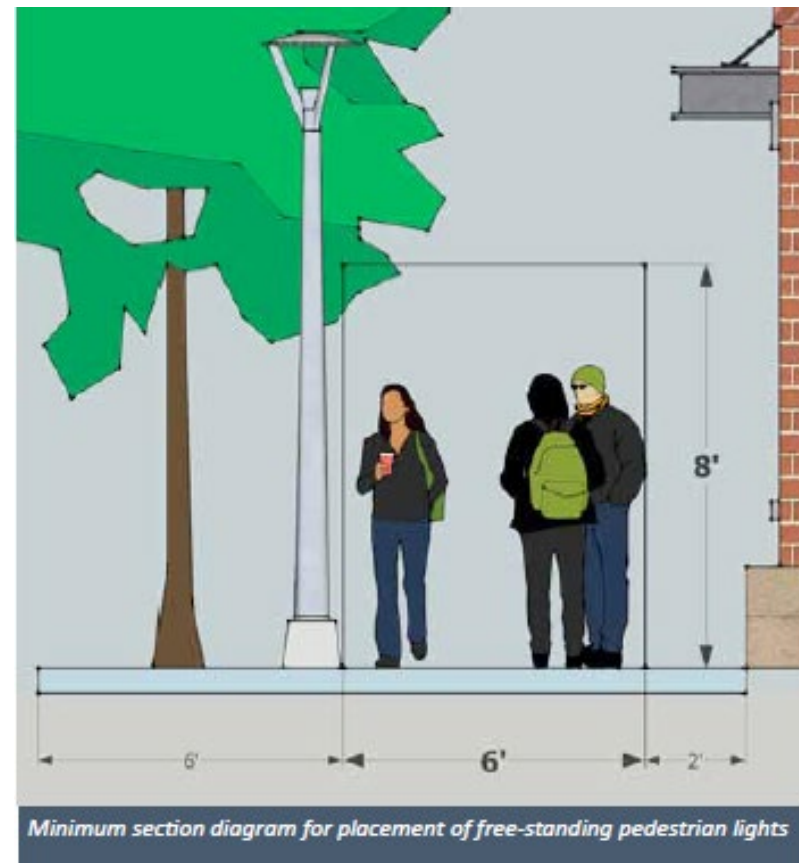
52 “CPTED- Seattle Police Department.”

53 “Crime Prevention through Environmental Design.”

54 Roberts, “Planning, Urban Design and the Night-Time City Still at the Margins?”.

portions of light management fall mainly to Seattle Department of Transportation and Seattle City Light, lighting across the city is not always consistent. Design recommendations have become more coordinated in recent years, but gaps in lighting can take years to address since fixtures are only updated when frontages are redeveloped.⁵⁵

Figure 1-20. Minimums for lighting placement. Image courtesy of SDOT



55 “Pedestrian Lighting Citywide Plan.”

Technical aspects of lighting

While the previous sections have focused on the human experience of night, this section will cover some of the most basic physical and technical details of lighting designs. Particularly important is technical information that would be useful in creating art or installation pieces that are sensitive to the context of existing light, to perception by pedestrians, and in balancing illumination and interest with maintaining an appropriate (not excessive) level of light.

LUMINANCE LEVELS: LUMENS, LUX, FOOT CANDLES

Luminance levels are discussed in terms of lumens, lux, and foot candles. Lumens measure the intensity of the power of the light generated by a source. Light, however, is only perceived when it falls on an object, and the amount of illumination an object receives from a given source is not dependent only on the power of the light at its origin, but on other factors such as angle of the light and distance of the object from the source. Lux, therefore, is a more practically useful term when considering the effect of a light on a material in the environment. One lux is equivalent to the illumination from one unobstructed lumen over one square meter. Americans also use the term foot-candle, originating from the power of one candle over a square foot of area, or what usually turns out to be 10 lux.

Natural sunlight gives up to 120,000 lux at midday. Moonlight gives a point illuminance of less than 1 lux. When preparing outdoor lighting, it is easy to overestimate the amount of light needed; given the very low levels of natural light available, any very bright light is liable to cause glare and loss of ability to see in the darker surroundings past the light. The amount of appropriate lux depends on the material to be lit. 15 lux might be a good amount for “clean white brickwork in a low ambient environment” while “red brickwork in dirty conditions and high ambience” could take up to 450. ⁵⁶

Other terms necessary for understanding lighting designs are wattage, distribution, efficacy, rated life, and hours of use. Tables

56 Phillips, *The Lit Environment*.

of reflectance and recommended illumination levels are published by institutions that keep and set such standards; a lighting designer responsible for determining installation types and locations needs to understand those basic terms and their relationships to each other. ⁵⁷

COLOR + TEMPERATURE

The primary light colors are red, green, and blue. All three colors together make up the width of the spectrum we see and generate a white light (used in LED lighting panels where the eye visually mixes primary-colored LED units). Red + green = yellow; red + blue = magenta; and blue + green = cyan.

When we see colored objects what we see is reflected, not emitted light. The object reflects back certain portions of whatever light source hits it (which is why many objects appear grey or black under yellow sodium lights – their usual color isn’t present in the emitted spectrum for them to reflect).

Temperature, measured in kelvins (K), indicates the perceived warmth (yellowness) or coolness (blueness) of a light. Incandescent lights, from about 2700-3000K, are usually considered to be pleasantly warm and are standard for interior lighting, although their use is being phased out in Europe and North America.

The pure, complete and continuous spectrum is found in natural sunlight. The completeness of this spectrum allows objects to reflect light at a maximum range of hues, which is what we consider perfect color rendering; other lights appear white to the degree to which they contain the range of the visible spectrum. The temperature of sunlight varies throughout the day and time from year, 2000 – 20,000K. A clear sunny day checks in at about 6000 K at zenith, but sunlight filtered through an overcast sky is a bit cooler at 6500). By comparison, the warm light of a candle, associated culturally with enclosed, intimate places, is only about 2000K.

The CRI, or Color Rendering Index, refers to how well a light source renders colors, in relation to its deviance from the natural

57 Turner, *Lighting*.

spectrum. No deviance, at a pure 100 CRI is natural white light.⁵⁸ Artificial lights usually have more energy in one part of the spectrum, giving them a color cast different from sunlight. High pressure sodium lamps are about 60 on the CRI.⁵⁹

SHADOWS

Essential to understanding the nature of light is understanding shadows. Shadows are the “area resulting from the interception of light by an opaque body situated in the path of a light beam.” They



Figure 1-22. Subtractive color resulting in colored shadows. Photo courtesy of The Physics Classroom

can be broken down into distinct areas: the penumbra is the hazy outer portion of the shadow, or the “area

adjacent to the shadow receiving less light,” and indirect shadows come from a different object than the primary one most directly blocking the light.⁶⁰

Elimination of shadows is not and should not be a goal of a good lighting design. Shadows help us read the landscape; they show

58 Narboni, Lighting the Landscape.
 59 Phillips, The Lit Environment.
 60 Narboni, Lighting the Landscape.

us topographic contouring and the texture of vegetation and materials.

Shadows cast opposite a light source display the light’s complementary colors; indirect shadows of different tints “indicate the presence of multiple luminous sources and colors.” Shadows also give us information beyond physical forms about a landscape: “a landscape without shadows appears a-temporal because it provides no visual reference to the passage of time”⁶¹



Figure 1-21. Light making atmospheric conditions visible. Photo by Lucas Zimmerman, Courtesy of laughingsquid.com

NATURE & LIGHTING

Until the last couple of centuries, most light at night was natural, coming softly from moonlight, from brief intense sources like lightning or meteorites or even volcanoes, spectacularly from the aurora borealis, or from bioluminescent insects and sea creatures. Even the light controlled by humans was fire, a natural light source with a color temperature we as humans find pleasant and comforting. We ourselves have not evolutionarily adapted to living in a world flooded with light at night, and plenty of other species are disturbed or chased away by aggressive urban lighting. The need

61 Ibid.

for periods of dark is imbued in ours and other species' circadian rhythms, and the scientific consensus is still out on whether or not our regular exposure to brilliant night light has health consequences for us.

In other words, the daily rhythm of dark should be appreciated and not aggressively eliminated, even in urban centers where lighting is necessary for security and navigation.

ATMOSPHERIC CONDITIONS AFFECTING LIGHT

Moonlight, the primary natural light source at night, is very susceptible to atmospheric interference. Its intensity is weak and unreliable, as the moon disappears easily behinds clouds.

Rain and water in the air also change the quality of light. Standing water reflects lights dramatically, and even individual raindrops act as tiny lenses focusing nearby lights. Both mist and rain refract and diffuse light so that it appears hazy. The light bouncing around the air suffuses the landscape with a general, subtle illumination, blurring or erasing direct shadows.

ECOLOGICAL IMPACTS OF LIGHTING/LIGHT POLLUTION

Species disturbed by bright urban lights include nocturnal mammals, birds, fish, insects, and plants: bats, beavers, owls, moths, salmon, and flowering plants can all become confused and disoriented by the presence of light at night. Migrating birds might become confused and lose their path when they encounter lighted towers or tall buildings. The flowering process in some species can be damaged by artificial light. Although artificial light is generally of dramatically lower intensity than natural light, some species have a strong enough need for darkness that they require particularly low-intensity lighting nearby, and even that needs to be turned off for several hours during the night. Some species, while not particularly photosensitive, rely on the cover of darkness to escape predation, and their numbers are reduced when they emerge to feed at night only to be snatched up by enabled predators. For one of these predators, bats, the easy access to insects dazzled and stuck in the zone of illumination is counterbalanced by the increased competition for the same insects

and the reduction of diversity in their diet as less resilient insect species are picked off.⁶²

There are effects on us as well; the biological effect can change the timing of brain chemical productions, although the degree of the effect of light on us is not well determined. Indirectly, we suffer the loss of visible stars, and of the night sounds produced by species like frogs and crickets that have dropped out of the urban scene.⁶³

Light pollution can be reduced by choosing lights of the lowest wattage appropriate to an area. LED technology is and will continue to be very useful in this regard as its usage spreads, since its lighting levels can be dimmed remotely, unlike the current standard street lights. While it is difficult and usually inadvisable to leave dark gaps in lighting coverage in urban areas, the experiment is possible. As Giles Vexland, a landscape architect at Agence Latitude Nord, writes:

I made a great effort to avoid any lighting [at a rehabilitated dump site]. This was because I thought that it was best appreciated under the stars, particularly when near a city illuminated from the background, rather than to connect the site to the city with relatively rudimentary means, using pedestrian promenades with security and technical lighting... this site allows in contrast a view of the illuminated city... lighting would disturb the perception of the sky, the flatness, and the plane, which to the contrary will be revealed by darkness.⁶⁴

URBAN LIGHTING

LANDSCAPE

Landscape lighting is used to present a scene to the viewer. Light is placed delicately to accentuate aesthetic elements, give depth and texture to the display (for which shadows are necessary) and emphasize graphic composition.⁶⁵ In the winter time, the best

62 Rich and Longcore, Ecological Consequences of Artificial Night Lighting.

63 Ibid.

64 Narboni, Lighting the Landscape.

65 Ibid.

candidates for lighting are often plants with large or distinctive foliage, interestingly textured bark, and trees with a clear branch structure, all of which require different lighting techniques: concentrated uplights emphasize verticality, diffused uplights suit less sharply defined woody forms, soft-frontal uplights are good for spreading forms, and back lights can create a strong graphic silhouette.⁶⁶ Well placed lights can compose a tree like a gallery object, or recast individual plants as players in a recreated scene different from how they appear in the same configuration during the day.

Coming back to the necessity of shadow and preserving the mystery of night, over-illumination is one of the biggest problems with using uplighting on plants. The glare on the plants can make the scene hard to look at and create harsh contrasts; too many lights, throwing everything into visibility, and the balance and elegance of the landscape is lost.

ARCHITECTURAL

Buildings define the edges of exterior space – the way they are experienced at night affects the way routes and public spaces are perceived.⁶⁷ In a strongly urban, built environment, architectural lighting will have more of an impact on the pedestrian experience than landscape lighting. As with landscape lighting, shadows must be left to enhance the light; over-lighting will only produce a flat, hard to look at, unmodelled impression of the façade.

STREET LIGHTS

Cobra, or cobra head, lights are the ones most commonly associated with municipal street lighting. These lights are designed more for traffic than for pedestrian benefit, and are usually quite tall and bright, a major source of light pollution in the urban environment. Most street lights still in widespread use are discharge lamps, meaning that within the lamp head there are gasses or metallic vapors through which electric currents pass. Fluorescents, mercury halide, and high pressure sodium lamps are all of this type. Unlike upcoming LED technology, they cannot be dimmed to better suit conditions, and so they

66 Phillips, *The Lit Environment*.

67 Ibid.

usually over illuminate their settings and spread light widely and indiscriminately. The Ballard street lamps are installed at 250W and 400W, brighter than is often needed.⁶⁸

LEDs AND UPCOMING LIGHTING TECHNOLOGIES

LED (light emitting diode) lights are becoming the new standard for Seattle street lighting, since they offer substantial savings in electricity and resources spent replacing bulbs. They generate approximately the same amount of light as an incandescent or CFL (compact fluorescent luminaire) bulb at much lower wattage levels, and last several times longer (up to 50,000 hours⁶⁹ as compared to 6-15,000 hours for CFLs). This saves a lot of personnel resources with the reduced maintenance, and also makes interesting uses of light much more environmentally friendly and affordable – light festivals, for example. For example: “In Lyon ... [the] seemingly contradictory insistence that we must ‘light more, consume less’ is borne out: the four-day light bonanza consumes only 0.1% of the city’s annual lighting energy.”⁷⁰

Ballard, in fact, has been a primary location for testing out the new LED street lights, with experiments for the city conducted along 15th Ave NW in March 2012 to “help establish national and regional standards” for necessary light levels.⁷¹ The testing included placing a number of different LED lights at different brightness and color temperatures (CCT) along 15th, along with some legacy high-pressure sodium lights, and having volunteers fill out surveys about their perception of objects, safety, visibility, and comfort under the different lights. A number of the new lights have been installed along Market Street at the northern border of the Landtern site.

LED technology is still rapidly changing and improving, with a much wider range of color temperatures available in the last few years. Compared to sodium lighting, the LEDs installed on street lights are much cooler and whiter, and are compared to the color

68 Maury Wright, “Seattle Conducts LED Street Light Testing and Hosts Symposium.”

69 Grove, “Let There Be Light.”

70 Ibid.

71 Maury Wright, “Seattle Conducts LED Street Light Testing and Hosts Symposium.”

of moonlight.⁷² Their widespread presence in the nightscape will very noticeably alter the visual perception and mood of streets: their CRI being much more accurate, they are expected to help with identification of colors on objects like cars and clothing, which could be of assistance in wayfinding and crime prevention. Being remotely adjustable will reduce light pollution, since light levels can be tailored to the time of day and required use for efficient, minimum output. Personal aesthetic reactions to the light vary, however; some people used to the yellow warmth of sodium street lights prefer them to the cooler LEDs. LED streetlights are also frequently set up to strictly control the area where light falls, which is advantageous for minimizing light pollution and maximizing dark skies,⁷³ but may contribute to a visually-disorienting, disconcertingly strong contrast between the lit area and the area between lamps.

Beyond the widespread installation of LED streetlights, there are many digital technologies currently in development and localized installation that will be changing municipal lighting systems in the near future. Solar-powered lighting is likely to become ever more common, and the introduction of a grid for powering lights at night can even generate more electricity than needed, reducing overall energy costs further. Smart lighting will also be more prevalent in future years; technology has already been developed that allows lights to respond to various conditions, such as strobing to indicate emergency evacuation routes⁷⁴, brighten to assist police or medical work, and so on. Since light levels of individual LED streetlights can be controlled by technology as accessible as an iPad⁷⁵, it seems likely that more advanced applications of control would be similarly easy to adjust on location.

CONSIDERATIONS FOR URBAN LIGHT PLACEMENT

As has been mentioned several times, glare, or excessively bright light, is to be avoided, as it actually makes it more difficult to see and causes light pollution. Lights should be set to only give off the amount of light necessary, and their beams should be controlled.

72 Eric Strandberg, “LEDs: A Closer Look.”

73 Maury Wright, “Seattle Conducts LED Street Light Testing and Hosts Symposium.”

74 Ibid.

75 Ibid.

Illumination should be even and not so bright as to interfere with scotopic or mesopic vision, since the eye adjusts to the highest level of immediately adjacent light. Shadow and illumination should be kept in balance.

Color in urban lighting can be very effective, entertaining, and novel, but it can also be easy to overdo. Too much of a particular color can cause distorting afterimages.⁷⁶ Point illumination meant to provide an entertaining spectacle does not necessarily address a more holistic need for coordinated lighting approaches across districts. Streets covered with light in busy urban districts are still not as bright as the day, but they can seem like it; a high density of lights, rather than accepting the night, fights with it.

Path design

COMPLETE STREETS AT NIGHT

Complete Streets promotes constructing streetscapes so that they are accessible for everyone—all ages and abilities—to use safely and for a variety of activities, not only for drivers zipping between destinations as quickly as possible.⁷⁷ In a nighttime context, complete streets need to include light to facilitate wider, multimodal use over a longer percentage of the day.⁷⁸ The streets should be highly walkable, with good access to shops, services, and other facilities, and should be easy to cross regardless of one’s speed or ease of locomotion, and should be attractive and visually pleasant to use. Even at night, the network of paths should be “sufficiently complex to be explorable over time, offering varied visual experiences with repeated encounters.”⁷⁹ Instead of relying on one arterial street to provide all needs to everyone, amenities and options for route-taking should be extended to smaller side streets, such as the ones that feed into the arterial.

Path systems are an important part of urban design, well established in research, digital modeling, theory dating back to 16th century Baroque thinking, and so forth. However, transportation

76 Turner, Lighting.

77 “Fundamentals | Smart Growth America.”

78 Gehl, Cities for People.

79 Southworth, “Designing the Walkable City.”

planning has not taken access paths into much account when planning for stations and stops.⁸⁰ Safety has been discussed some earlier; there is also the aesthetic dimension to paths to consider. “A safe, continuous path network in a monotonous physical setting will not invite pedestrians. The path network must engage the interest of the user.”⁸¹

Art in the nightscape

*At the start of the 1990s the centre of Melbourne was described as ‘empty and useless’ in the local media. Today Melbourne has been named several times as one of the best cities in the world to live in... Dark alleys have been transformed into living, safe places for pausing or passing through – by day or by night. An important element in the revitalization of the city centre has been the use of art to give life to the otherwise dead alleys.*⁸²

PUBLIC EFFECT OF ART IN THE LANDSCAPE

As Melbourne has experienced, public art, in a best case scenario, has the ability to revitalize the city center and foster engagement with and affection for public spaces. It acts as a focal point, as a tangible reference, as a toy, as a provoker of thought, and all for free from the perspective of the pedestrian. Public pieces of art allow lingering, of taking time to enjoy something in the public sphere without having to engage in a private commercial transaction like seems to be expected or required of many other spaces where the public/private line is blurred. In Scandinavian cities, art is considered to give the public a sense of ownership over public space⁸³. In particular, interactive designs that physically engage a pedestrian, an object that can be manipulated or that responds to one’s presence can have the effect of changing the perception of the individual’s agency in the landscape.

Art, including the types of illuminated art discussed here, of course contains its own meaning and significance beyond a utilitarian role

80 Ibid.

81 Ibid.

82 *Kjeldsen et al., New Nordic Architecture & Identity.*

83 Ibid.

of public space invigoration. Architectural installations, however, in the form of gallery art, public art, or illuminations, are different from purely artistic objects to be regarded in a controlled space. Viewers and their interaction with the installation are essential to the piece⁸⁴; the siting of the piece demands a sort of performance to be enacted in order for the piece to be completed. Art created for the purpose of public interaction “experiments with memory, material, public, nature, and [the] body.”⁸⁵

Art can be playful. In fact, that may be the dominant role of some kinds of interactive art. This art may seem one-note: according to Linnaea Tillett, interactive art/light installations give mixed results. Compared to “a reciprocal relationship with normal lights,” interactive light art does little for public illumination or giving pedestrians a sense of warmth and security at night; it’s



Figure 1-23. Pearls of Light, Akashi Kaikyo Bridge, Kobe. Photo courtesy of listofimages.com

more like a toy that loses its novelty. Most interactive art has a fairly simple required response to a presented object, a performance that is soon over.⁸⁶ It is true that interactive light art is not successful at providing a consistent, comforting light source; but if the intention is to encourage play and therefore to attract more people to it, the increased sense of security actually

84 Bonnemaïson and Eisenbach, *Installations by Architects.*

85 Ibid.

86 Linnaea Tillett, interview.

comes from the natural surveillance (other people) catalyzed by the presence of an entertaining object. Returning to Melbourne, “interactive art for children has been a special focus”⁸⁷ of the urban-renewal-through-art strategy, which demonstrates the role physical engagement and fun have in making a space feel habitable, for children and presumably for former children as well. Given the sense of novelty that encourages play, however, this kind of art probably functions best in a place where new people are regularly coming across it, or in a temporary or rotating installation (as many of Melbourne’s interactive art pieces are).

Many public art pieces involve reinforcing or establishing the relationship between place and memory; perhaps through commemoration of events or people once there, or by referencing somehow “political/public memory of larger social events, the politics of memory.”⁸⁸ They can also experiment with one’s understanding of a familiar place, by a theatrical or perception-altering display relating the planes and textures and meanings of familiar surfaces to each other in a new way.

Memory, in the form of nostalgia, can be an effect of art as well as its subject. People become attached to nostalgic landmarks. Of particular interest here are the nostalgic landmarks engendering public attachment that may not have originally been considered art at all: for example, commercial neon or other signage. In a telling quote about a grassroots effort to save a particular object of affection, “The fact that so many people — including healthy, car-free folks — rallied to save a giant doughnut atop one of our city’s most car-centric intersections shows we are serious about preserving and celebrating what makes our city unique,”⁸⁹ regarding a kitschy sign that presumably still exists due to community attachment. Doughnuts and other symbols of nighttime commerce may have less than lofty artistic origins, but some such urban phenomenon are the result of craftsmanship — many neon signs required high degrees of it — and their bright colors and decades-old familiarity make them popular. Ballard has a number of these lasted-long-enough-to-be-admired vintage neon signs coloring up the nighttime ambience. “The idea that public

art should err on the side of kitsch or be representational ... lingers on,”⁹⁰ says one author in defense of more sophisticated art. The public sphere can and should have abstract and non-kitschy, non-representational art, but it is worth remembering in creating an inviting nighttime space that people do respond to folksy, kitschy, and nostalgic images, and that response can be anticipated and engaged in a district plan for increasing pedestrian comfort.

Nature is another component of planning for nighttime use that should not be forgotten. Light art at first glance appears to fight off nature more than express it, by displacing the inherently natural dark. Like other forms of outdoor situated art, light art sets up “tensions between culture and nature,” inspired by land art, architecture, sculpture, video, etc., light art changes the experience of the landscape it is a part of, marking topography and ground as a canvas for human works.⁹¹ It can, however, engage our understanding of the natural dimensions of a place. For example, light art is more clearly time-based than much other light, only being fully appreciable during certain hours. Modern technology also makes many light installations able to be responsive to conditions; the intensity of light output might change throughout the night, for example, or change to communicate information (the atmospheric conditions, the weather, the status of the home team’s current game, time and distance data).⁹² Akashi Kaikyo, a bridge in Japan with an extensive system of computer controlled induction lamps, shifts colors by season, time of the week, time of day, holiday, and once a year is dimmed and restricted to one color — white — to memorialize the anniversary of the Hanshin-Awaji earthquake.⁹³

UTILIZING LIGHT ART IN THE NIGHTSCAPE

Large scale art pieces, such as projections, can move “beyond simply illuminating public space to animating it.”⁹⁴ There is a balance to be drawn: light art can be a valuable stimulation to public spaces at night, creating a sense of energy, using movement to attract more movement and increase natural surveillance. It is

87 Gehl, *Cities for People*.

88 Bonnemaïson and Eisenbach, *Installations by Architects*.

89 “The Importance of a Giant Doughnut.”

90 Gaventa, *New Public Spaces*.

91 Bonnemaïson and Eisenbach, *Installations by Architects*.

92 Saffer, *Designing for Interaction*.

93 Narboni, *Lighting the Landscape*.

94 Jeff Schnabel, “Transforming the Public Realm with Projected Light | ARCADE | Dialogue on Design.”

certainly a strategy that can be overused, though: light art can be glittery, flashy, and overly reliant on novelty and high-maintenance high-tech tricks. It is not always the most sophisticated form of public art, harking back to the complaint of overuse of kitsch and representational art: “there is something immediate, almost populist about light art. At times there can be more razzle-dazzle than artistic sentiment.”⁹⁵ Light festivals are often associated with a torrent of color and glitter, turning structures into “colorful playthings.”⁹⁶ They might not be subtle things, or integrated into a systematic, harmonious approach to lighting the public sphere, but they are certainly popular, and in terms of getting eyes on the street and increasing comfort with being out in the city at night, they are quite effective. And it can be sophisticated, as artists such as Dan Flavin and Bruce Naumann have shown; Dan Flavin, for example, plays with shifting dimensions of perception through angled and colored light, and Bruce Naumann uses the usually-commercial media of neon to relay more subversive ideas.

Light festivals can be a very beneficial urban event. Energy efficient and low cost technologies have made light festivals an economic opportunity for cities hoping to invigorate economies, boost tourism and emphasize a cultural spectacle.⁹⁷ These festivals are promoted as regenerative for urban areas, as in the major festival at Lyon, which has billed itself as an “atmospheric overhaul for dark, downtrodden urban areas.”⁹⁸ The public art and temporary installations on display at these festivals recasts streetscapes and plazas as having a room-like spatial quality, a non-climate-controlled gallery. The re-perception of nighttime streets as being friendly, exciting, and colorful, that occurs during crowd-drawing events could have a spillover effect on pedestrians’ comfort level on such streets beyond the temporal duration of a given event. In Lyon, some installations are given permanent locations, “commissioned specifically to ‘design out’ crime.”⁹⁹

Permanent light installations are less likely to be gimmicky, and since they are expected to be on site for a long time, are appropriately more subtly considered and more site-

context sensitive. With permanent lighting, more traditional considerations of lighting needs become more important: the quality and evenness of illumination, the careful positioning of color temperatures, the flexibility of the lighting system to accommodate growing landscape plants, etc.

95 Grove, “Let There Be Light.”

96 Ulrike Brandi,

97 Grove, “Let There Be Light.”

98 Ibid.

99 Ibid.



Case Studies

Precedents + Ideas

4 Case Studies

In the many projects shown here, I am looking not only for unique and compelling ideas, but projects that have the potential to meet key needs and have beneficial effects on the pedestrian nightscape. These needs and effects include:

human presence / visibility / refuge / nourishment / security / warmth / mystery / intrigue / play / natural surveillance / information / landmark / navigation / connection to nature / low-tech / ecological / placemaking / spectacle/performance / movement

The case studies are divided into several categories, beginning with the more purely abstract and artistic projects and finishing with the projects most directly related to transit-area planning.

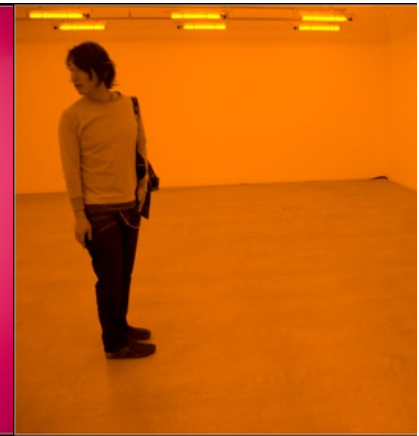
light objects



Your Rainbow Panorama



Your Chance Encounter



Skyspaces



Untitled for AC



Dan Flavin exhibit



From left:

Figure 4-24. *Your Rainbow Panorama*, Olafur Eliasson. 2011, Arhus, Denmark. Photo courtesy of urbanpeek.com

Figure 4-25. *Your Chance Encounter*, Olafur Eliasson. 2009, 21st Century Museum of Contemporary Art, Kanazawa Japan. Photos by author

Figure 4-26. *Skyspaces*, James Turrell. 2007, Pomona College of Art, CA. Photo courtesy of www.ponoma.edu

Figure 4-27. *Untitled for AC, 1992 and exhibit at David Zwirner Gallery, 2013. Dan Flavin.* Photos courtesy of tagger.steve.museum/davidurbanke.tumblr.com

Art

Intrigue

Pathside

Facades

light objects

Case study 1: Light artists

Features of this example:

- These artists experiment with light as a sculptable medium. Manipulating the light affects our perception of the spatial qualities of the built environment.
- Light is also treated as an architectural element: use of it sculpts constructed planes and geometric forms with perception rather than hard materiality. The strong emphasis on use of color plays with contrast and juxtaposition to shift the perceived color and dimensions of adjacent surfaces.

Significance to site:

- Adding washes or planes of pure color to site facades would be noticeable even from a distance.
- These works can also be interactive, immersing the body in color or using the body playfully to create interesting silhouettes and shadows.
- Colored light installations could be placed as art during festival events or used for longer-term facade treatments.



From left:

Figure 4-28. *Multiple Shadow House*, Olafur Eliasson. Photo courtesy of olafureliasson.net

Figure 4-29. *Nordvest Parken, SLA*, 2005. Photo courtesy of dac.dk

Mystery/Intrigue Spectacle Placemaking

light objects

Case study 2: Patterns of light & shadow

Features of this example:

- Nordvest Parken makes use of shadows and darkness as well as of light. The cast light is tightly controlled and intensity kept fairly low to harmonize with the less-illuminated spaces nearby.
- Olafur Eliasson uses colored shadows to reveal physical qualities of light. *Multiple Shadow House* is also playful and interactive, involving people in creating the shapes and shadows themselves.
- Cast light is used to activate planes, the ground plane in Nordvest Parken and vertical planes/facades in *Multiple Shadow House*.
- Nordvest Parken is also interesting for its use of art and light to create a safe public space out of a former bus terminal/garage

in a neighborhood that has some economic and social difficulties.¹

Significance to site:

- Lights and shadows can be used to make a site fun, safer and activated, without illuminating all the darkness away. Light projected onto facades and ground planes is a low-construction way to transform the perception of a space.

¹ Lomholt, North West Park Copenhagen.

From left:

Figure 4-30. *Field of Light*, Bruce Munro, 2013. Columbus, OH. Photo courtesy of brucemunro.co.uk

Figure 4-31. *Nonesing/Neon Sign; Human / Need / Desire*, 1983; *Double Poke in the Eye*, 1985; Bruce Nauman. Photos courtesy of guggenheim.org, artmuseum.princeton.edu

Spectacle Placemaking Wayfinding Landmark

light objects

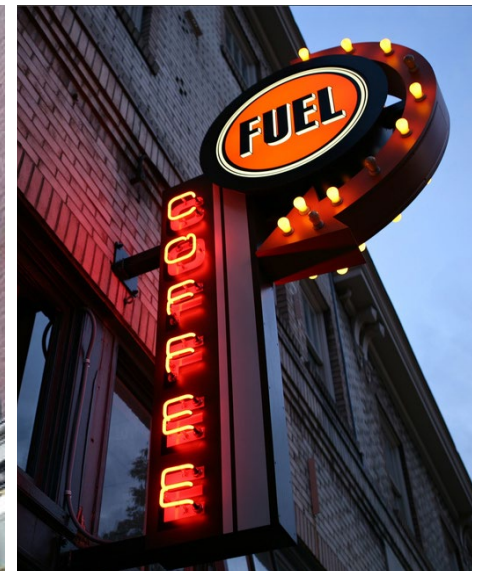
Case study 3: Light sculpture

Features of this example:

- Whether using words, representational forms, or abstracted, organic forms, these works treat light as a discrete object.
- Bruce Nauman's work uses a medium often associated with commercial or banal properties and creates subversive messages to be displayed as freestanding artworks.
- Bruce Munro's *Field of Light*, which has been installed at many locations over the years in many iterations, masses points of lights in a way to make them seem to be living, taking over the planar space in which they have been arranged.

Use/Significance to site:

Small-scale, discrete light sculptures could be placed at thresholds and decision points in a sequentially significant order. Massed light sculptures could be placed to fill paused construction projects or unused parcels or parking lots.



From left:

Figure 4-32. Add Bardahl sign, Ballard. Photo by Joshua Trujillo, Seattle P-I

Figure 4-33. Pink Elephant Carwash, Denny Triangle. Photo by Gregory Frye

Figure 4-34. Blue Moon, University District. Photo by elinay, etsy.com

Figure 4-35. Wallingford Grocery sign, Wallingford. Photo by thesunbreak.com

Figure 4-36. Seattle Coffee Works, Western Neon, Ballard. Photo by author

Figure 4-37. Fuel Coffee, Western Neon, Wallingford. Photo from seattledailyphoto.blogspot

History

Placemaking

Wayfinding

Landmark

light objects

Case study 4: Neon signage, Seattle

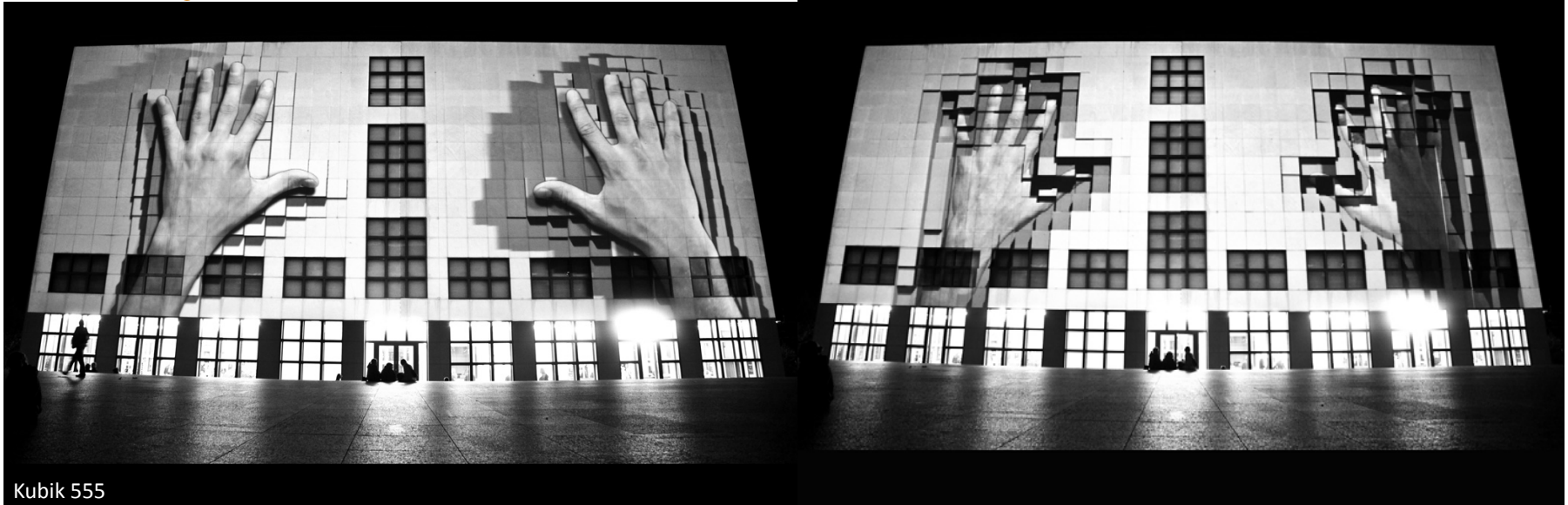
Features of this example:

- Seattle has an abundance of vintage and contemporary neon signage, with working neon craftsmen.
- Frequently clearly visible from a great distance, these signs serve as landmarks staking a claim on a neighborhood's identity.
- Rainy nights double these signs' visual impact through reflections on frequently wet and shiny asphalt.
- The strategic use of neon for commercial and artistic purposes creates a sense of neighborhood identity, nighttime orientation, and psychological warmth

Significance to site:

- The dark, rainy nights and wet streets of Seattle make a particularly atmospheric setting for the vibrance of neon.
- Ballard already has several well-preserved vintage signs and new ones.
- Local nostalgia and fondness for classic neon signs was demonstrated in the late 1990s, when protests over demolishing the Wallingford Grocery's neon beacon led the new owners, QFC, to salvage and restore the sign.

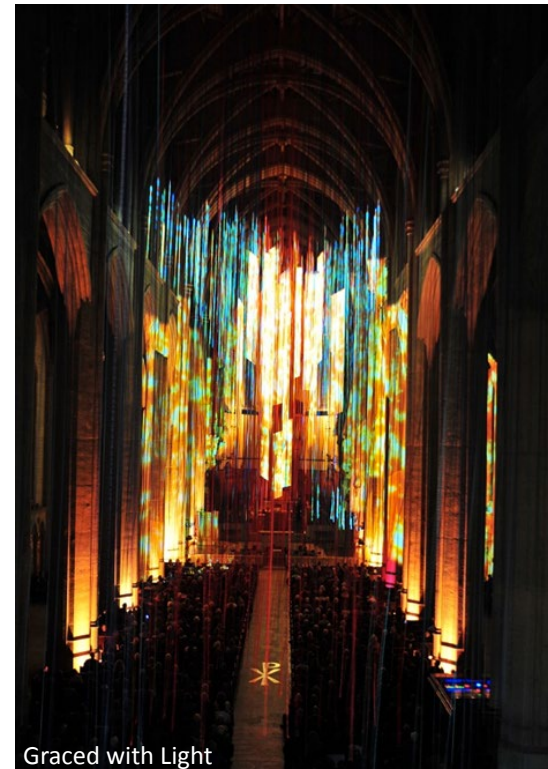
Digital art



Kubik 555



BayView Rise



Graced with Light

From left:

Figure 4-38. *Kubik 555, Urban Screen. Hamburg, Germany. Animated projection. Photo courtesy of urbanscreen.com*

Figure 4-39. *BayView Rise, Haddad/Drugan. San Francisco. Illuminated mural on grain elevator and silos. Photos courtesy of haddad-drugan.com*

Figure 4-40. *Graced with Light, Anne Patterson, 2014. San Francisco. Video projection on ribbon. Photo courtesy of illumni.co*

Landmark Intrigue Spectacle/Performance Movement

digital art

Case study 1: Projections

Features of this example:

- The projects featured here all have a video, animated, or shifting component.
- *Kubik 555* appears to literally change the facade of the Bauhaus school building by projecting an image of the building onto itself and rearranging the projected cladding.
- *BayView Rise* cycles through a series of color changes projected onto a static mural. The changing light colors interact with the colors and textures of the mural to make different portions float in and out of visibility.

- *Graced with Light* projects video onto material suspended from the building structure rather than the building itself.

Significance to site:

- Projection art can bring movement and interest to public areas with very minimal concerns for space constraints, vandalism, preparation, or construction costs. It can be elaborate or simple, and it can easily be changed.



Sonic Bloom

Solbjerg Plads

Sky Ear

© David Rothchild Photography 2004

From left:

Figure 4-41. *Sonic Bloom*, Dan Corson, 2013. Seattle, WA. Photo courtesy of designboom.com

Figure 4-42. *Solbjerg Plads*, SLA, 2005. Copenhagen, Denmark. Photo courtesy of www.sla.dk

Figure 4-43. *Sky Ear*, Haque Design + Research, 2004. Fribourg, Switzerland. Photo courtesy of www.haque.co.uk

Play Connection to Nature Experimental Interactive

digital art

Case study 2: Sound

Features of this example:

- The *Sonic Bloom* flower stems play different tones that are activated by people walking by. They also store solar energy to generate nighttime light.
- At Solbjerg Plads, 32 loudspeaker wells can broadcast sounds and even concerts. Artificial frog croaks bring a memory or reference to nighttime nature into this urban hardscape.
- *Sky Ear* is an interactive project, a cloud of helium balloons containing electronic sensors that can be called into by people using cell phones at ground level; callers are “able to listen to distant natural electromagnetic sounds of the sky (including whistlers and spherics)”¹
- These projects evoke dimensions of the night experience beyond our normal perception: the sounds of nature displaced by the city, or the sound of atmospheric movement and electric

discharge, or the sound of human movement.

- These projects combine visual effects and technology with their sound elements.
- With so much focus on the visual aspects of the nightscape, these projects acknowledge the value and artistic possibility of other senses.

Significance to site:

- Sound could be a way to reconnect the district to the nearby but unsensed waterfront.
- Sound art activated by movement could encourage pedestrians to change their route in order to pass by for a moment of play.

¹ “Haque :: Design + Research.”

Events



Floating Lights



Night festival



Yi Peng Festival



Lumière Festival



Edible Fireworks

From left:

Figure 4-44. *Floating Lights, Travesias de Luz, 2012. At Fete des Lumieres, Lyon. Interactive installation: screens + light tubes + individual switches. Photo courtesy of designboom.net*

Figure 4-45. *Lumiere Festival, 2009. Durham, England. Photo courtesy of culturedurham.com*

Figure 4-46. *Night festival, Japan. Photo courtesy of shullovox on peckthebeak.com*

Figure 4-47. *Floating lanterns, Lanna Yi Ping Festival, Thailand. Photo by Noppakhun Duangsri, courtesy of 500px.com*

Figure 4-48. *Edible Fireworks, Bompas & Parr, 2013. London. Balloons filled with scented smoke and fireworks corresponding to a music and smell event.*

Play

Placemaking

Presence

Spectacle/Performance

Warmth

light events

Case study 1: Festivals

Features of this example:

- Light festivals fully engage the social and celebratory aspect of night.
- Temporary festivals are an excellent way to experiment with different illuminations of a space. The Fete des Lumieres incorporates bridges, buildings, rivers, and parks as stages.
- Many festivals feature fun and playful, interactive pieces that take advantage of their novelty and temporariness.
- Festivals bring many people to a space, completely changing the comfort level for places that feel unsafe or unpleasant at other times.

Significance to site:

- A light festival would open up possibilities for using public space in Ballard. Parking lots and empty lots that are awaiting construction, seem unsafe, or don't have budgeting available for bigger projects can still be made dramatic and sociable through temporary events and installations. Outdoor eating and drinking events also benefit neighborhood natural surveillance/presence and bring a warming atmosphere to the street.
- Light festivals are often associated with the December holiday season but could be just as, if not more, beneficial during other dark winter months with less holiday attention paid to them.

Natural / low-tech approaches



Moon garden



Heuchera



Salvia argentea



Architectural vegetation



Athyrium nipponicum



Helleborus orientalis



White bark + uplighting

From left:

Figure 4-49. Moon garden. Photo courtesy of columbinedesigninc.wordpress.co.uk

Figure 4-50. *Salvia argentea*. Photo courtesy of anniesannuals.com

Figure 4-51. *Heuchera* foliage. Photo courtesy of oregonlive.com

Figure 4-52. Silhouetted branches. Photo courtesy of landscapeandgarden.wordpress.com

Figure 4-53. *Athyrium nipponicum*. Photo courtesy of oregonlive.com

Figure 4-54. *Helleborus orientalis*. Photo courtesy of sueheathdpphotographer.co.uk

Figure 4-55. "Woodland Path as Poetry of Landscape." Berger Partnership, 2006. NW Flower & Garden Show, Seattle. Photo courtesy of vireods.com

species**Silhouettes**

Acer palmatum
Corylus avellana var.
 Contorta

Foliage

Gunnera
Athyrium nipponicum
Salvia argentea

Bark texture

Acer griseum
Betula papyrus

White winter flowers

Hellebore
 Snowdrops
 Snowberry?
 Narcissus
 Anemone

natural & low tech

Case study 1: Night Gardens

Features of this example:

- Night gardens emphasize strong forms that create interesting silhouettes, and pale foliage and flowers that don't need additional lighting to be visible.
- * Some native pollinator insect species are active at night and are supported by night gardens.
- * Most of the species listed are either low-growing or have minimal branching at face level, maintaining good visibility.

Connection to nature**Low-tech****Ecological****Significance to site:**

- Vegetation in the district is not extensive, although a few newer developments have landscaping.
- A careful selection of plants reduces the need for over-reliance on flashy lighting.
- The plants species listed would help to soften the hard, blocky lines of the district's environment.



Lincoln Road



Tesserae, Pompeii



Glow pebbles

From left:

Figure 4-56. Pavement patterns on Lincoln Road, Miami Beach, Raymond Jungles. Photo courtesy of land8.com

Figure 4-57. Pompeii, Italy. 79 CE. Reflective stone cubes (tesserae) set in ground surface. Photo courtesy of Roark Congdon.

Figure 4-58. Glow pebbles. Photo-luminescent material and synthetic resin. Photo courtesy of coregravel.ca

Mystery

Low-tech

Visibility

natural & low-tech

Case study 2: Pavement treatments

Features of this example:

- Rather than creating light, these treatments reflect or absorb it.
- The tesserae make use of existing light in the environment (reflective embedded materials).
- Lincoln Road creates a lighter effect by blocking pale material and also gives the space a sense of scale through its pattern rhythm.
- The glow pebbles are the newest technology of these examples, but require no maintenance. They are solar powered, storing and reflecting back sunlight for many hours after dark.

Significance to site:

- An interesting pavement treatment could be applied throughout the district, creating a sense of identity and guidance.
- It would be easily combined with other interventions.
- A paving treatment applied to a chosen path builds a sense of a defined, programmed space without being restrictive or controlling.

Active spaces



Food stalls, Shinsekai



Covered dining, Montmartre



Night vendor, New York



Food trucks, Portland



Night market, Richmond

From left:

Figure 4-59. Shops and kiosks in Shinsekai, Osaka, Japan. Photo courtesy of japanguide.com

Figure 4-60. Food carts in Portland, Oregon. Photo courtesy of Brian Sekkle at flickr.com

Figure 4-61. Richmond Night Market, Vancouver, Canada. Photo courtesy of straight.com

Figure 4-62. Late night street vendors in New York. Photo courtesy of loadedlens.wordpress.com

Figure 4-63. Heated outdoor dining at Place du Tertre, Montmartre, Paris, France. Photo by Julia Weidman courtesy of juliesparis.wordpress.com

Warmth

Nourishment

Natural surveillance

Refuge

active spaces

Case study 1: Food trucks, stalls, kiosks

Features of this example:

- Bringing food into a space is one of the fastest ways to activate it.
- Some of these examples, such as Montmartre in Paris, bring a romantic, classic association to eating in public.
- Richmond and Paris both lie on a latitude further north than Seattle and use covers and heating to create pleasant outdoor eating environments.
- Like many/most shopping streets in Japan, the food stalls shown here line a pedestrian walkway leading to a train station.

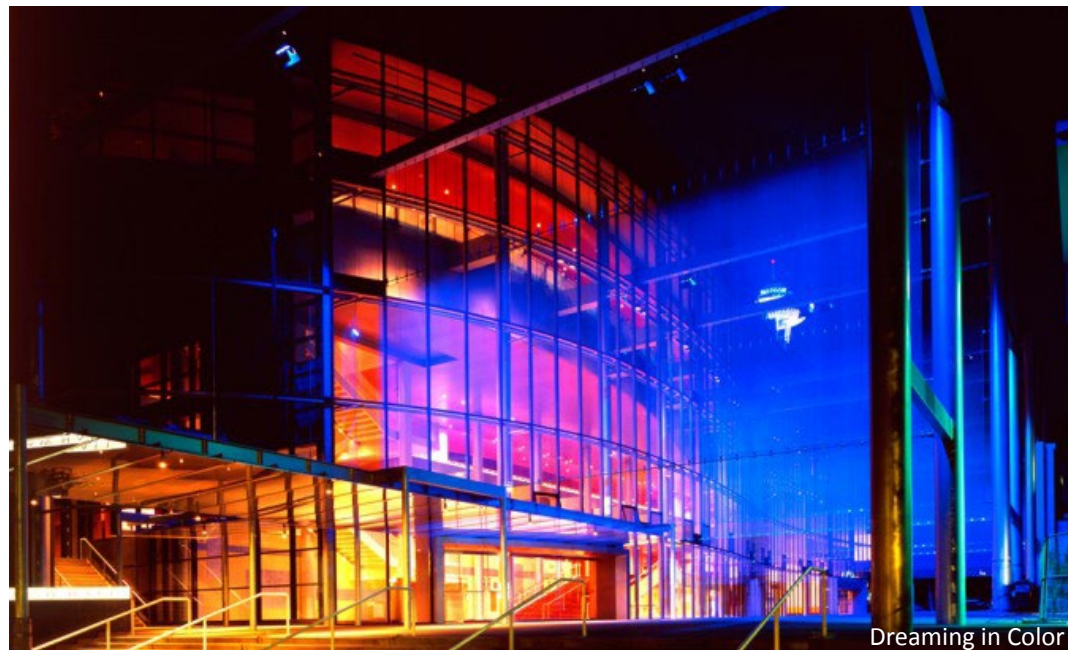
Significance to site:

- Making food available to people at night not only serves the obvious purpose of filling people up, but also emanates warmth and security to the hungry and non-hungry alike.
- Locating easy-to-purchase and eat-on-the-spot food options near transit is very useful for people passing through quickly and has the potential to dramatically decrease the perceived difficulty or discomfort of using public transit.

Transit-related lighting installation



Leopard Sky



Dreaming in Color

From left:

Figure 4-64. *Leopard Sky*, Sheila Klein, 2004. Bush Intercontinental Airport Roadway, Houston, Texas. Aluminum panels with paint, mirrors and lighting. Photos courtesy of sheilaklein.com

Figure 4-65. *Dreaming in Color*, Leni Schwendinger, 2003. McCaw Hall, Seattle. Image courtesy of cascadecoil.com

Refuge

Landmark

Spectacle

Visibility

transit-related lighting installation

Case study 1: Station approaches

Features of this example:

- *Leopard Sky* is low-tech, using simple materials to create a large immersive effect that is playful in its color and references and also contributes to visibility through its use of mirrors.
- *Dreaming in Color* is high-tech, with a shifting palette of colors projected onto screens extending from the building facade. This building is a performance hall rather than a station, but the technique of using lighting to extend the building's physical territory would also be effective in a station area.
- Both installations mark the approach to a civic building as a dramatic, immersive experience. They reflect or project light in

a way that illuminates the exterior area without resorting to harsh security lights.

Significance to site:

- Related as much to the station itself as to the paths and public spaces around the station, large-scale installations integrate the station structure and its landscape. They also demonstrate how both low- and high-tech artistic approaches can be applied at block-level scales.



London Underground environmental graphic



This Way, Brooklyn Bridge

From left:

Figure 4-66. London Underground sign, London, UK. Photo by danbu14 on commons.wikimedia.org

Figure 4-67. *This Way*, Linnaea Tillett and Karen Tehve, Brooklyn Bridge, New York. 2008. Photo by Seth Ely, courtesy of brownstoner.com

Navigation

Placemaking

Information

Landmark

transit-related lighting installation

Case study 2: Wayfinding

Features of this example:

- Some station-oriented illuminated signs, like the London Underground's, become so iconic that they are internationally identifiable.
- The London Underground sign demonstrates the value neon or fluorescent lighting can have in establishing a district wayfinding system through graphics.
- *This Way* makes a formerly dark and avoided space seem exciting and monitored. Attention has also been paid to lighting the stairway, avoiding blind corners or pathways. The arrows dramatically reinforce an access point.

Significance to site:

- Two ways of using lighting to create iconic and identifiable wayfinding systems are shown here.
- The first is a simple, small, and highly repeatable icon that can be distributed over a wide area for a cohesive environmental graphic system.
- The second is a unique and site-specific installation that is primarily recognized as part of its particular location.

5

Analysis

Typologies & Site Characteristics

5 Analysis







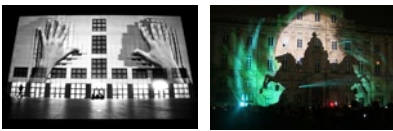

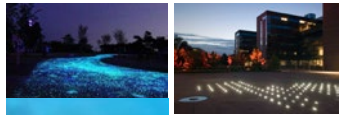

The Lan[d]tern site is a subdistrict of Ballard, Seattle, adjacent to the historic and nightlife district that runs along Ballard Avenue. The study takes as its starting point the intersection of Market and Leary, which is a busy, well-lit and pedestrianized intersection that could in the future see the addition of a high-capacity transit line, such as a streetcar or underground light rail. The study observes the potential for multiple routes that would connect a hypothetical station at this intersection to Swedish Hospital a quarter mile away. The hospital is an important source of employment in the area and has a need for good evening access for its night shift workers and guests.

Typologies / Concepts

LIGHTING TYPOLOGY

The following chart is a summary of the different categories of lighting that I have drawn from the precedent studies and from observations on site. Not all of them are necessarily source materials for design, but they are all experienced for their own qualities and in interaction with other light sources and materials, creating a shifting dynamic of light effects for passing pedestrians and cyclists.

Table 5-1. Light typology: existing and potential sources

Type	Forms	Examples	Needs met
Interior	Light from inside private buildings: offices, commercial, institutional, residential		Human presence, visibility
Interior/exterior	Storefronts, shops, restaurants, kiosks, food carts		Human presence, visibility, refuge, nourishment, security, warmth
Overhead/ Security	Security lights, municipal street lights, building exterior lights, marquees, spotlights		Visibility, security
Moving	Car lights, reflective material on pedestrians/cyclists, flashlights, motion-activated lights, beacons		Visibility
Festive/Temporary	Christmas lights, lanterns, fireworks		Mystery/intrigue, play, natural surveillance
Landscape	Spotlights on features (plants, water), lights set among planted areas		Mystery/intrigue, nature
Projected	Architectural lights, backlights, film		Mystery/intrigue, play, information
Objects	Art installations, signage, glowing objects		Mystery/intrigue, play, landmark
Underfoot	Embedded in pavement, footlights along paths		Visibility, mystery/intrigue, navigation
Natural/Ambient	Moon, stars, reflected light from clouds		Visibility, mystery/intrigue, nature

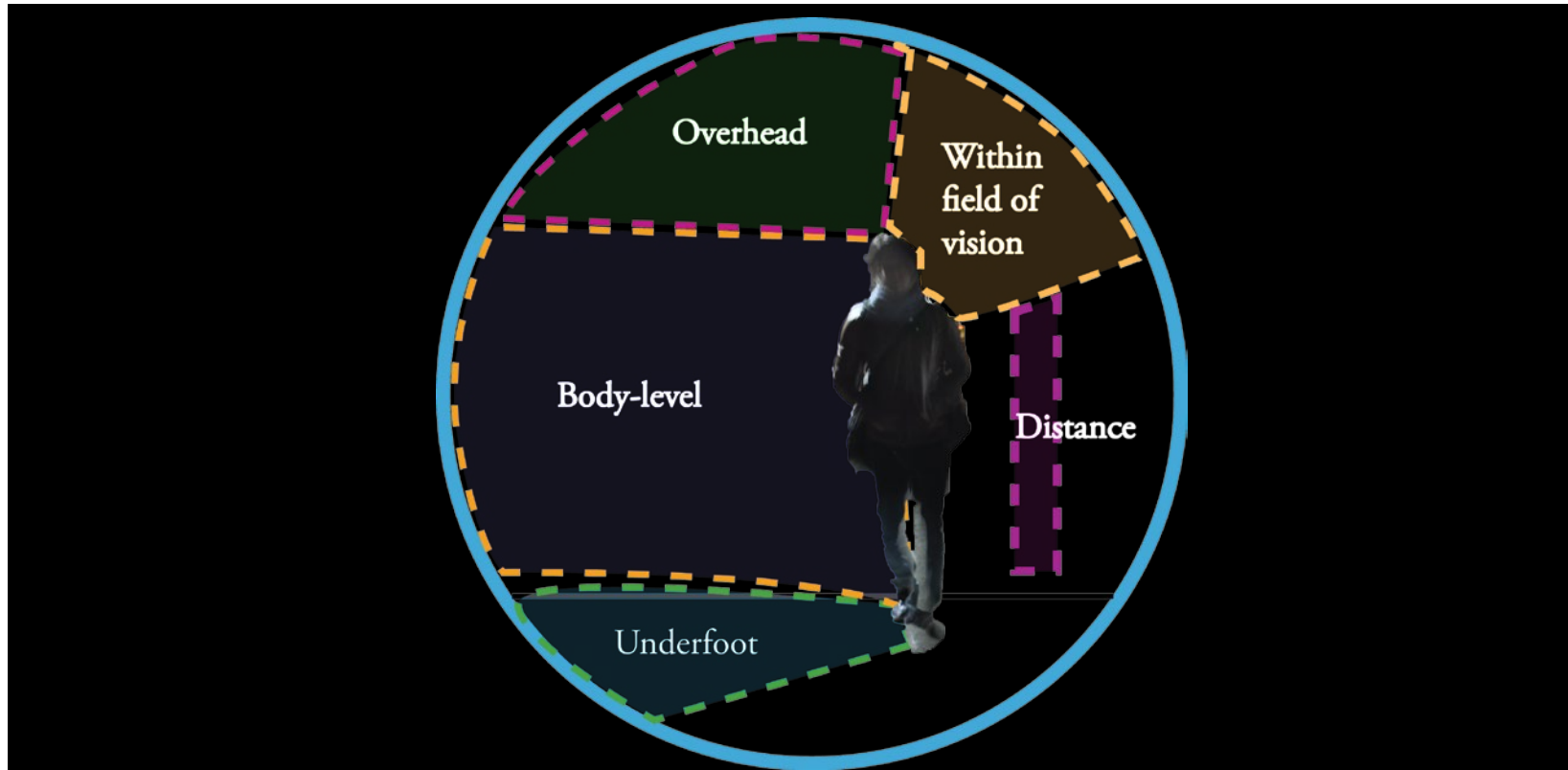


Figure 5-68. Body zone

BODY ZONE

The body zone represents the spatial relationship of the pedestrian figure to lighting (and other) interventions made at night. Will interventions be primarily aimed to be perceived as immersive, distant, adjacent to one's body? Heights and proximity affect the intensity and effect of lights, and being able to sort lighting into human-scaled positioning will assist in predicting and determining the interaction with a given piece.

CONCEPTUAL ORGANIZATION

This chart summarizes the conceptual construction of my thinking for this project. The first column, Intervention Types, represents the core of the typology I develop further in the design chapter: how interventions relate to their spatial context in terms of routes. The second column, Strategies, shows some key ways that those intervention types can take form, and the third column, Goals, shows the objectives of those strategies (grouped by key concept). Strategies later represented in the design proposals are highlighted in yellow.

Figure 5-69. Conceptual organization

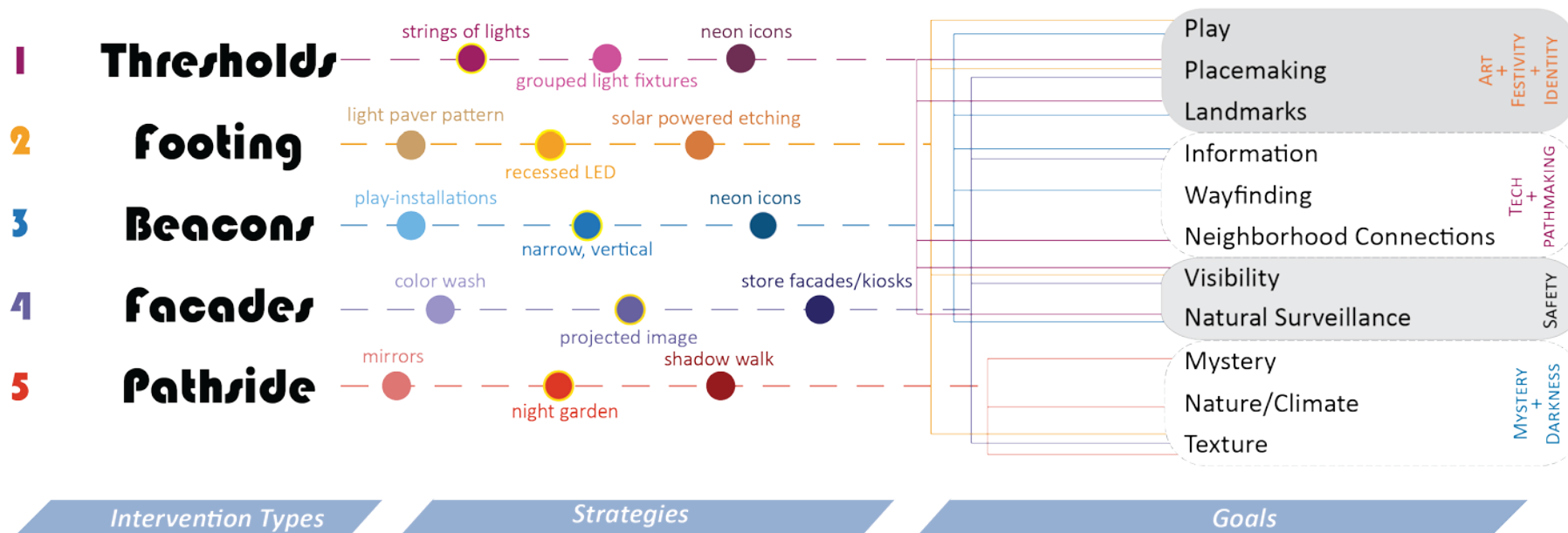


Figure 5-70. Location of site in relation to North Seattle; existing circulation modes; and proposed station location



Neighborhood configuration

The site is bordered by neighborhood arterials Market Street and Leary Avenue. As shown in the center diagram of Figure 5-70, busses run along both Market Street and Leary. There are many pedestrians along Market Street and Ballard Avenue to the southwest of the intersection. Automobile traffic moves fastest along Market and Leary, and Leary is less commercial with fewer pedestrians. The side streets of Russell, Tallman, and Barnes run parallel to Leary and have much lighter, slower traffic.

MAP OF SUBDISTRICTS

Five subdistricts were identified within a quarter-mile radius of Bergen Plaza as a part of analyzing connections to the site and determining adjacent neighborhood characteristics.

A dense residential zone north of the plaza/intersection contains numerous multifamily residences of varying construction dates, as well as the Ballard Commons.

A commercial zone runs along Market Street and a block or two north of it. Along Market Street are numerous restaurants, cafes, coffee shops, a cinema, and moderately upscale and trendy retail shops. A block north of Market includes more service-oriented businesses and a couple of large chain retail stores, as well as the popular Ballard Library.

The historic district follows Ballard Avenue southeast from Market Street to its intersection with 22nd Avenue. This district is aesthetically appealing, nightlife oriented, and

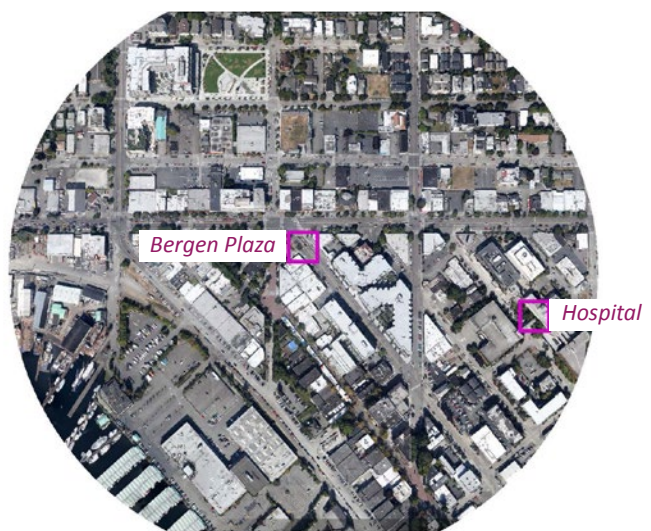


Figure 5-72. Hospital subdistrict.
Location of hospital emergency entrance and Bergen Plaza marked by the squares.



Figure 5-71. Subdistricts identified around station.



attracts many pedestrians, although street crossings and sidewalks are not entirely consistent along the length of the street.

The waterfront and industrial district, following and southwest of Shilshole Drive, is a living part of Ballard's history as a center of industry and marine-oriented operations. A short, privately owned train line still operates along the waterfront, although most of its original length is decommissioned and can be partially followed on foot. The marina is in active use, and although there is public access to the water it is unmarked and located between a defunct restaurant building, a large parking lot, and a light industrial facility. The industrial district could also be expanded to include the area southeast of the hospital district, where the blocks contain various warehouses, small production facilities, parking lots, and car-oriented businesses.

The hospital subdistrict will be the focus of the remainder of this analysis due to its 24-hour cycle and therefore particular need for good nighttime access to transit. Lessons from the hospital district and recommendations for its nighttime design can and should be adapted to the other subdistricts.

PATHS WITHIN THE DISTRICT

The hospital subdistrict is a blend of zoning and land uses: there are commercial uses in its northwest corner, multifamily residences and medical offices surrounding the hospital, a large parking garage, and light industrial uses at the southern/eastern borders.

The organization of the streets feels non-intuitive. The streets meet at oblique angles, and although a couple of streets run north-south, the northwest-southeast angle of the three parallel streets at the center of the district makes navigation and wayfinding confusing. There are numerous cut-throughs where people prefer to move directly east or west rather than zigzag around corners.

The area is currently undergoing heavy construction in several spots, which may have something to do with some of the wide gaps in lighting, particularly along Russell Street. The area gives a general impression of being dark and unfinished, given its odd



Figure 5-73. Possible pedestrian routes along side streets.

street arrangement and ad hoc cut-throughs, demolished lots, and its adjacency to low-density, low-nighttime-use light industrial areas. The buildings are from a mix of construction periods but are generally younger than the attractive historical brick buildings along Ballard Avenue. Few buildings stand out as anything but generic.

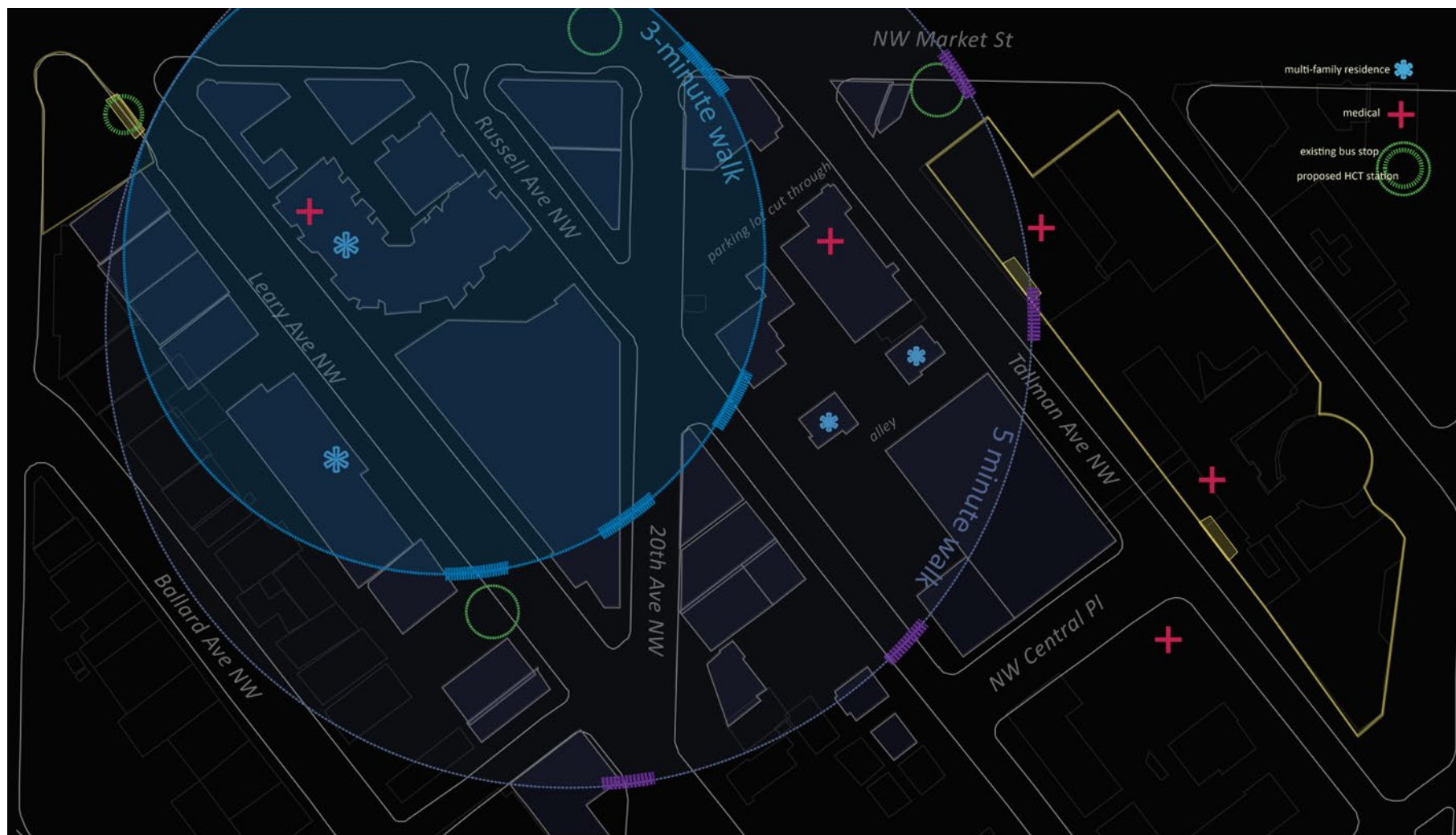
Market Street, the northern border of the district, is the most immediately appealing path. It is well lit and lined with a number of businesses that are open late and provide a consistent number of other pedestrians to keep the street feeling monitored. It is less in need of interventions than the other streets, although it acts as a gateway to the district: most streets leading off Market into the hospital subdistrict feel like they are crossing a threshold into a distinctly different area. This could make it an interesting starting point for establishing a district identity via artistic light installations.

A senior care living facility is located on the southwest side of Leary. Combined with the numerous medical offices and, of course, the hospital, specific user needs regarding potentially low levels of mobility and reduced eyesight should be strongly considered in design.

There are several main takeaways from this quick oversight of the neighborhood layout. The street angles make wayfinding difficult. There is lots of potential in underutilized spaces for interesting

pedestrian experiences. The district is currently dark and not entirely safe feeling, enough so that some people feel hesitant walking there (or, anecdotally observed, warn others against going there alone). Due to land use types and visibility issues, the district feels somewhat isolated from its immediate surroundings, having no clear connection to either the waterfront or historic districts nearby.

Figure 5-74. Major pedestrian features of the neighborhood



TYPOLOGY OF STREETS BY WIDTH, BUSYNESS, LIGHTING CONDITIONS



Figure 5-75. Street typologies 1-5, as found on site.

Intervention elements will be considered in relation to the street typology context of each location. Figure 8 shows a sample of 5 streets and intersections found on the site that represent different street typologies.

1. **Residential alley.** This path is the narrowest and quietest of the types. Not even marked on official maps or GIS data, this is primarily used as access for residents. However, due to the location of this particular alley directly across from Swedish hospital and its through connection to Russell Street, it does get foot traffic from non-residents. A small alley like this is unlikely to have municipal lighting although there may be some privately installed security lights or wall scones. The alley may feel unsafe or uninviting but is also a valuable access point. Interventions should be subtle to avoid unwanted foot traffic and glare/light pollution.
2. **Parking lot cut-through.** This path is quite wide, although not designed with pedestrian use in mind. Parking lots are frequently associated with low levels of natural surveillance and a sense of isolation. Like the residential alley, this particular one's convenient location between the hospital and Russell Street probably contributed to the numerous pedestrians observed cutting through it. The relative openness of this space and primarily day-based usage of it by automobiles makes it a strong candidate for site-based light art installations.
3. **Wide, under-used intersections.** The oblique angle of streets in this district leads to swaths of unnecessarily asphalted street space. Lighting is generally even and up to municipal code, provided by cobra head street lights, LED pedestrian lights, and private wall scones. Visibility is less good, tending towards blind corners. The bits of leftover space on the street utilized by neither cars nor pedestrians could be an opportunity for placement of small night gardens.
4. **Street with sidewalks but no crosswalks or lane division.** Street width is about 32' on these small neighborhood capillary streets. Traffic flow is low and speeds are slow, but street lighting is also patchy, alternating between completely missing and being overdosed with privately installed security lights. Sidewalks are narrow, and parked cars obscure vision. Combined with blind corners and unfenestrated facades, some of these streets feel quite deterrent to pedestrian activity. Where they are lined with residences, as in the southern on-site portion of Russell, their function is a little bit like a living room; they should provide a sense of security, belonging, and warmth. A warm but not sodium-yellow light temperature can help get the atmosphere right. Light lumens should be subtle and light direction should be controlled, to avoid light

pollution into residences.

5. **Street with sidewalks, crosswalks, 2-4 lanes with painted lane dividers.** This is a traffic artery, with street width of about 55'. Traffic is fast and pedestrians must cross at designated crosswalks. Street lights are cobra heads, designed for traffic. There may be some glare/contrast issues. On this particular site, there is a partial second level of lighting more geared toward pedestrian assistance. Sidewalks are wide, even and maintained. Some building facades are partially illuminated and some have interior light but there are also a number of completely dark facades after business hours.

Street hierarchie

Using the aforementioned street typologies, I categorized each street or portion of the pedestrian network as either a major arterial street, a side street, or an alley/parking lot cut through. I also noted several parking lots or alleys that are open to streets on one side but for some reason (usually a fence) are not connected to the street on the other side. I further noted whether each

portion of the network is well illuminated and has pedestrian presence (natural surveillance), is less lit and busy but still feels safe, is lit but lacks a strong sense of natural surveillance, is partially lit but has gaps in lighting, or is downright dark with little natural surveillance.



Figure 5-76 Street hierarchy diagram

Existing light conditions

This map shows the current (as of Jan 2014) state of transition from high-pressure sodium street lamps to LED lighting, with its cooler white tones but more accurate color illumination. These lights have mostly been installed along Market Street, but one is also present at the corner of Russell Avenue and 20th Avenue NW. The map also makes an effort to represent light from commercial

facades, fluorescent lighting from wall-mounted security lights and parking garages, and various other light sources such as landscape lighting and the trees draped with strings of small white LED bulbs along Ballard and Market. However, the area is changing rapidly, and over the course of the year that I was observing this site, numerous buildings were removed and new ones constructed,

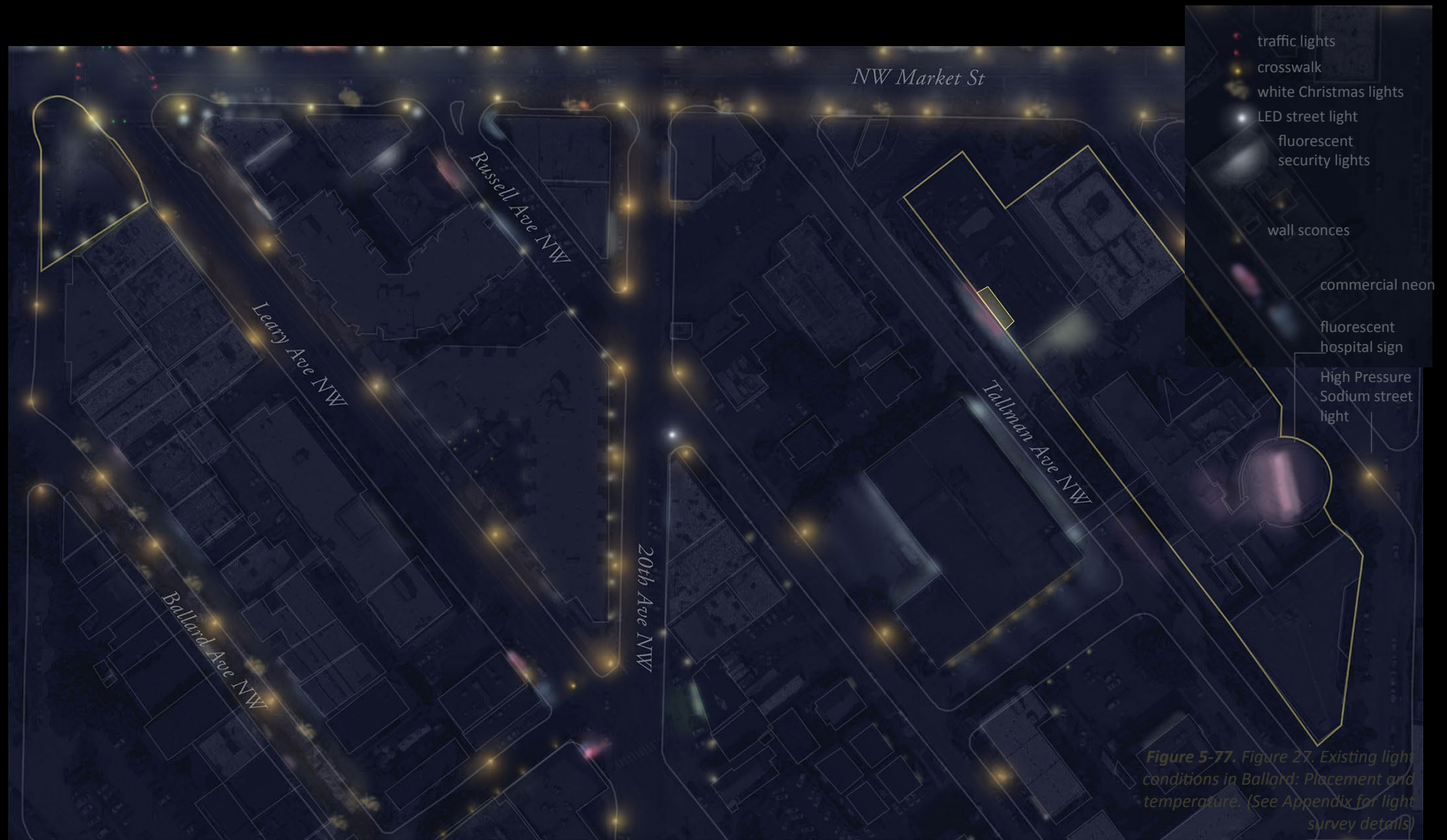


Photo documentation / Data + analysis

I set out to analyze the district through a systematic approach to gathering photos and applying a matrix of criteria to the resulting images.

MAP OF ROUTES

I first determined the routes I would follow to gather data by highlighting the potential network of paths between the two primary destination/origin points. I deliberately left the main pedestrian path, Market Street, out of the main analysis focus since it is already functioning fairly well as it is. I chose to concentrate my efforts on expanding the pedestrian network via the shortcuts, alleys, and side streets that already see some

pedestrian use, but could benefit most from interventions aimed at increasing visibility, wayfinding, and safety.

In the interest of doing justice to each route, I further narrowed the routes down to two alternate paths and made observations at numerous points along each path. Light but regular pedestrian activity was observed along each of these paths. The northern route cuts through a parking lot along the edge of a construction pit and currently rejoins Market just one block before the intersection with Leary.

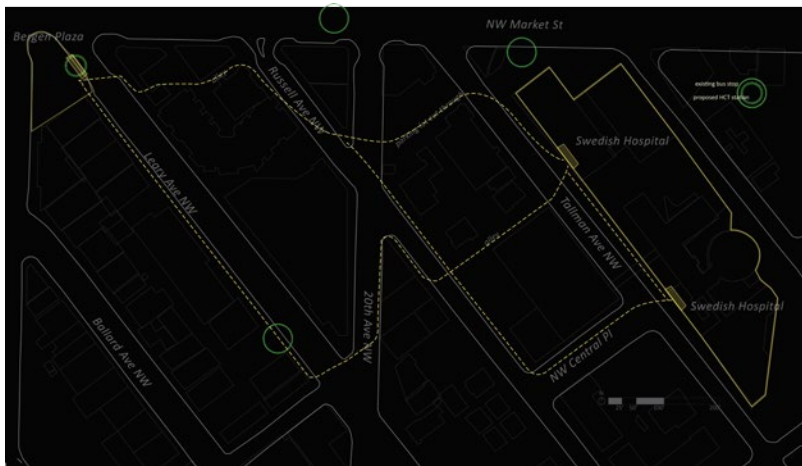


Figure 5-78. Potential network of paths through the subdistrict.



Figure 5-79. Points chosen for analysis

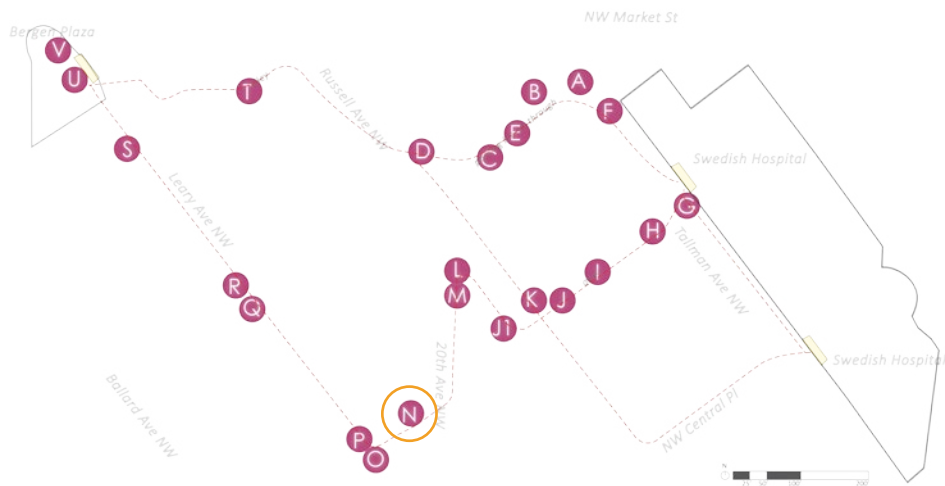


Figure 5-80. Point N (intersection of Leary and 20th) at 3:30 in the afternoon and 7:30 at night, early March 2013.

PHOTO COLLAGES BY DAY AND NIGHT

For the photo documentation site visit, I spent a half day on location. I documented each point along the paths by day and again by night. I then overlaid the stitched-together photos with analysis of conditions and proposals for intervention types.

Criteria for analysis

My criteria for analyzing the site were drawn from the technical and psychological knowledge of lighting gained from the literature review.

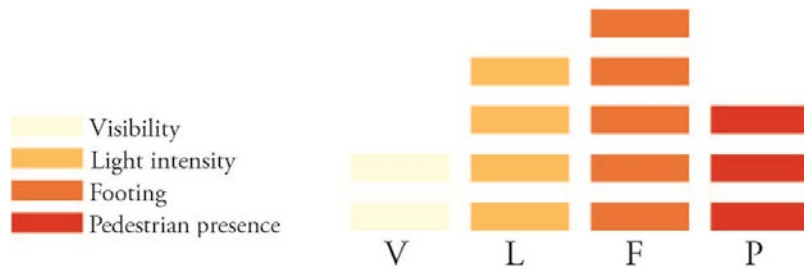


Figure 5-81. Evaluating site conditions. 1 bar = poorest conditions found on site / 5 bars = top conditions found on site

I started with a subjective evaluation of the visibility, light intensity, footing, and pedestrian presence at each point relative to the general conditions of the site as a whole.

VISIBILITY/WAYFINDING (V)

What’s visible from a distance? The station/hospital/landmarks? Are there any blind corners or other visual obstructions? Does the path seem clear or is the street system confusing?

LIGHT INTENSITY (L)

Without making a technical measured analysis of lux or reflectivity of adjacent materials, I made a subjective estimate of available light at each point relative to the site’s general luminous intensity.

FOOTING (F)

Is the footing even, with a clear, wide space to walk? Does the sidewalk or road edge seem rough? Are there areas to cross the street?

PEDESTRIAN PRESENCE (P)

Since much of the perception of street safety comes from the presence of eyes on the street, it was important to observe whether the area seemed inhabited; if people seemed to be moving with purpose, or lingering oddly; if people seemed wary or relaxed.

I also analyzed the photos according to perceived needs (e.g. wayfinding, social presence), street typology, lighting typology, key aspects of the site point (e.g. if a decision about direction needs to be made, if orienting features are visible from the point) and then proposed an intervention element (based on the components diagram shown in the previous chapter) that would be suitable for that site.

Finally, I called attention to particular qualities of each point and the nature of the light sources nearby. I made notes of gaps in the lighting or any corners or streets that looked particularly unappealing/ ominous, whether due to low illumination or harsh security lights making the surrounding area difficult to decipher. I also noted which lights contribute something particularly interesting or unappealing to the streetscape.

Figure 5-82. Analyzing site points according to typology & need

Intervention: Beacon / Needs: Wayfinding / Presence / Decision Point / Lights in Distance
 Street: Wide Intersection / Light Typology: Overhead, Moving, Object/Art

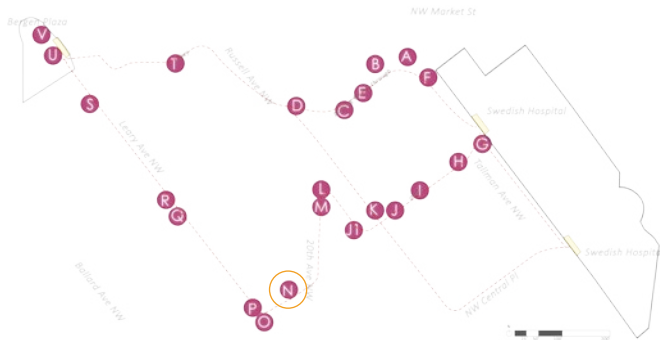
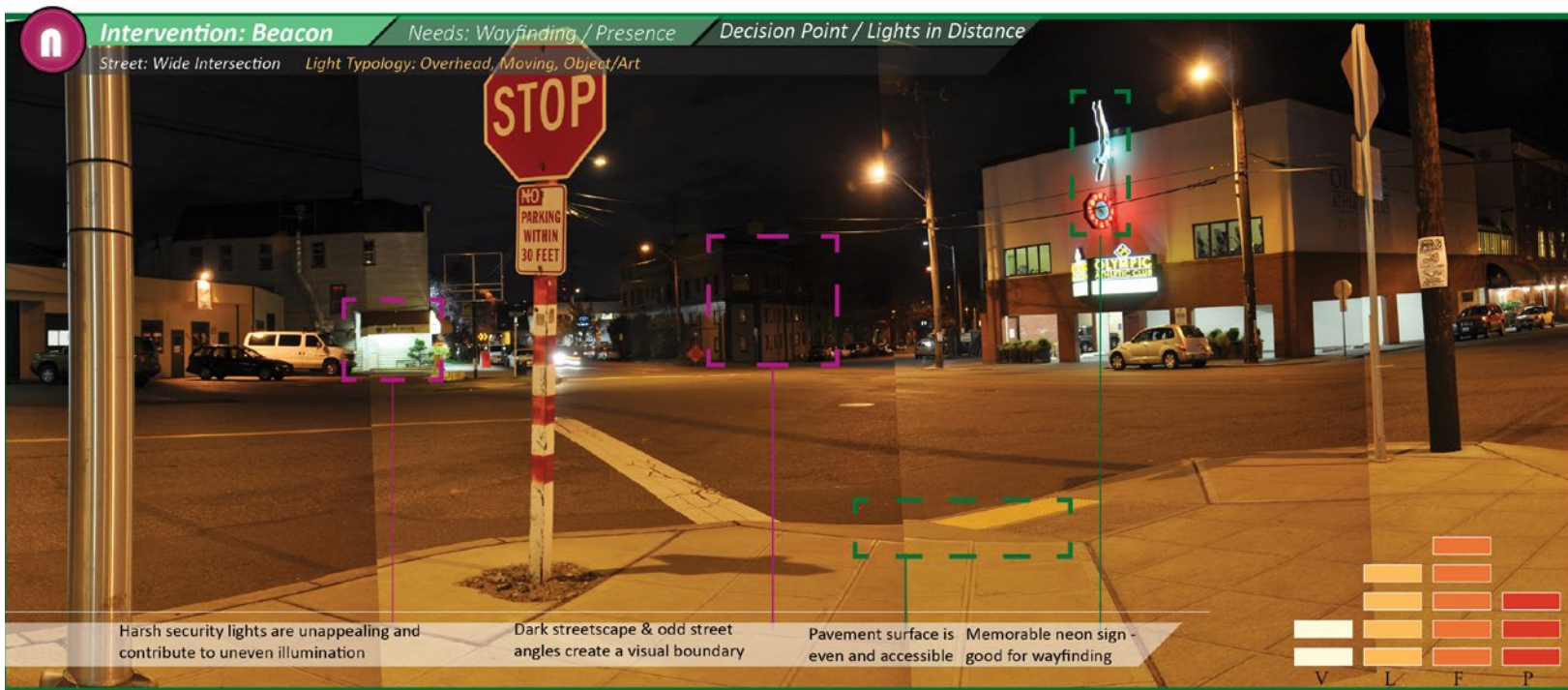


Figure 5-83. Photo-based analysis of Point N (Intersection of 20th & Leary)



positive points negative points

Visibility
Light intensity
Footing
Pedestrian presence

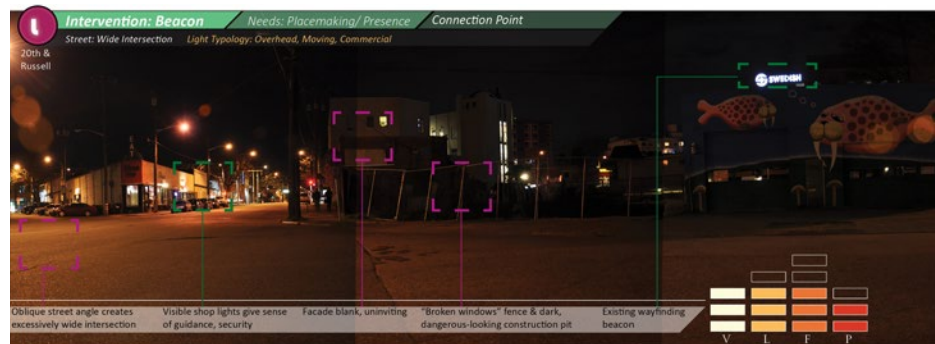
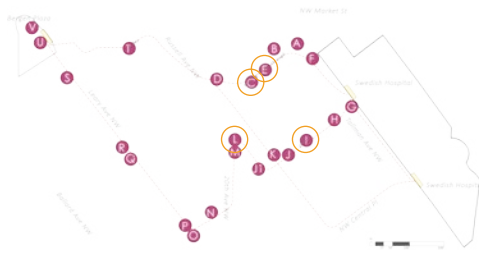


Figure 5-84. Four examples of analyzed photos. Observation points C, E, I, L



Design Proposals

Interventions + Installations

6 Design Proposals

Design goals

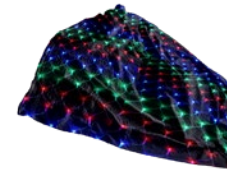
DISTRICT IDENTITY



This area currently feels generic, with flat asphalt ground surfaces, little vegetation, and blocky concrete and low-rise structures. It also feels detached from the nearby lively historic district and the working waterfront. The design should use elements to highlight the blocks', and Ballard's, particular historic and textural character while also creating a fresher sense of place. Placemaking can begin at the borders to the subdistrict, where it connects with other neighborhoods with their own distinct characteristics, as discussed in the site analysis. Since the district includes a hospital with only a tiny scrap of green space attached to it, a major goal beyond safety and visibility should be to make the area feel

softer and gently playful.

PATHMAKING



Provide a network of paths, as explained in the path design section of the lit review. The paths will be hierarchically related to each other in the sense that pedestrians would immediately perceive some as being larger and more-travelled than others. In this site, Market Street would represent the highest level of the hierarchy; as the best lit and most commercialized street in the district, it is also likely to be the default choice of most people navigating from within the site boundaries to the transit station. Paths along different levels of the hierarchy, however, are all valuable in building a multiplicity of route options and increasing the diversity of interesting points along the hospital-to-train route. Create

clear, easy to find paths between the station and destination points in the neighborhood, and create a “sequential visual experience.”¹

COMMUNITY/SAFETY



Perceived safety, particularly from crime, is crucial to nighttime pedestrian activity. The proposed design needs to address urban safety through lighting, social presence of other people, and enlivening neglected-looking spaces.

Related to safety through social presence of other people, the proposed design should encourage positive social interactions through festivity, playfulness, and interactive elements.

ACKNOWLEDGE AND PRESERVE THE ATMOSPHERE OF NIGHT



The goal is not to flood the landscape with bright light. This site is completely covered with urban development, so there is little reference to nature on site while there is a consistent need for safe illumination.

However, some room should be carved out for engaging other nighttime senses and acknowledging the presence of night species and natural lighting from the sky.

1 Phillips, *The Lit Environment*.



Figure 6-85. Map of suggested opportunity areas

POTENTIAL PLACEMENT OF INTERVENTION TYPES

This map shows areas identified as possible locations for the intervention typologies that will be discussed in the rest of this chapter. Beacon icons mark all decision points, facade shapes mark all blank or dark facades, etc.

Thresholds

Thresholds are located at points where the character of the street or land use changes abruptly. The entrance to a threshold may be a gap between buildings, or it may be a strange intersection, or it may be a juxtaposition between street and land use qualities. Thresholds mark a line where one feels oneself to be in a different kind of space on either side. The transition between spaces may

be jarring, to the degree where passerby choose not to cross the threshold or subconsciously perceive the transition as a kind of barrier that it doesn't occur to them to cross (by not noticing a efficient cut through in an alleyway, for example). Establishing a consistent, recognizable threshold strategy helps to connect the pieces of the neighborhood together.

Body Zone: Overhead or at body height **Light Intensity:** Medium **Structure:** Free standing object, signage, or lighting attached to/protruding from a facade **Aspects:** Wayfinding, Placemaking **Goals met:** District identity, Path network is reinforced, Use of individual objects rather than bright lights clarifies available routes without generating much light pollution **Features:** Iconic markers, colorful neon art, symbols & historical references to neighborhood character and culture

Existing

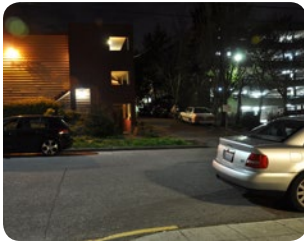
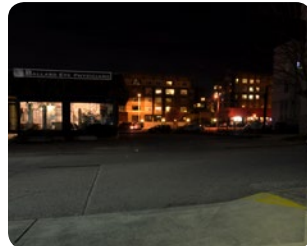


Figure 6-87. Current threshold: featureless. Photos by author



Inspiration



Figure 6-86. Strings of lights and neon icons can mark thresholds. Nonesing/Neonsign, Bruce Naumann. Photo courtesy of guggenheim.org.

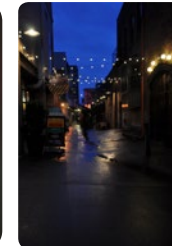


Figure 6-91. Alley lights, Seattle. Photo by author.

Concepts



Figure 6-88. Grouping a number of colored lights and hanging them in semi-traditional fixtures creates a sense of homeyness: warmth and intimacy.



Figure 6-89. A symbol, abstract or representational, made from an interesting self-illuminated material, can mark entrances to any of these threshold types.



Figure 6-90. Hall of light. An abundance of low level lights is playful and creates even illumination at narrow or dark thresholds.

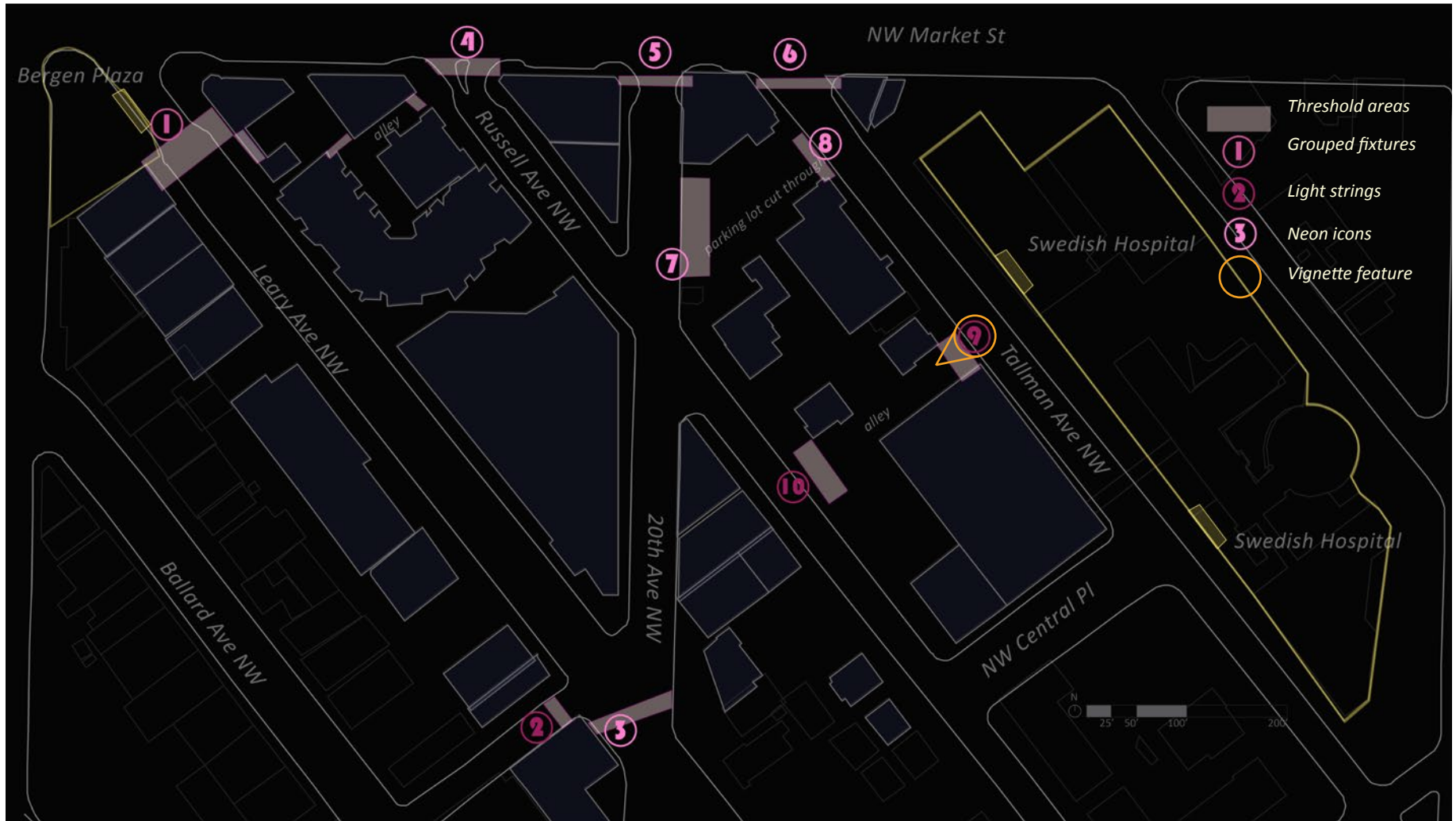
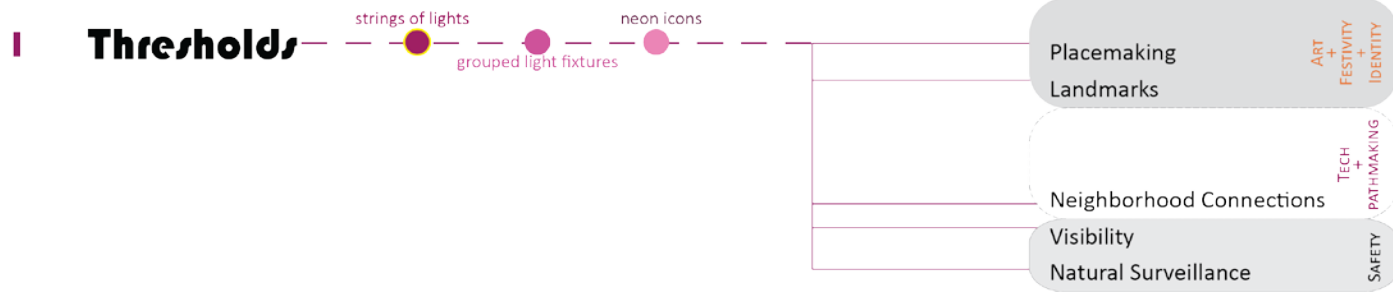


Figure 6-92. Map of threshold interventions



colored squid lamps

threshold / string of lights + footing / pattern

Space: Residential alley. Quiet, but directly facing hospital entrance.

Scale: Overhead; lights positioned 10-12' above ground and stretching about 15' across the alley. / Underfoot, 15' wide strip of pavers.

Materials: Steel poles, thin steel cable, replica squid fishing lamps, LED bulbs in pale red/yellow. / Stone pavers.

Function: Create a welcoming but not overly bright passageway and increase safety for residents.

Light: Create a warm, gently colorful, soft effect that will interact with the light paving.



Figure 6-93. Threshold + footing: colorful, historic lamps and paving



Path surfaces / footing

Interventions made to the surface of the ground itself increase pedestrian interest and confidence of following the right route. Lights placed at this level can be kept quite low. Helping to keep

the path clear and easily visible is an important consideration in a district containing a senior care facility and a hospital.

Body Zone: Underfoot **Light Intensity:** Low **Structure:** Ground – sidewalk, asphalt, dirt, pavers, pavement **Aspects:** Safety, Texture **Goals met:** Route is defined, Visibility for footing is improved, light levels are kept low, mixture of low-tech and interactive design **Features:** LED technology, movement-responsive design, textural materials, repeatable patterns, ecologically friendly

Existing



Figure 6-97. Sidewalks are mostly even and easy to navigate, but a few are narrow and not particularly well illuminated. Some brick pavers have been installed by Market Street. Photos by author.

Inspiration

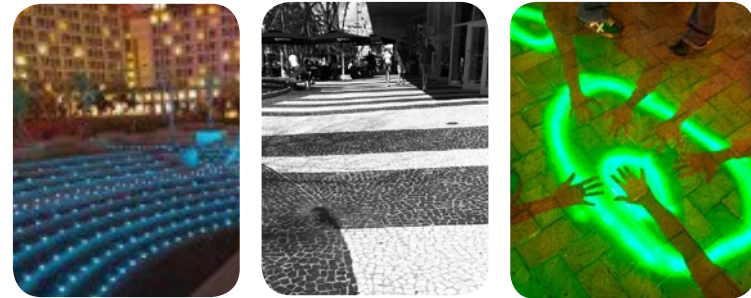


Figure 6-98. Solar-powered lighting, interesting ground level patterns, and interactive movement tracking make for a more dynamic pedestrian experience. Left to right, photos courtesy of envirogadget.com; land8.com; dancorson.com

Concepts

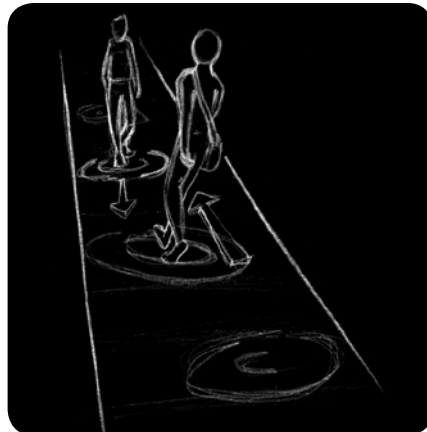


Figure 6-96. Etched sidewalk patterns that release stored solar energy

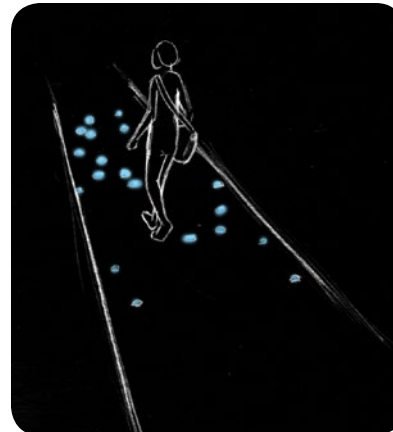


Figure 6-95. Motion-activated recessed LED lights



Figure 6-94. Paving patterns with white pavers/tiles

2

footing

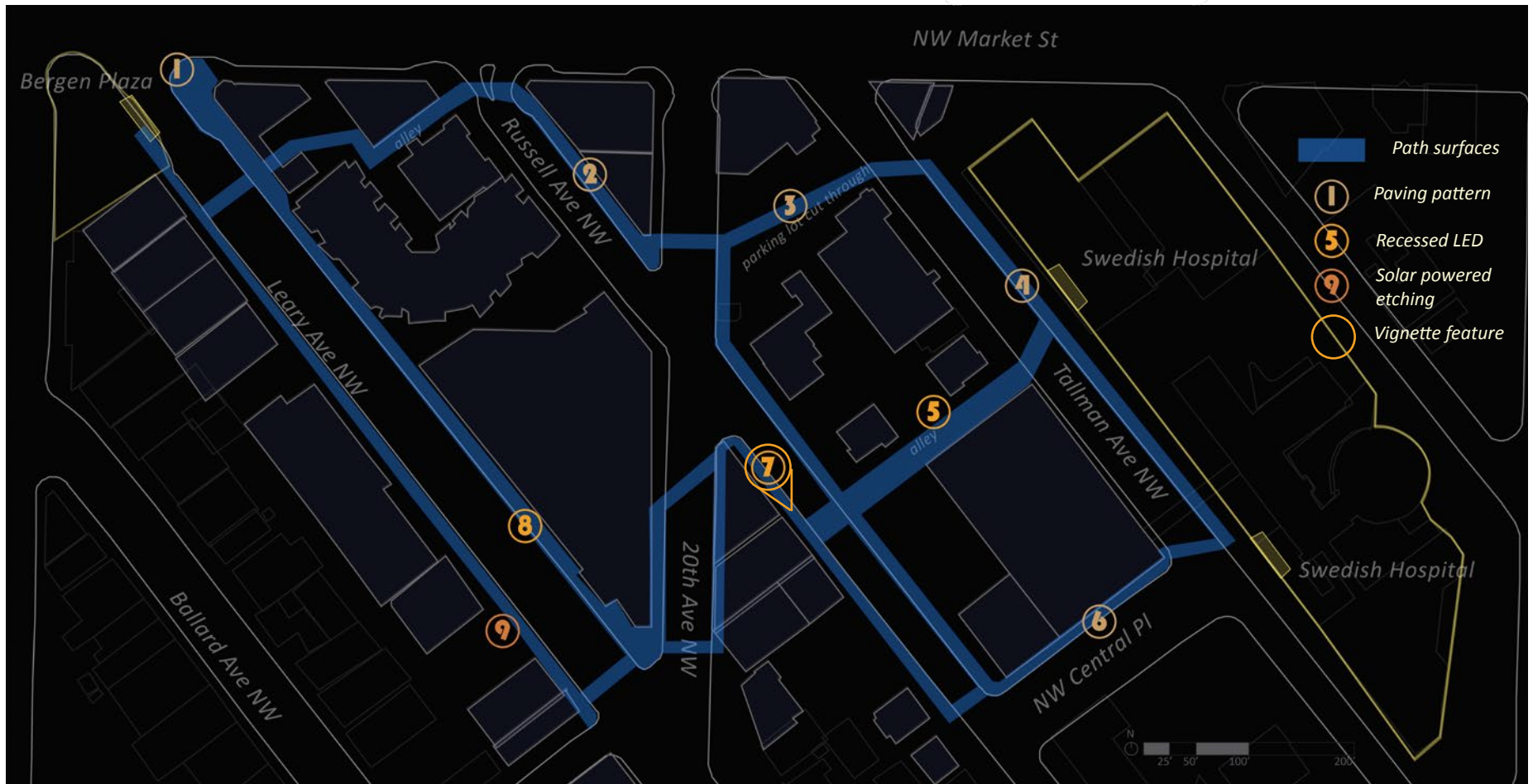
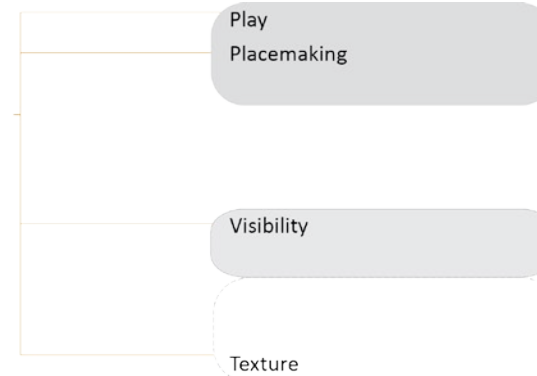
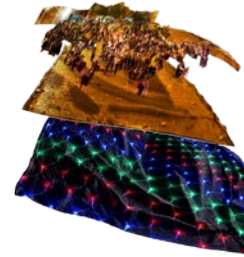


Figure 6-99. Map of footing (path surface) interventions



trail of luminescence

footing / recessed LED + facade / recessed LED

Space: Semi-commercial side street with little night activity. Parking garage & empty lots visible.

Scale: Underfoot and body level; individual lights are small; length of the installation is a few hundred feet.

Materials: Motion sensors, recessed & covered plates in pavement and brick, LED bulbs.

Function: Human-motion-activated installation appears to follow the pedestrian. Lights flick on several feet ahead and fade off a few seconds behind a walker.

Light: Playful, subtle; the cool temperature and evanescent behavior is reminiscent of marine bioluminescence.



Figure 6-100. Footing + facade: recessed motion-responsive LEDs



Beacons

Beacons are consistent interventions that are repeated, perhaps with slight variations, throughout the district to mark a route. Like going on a treasure hunt, arriving at each beacon will position the pedestrian to view the next beacon in the sequence. Beacons are especially valuable at intersections or at points where a turn needs to be made but a final destination is not yet clearly visible.

Beacons could take on many forms: freestanding vertical beacons with a narrow footprint can be placed on sidewalks at blind corners to reassure pedestrians that they are going in the right direction; neon icons attached to facades could become familiar checkpoints along a routine walk to and from the station.

Body Zone: Distance, Body Level **Light Intensity:** Moderately High **Structure:** Metal, neon, LED **Aspects:** Safety, Texture **Goals met:** Route is defined for users, Visibility is improved while keeping light levels low, mixture of low-tech and interactive design **Features:** LED technology, movement-responsive design, textural materials, efficient energy usage

Existing



Figure 6-103. There is little to distinguish this intersection visually and few if any wayfinding clues. Photo by author

Inspiration

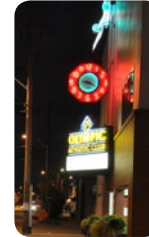


Figure 6-101. This on-site classic neon clock is not too large, yet identifiable from a couple of blocks away. Photo by author



Figure 6-102. Vertical fiberglass pieces, digitally programmed to change their display. Oscillating Field, Dan Corson, 2009. Photo courtesy of dancorson.com

Concepts

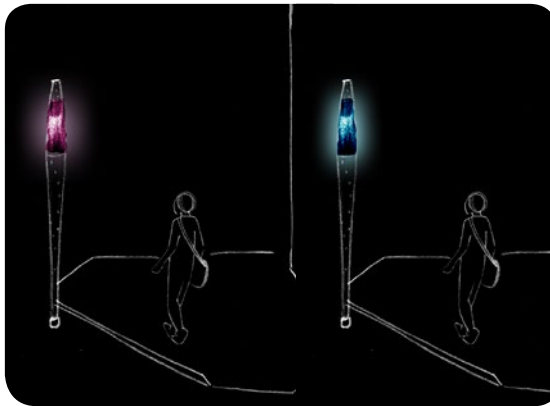


Figure 6-104. Vertical beacons have a narrow footprint and can change display to reflect time or weather data.



Figure 6-105. Beacons can take on forms that reference neighborhood history, such as clustered fishing floats.

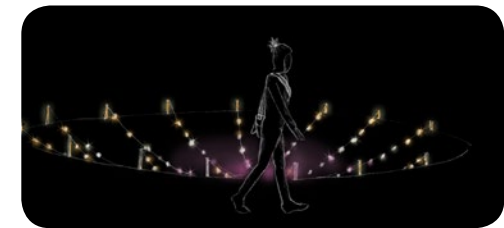


Figure 6-106. Larger-scale temporary installations, such as mirrors reflecting hidden LEDs, can counter the dark effects of inactive construction sites.

3

Beacons

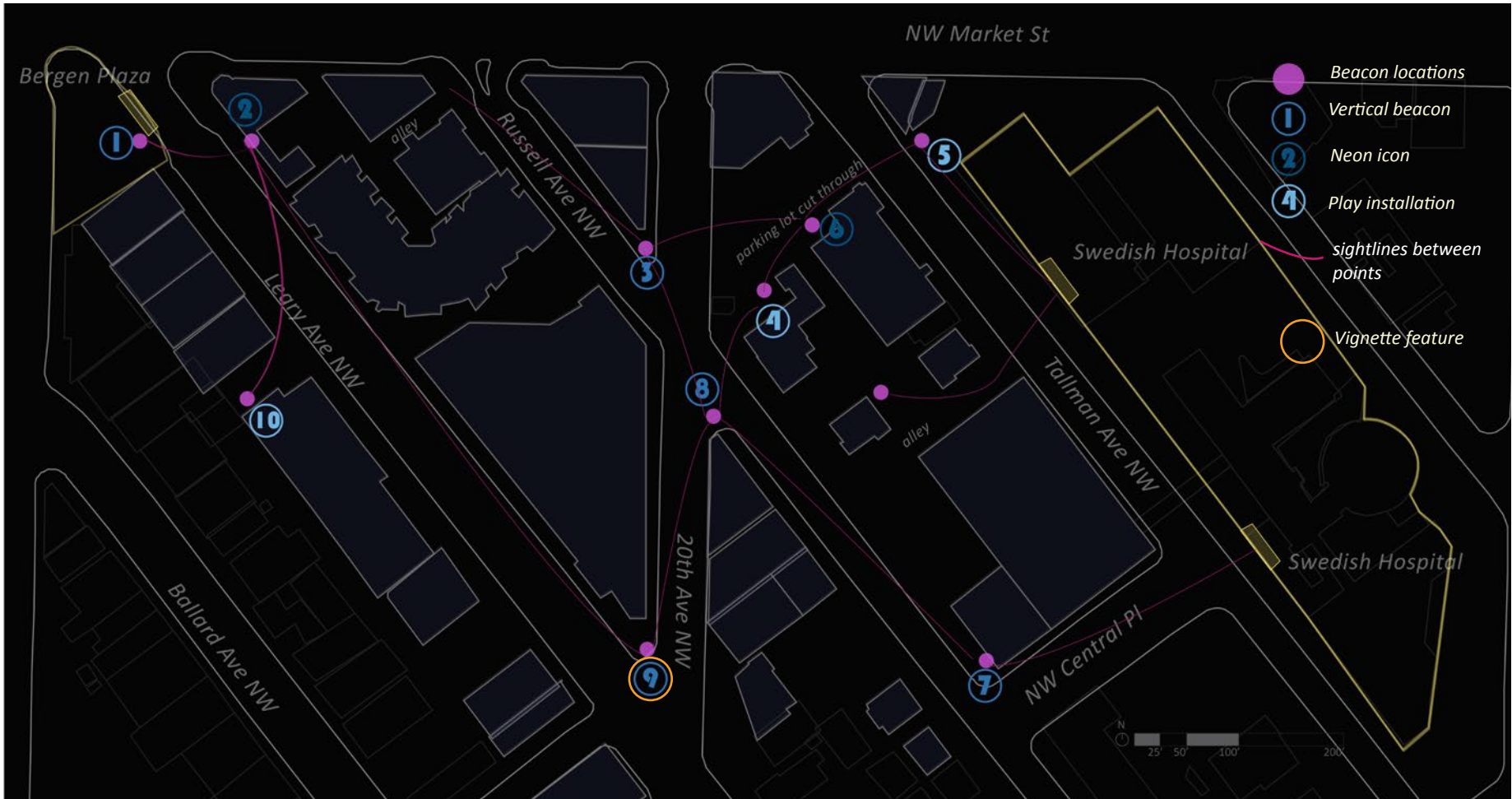
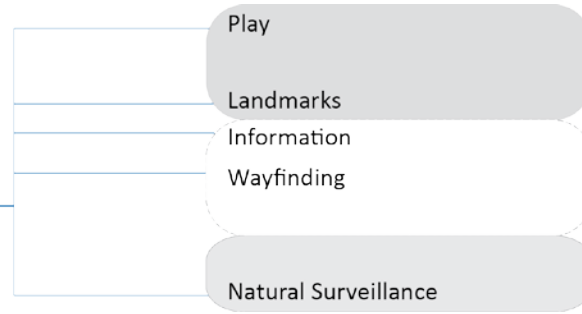


Figure 6-107. Map of beacon installations

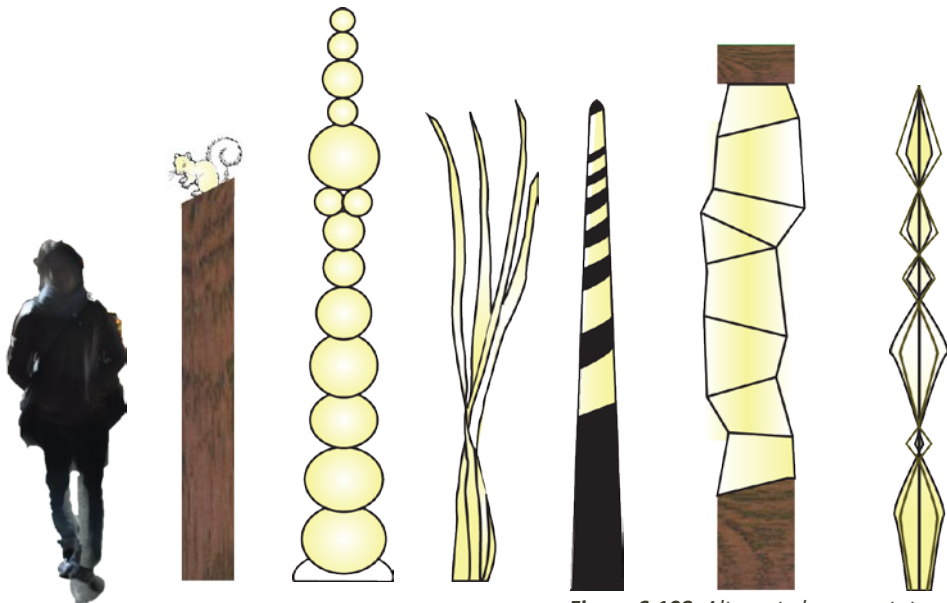
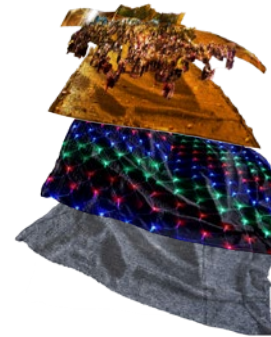


Figure 6-108. Alternate lamp prototypes



station lamp

beacon / narrow & vertical

Space: Wide intersection in a commercial area, a little over a block away from the proposed station.

Scale: The beacon is a little more than head height, about 8'-9', with a narrow base enabling it to be placed on a wide sidewalk.

Materials: Metal, plastic, LED.

Function: Identifies the intersection as an important turning point to access the station or the hospital and provides an estimate of train arrival times.

Light: Boldly colored, medium brightness; should be seen from a distance of 2 blocks. Light shifts through a range of brightness intensity to indicate length of time until the next train or streetcar arrives.



Figure 6-109. Beacon: vertical data lamp



Facades

Facade interventions act on structural surfaces that are currently not engaging the pedestrian experience, either through lack of features/windows or by having darkened windows that give no sense of natural surveillance. Facade interventions take advantage of large unfeatured surfaces by treating them as a canvas for colorful architectural illumination or for still image/video projections.

The facade category also addresses activating windows and openings. Efficient, low-intensity illuminations may be used for storefront or other ground-level window displays. Activity into the evening hours can be encouraged through permitting extended operation or through space sharing schemes.

Body Zone: Field of Vision, Distance **Light Intensity:** Low **Structure:** Projections & LED lights on building surfaces, Interior spaces illuminated and activated **Aspects:** Placemaking, Texture, Natural Surveillance **Goals met:** Site is animated; unengaging facades become a canvas for artistic display, Open businesses increase social presence **Features:** LED and digital projection technology, movement, interior activity engaging the exterior

Existing



Figure 6-110. Several structures on site have blank facades that are unwelcoming for pedestrians. Photos by author

Inspiration



Figure 6-111. Colored lighting washes on structures. Chroma Streams, Kingston Bridge, 2005 by Leni Schwendinger. Photo courtesy of lightprojectsLtd.com

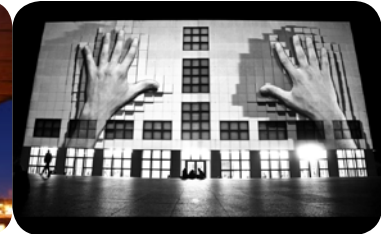


Figure 6-112. Animated digital projection. 555 Kubik, Germany, UrbanScreen. Photo courtesy of urbanscreen.com

Concepts



Figure 6-113. Projected images of historical Ballard move and shift over the building surface.

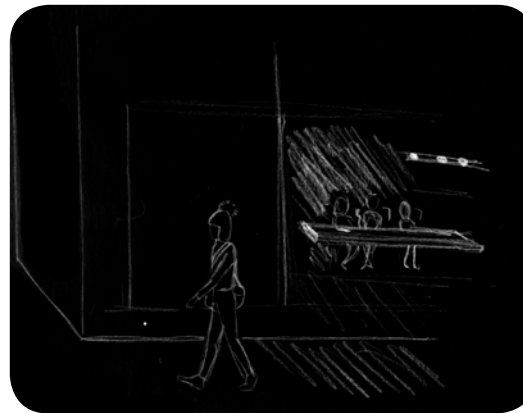


Figure 6-114. Facades with dark windows can be energized by efficiently lit window displays or extended business operating hours.

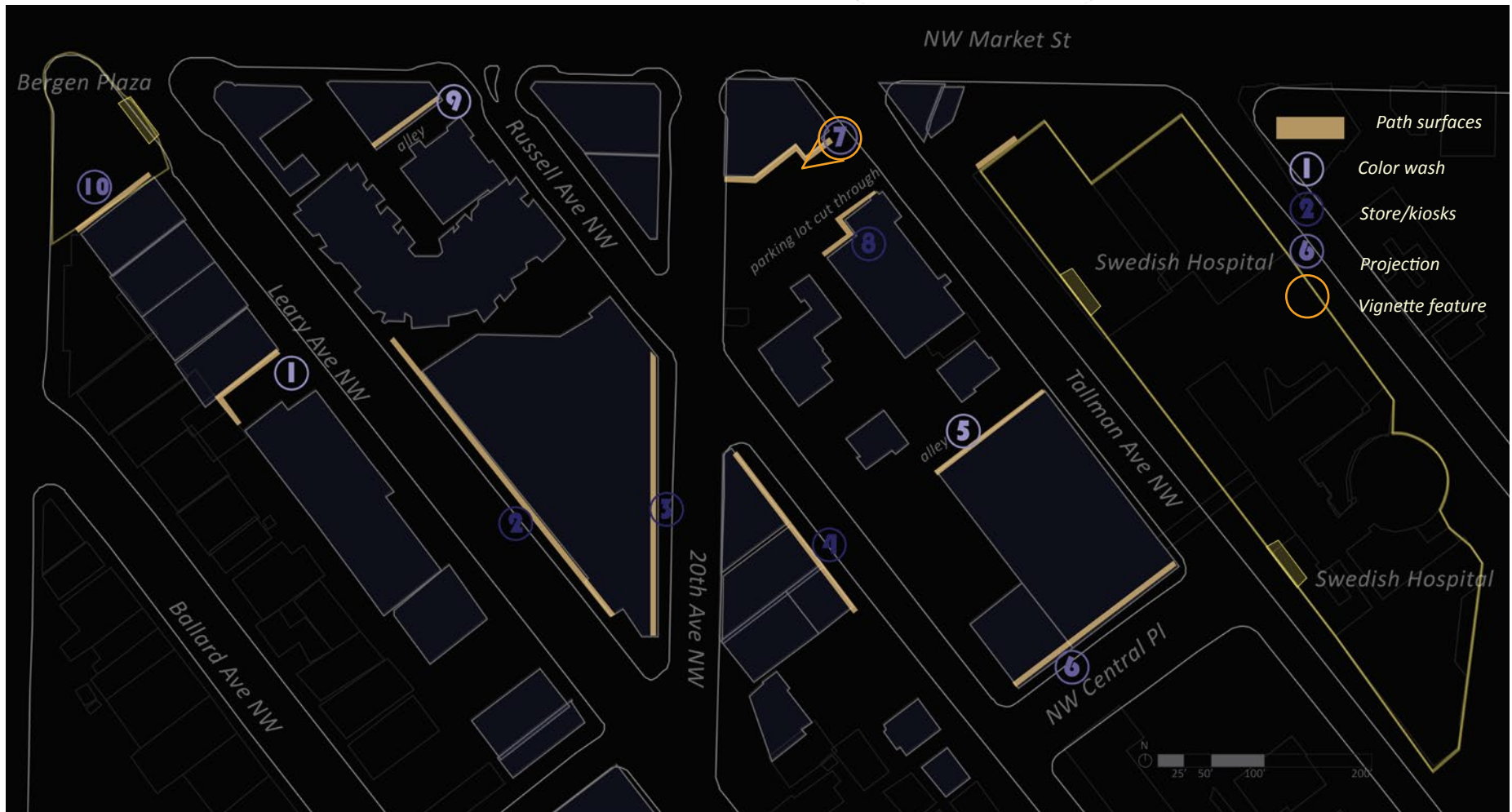
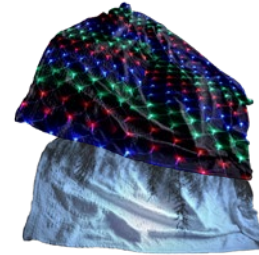


Figure 6-115. Map of facade interventions



astrolab

facade / projection

Space: Wide (for the area) parking lot with irregularly parked vehicles; connects to streets on both sides; close to commercial shops.

Scale: Building height (3 stories).

Materials: Projector

Function: Bring motion and a reminder of nature to the hardscaped space by projecting a planetarium-like map of the real-time star configuration over Seattle (mostly invisible due to cloud cover or lightpollution).

Light: Cool, dim, not intended as security or safety lighting but to preserve some of the darkness while providing a focal point for a leftover space.



Figure 6-116. Facade: animated projection

Pathsides

Pathside interventions are placed alongside the actual walking surface. They may be contained within their own space, or they may interact with the walking surface by casting lights or shadows. These interventions focus on texture and immersive or playful lighting installations. Night gardens emphasize use of strongly textured foliage, interesting branching structures, pale foliage and blooms, and well placed uplighting and accent lighting. Immersive

structures play with the effects of colored shadows cast by limited-spectrum lights, with patterned and overlapping effects.

Body Zone: Underfoot, **Body Level** **Light Intensity:** Low-moderate **Structure:** Varies--vegetation, landscape lighting fixtures, wood & metal structures **Aspects:** Mystery, Nature, Texture, Placemaking **Goals met:** Route is defined for users, Visibility is improved while keeping light levels low, mixture of low-tech and interactive design **Features:** LED technology, movement-responsive design, textural materials, ecologically friendly

Existing

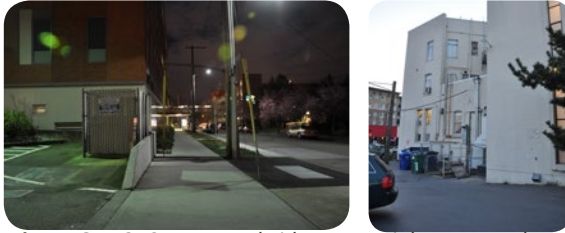


Figure 6-119. Current pathsides are mainly untreated. Several have room for vegetation or pathside installations.

Inspiration



Figure 6-117. Thoughtful landscape lighting emphasizes texture and preserves some shadows. Design by Berger Partnership. Photo courtesy of vireods.com

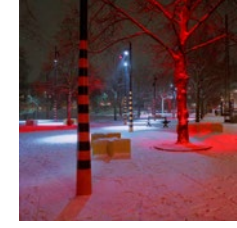


Figure 6-118. Shadows reveal the color spectrum of associated lights. Nordvest Parken, photo courtesy of e-architect.co.uk

Concepts



Figure 6-120. Pathside night gardens use interesting foliage shapes/textures and clearly branching woody plants.

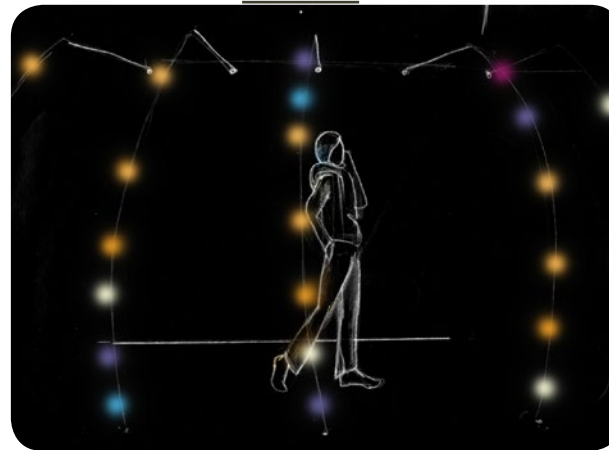


Figure 6-121. Immersive lighting installations experiment with interactivity, proximity, and colored light/shadow effects.

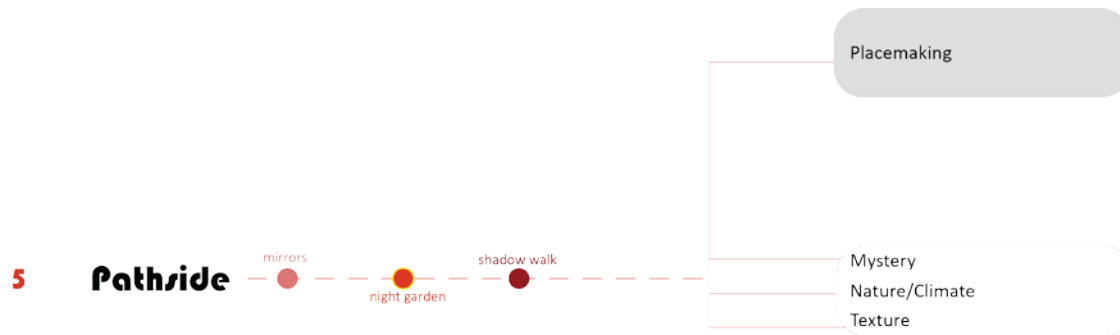
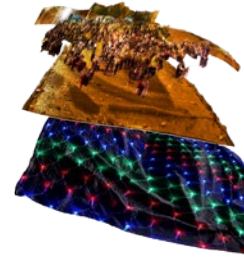


Figure 6-122. Map of pathside interventions



shadow walk

pathside / shadow walk

Space: Alley bordered by blank facades in a commercial area. Space is narrow but a potential connector.

Scale: Overhead, about 10-12' high, casting light and shadow patterns underfoot. At least half the length of the alley.

Materials: Wood, colored lights.

Function: Replaces high powered security lights with a more mysterious but still bright form of lighting.

Light: Playful, colorful, informative; the two colors of lights aimed at the wood beams create interesting overlaps and extensions of colored shadows that shift as you walk along them.



Figure 6-123. Pathside: colored shadows



Conclusion

Summary & Reflections

8 Conclusion

Original Goals

My original goals in writing this thesis were to establish pathways between neighborhood nodes that were easy to find and comfortable to walk along at nighttime. The site was chosen because of the future potential for increased activation with the arrival of additional high capacity transit modes and the attendant development of residential and commercial sites. However, I did not want to rely exclusively on expectations of increased density to invigorate the night landscape. That model is successful in many cities around the world, but it was important here to also reflect and enhance the sub district identity – a historically low-density, mixed residential and industrial neighborhood – in a way that would connect it to the larger district as a whole without attempting to make it a major nightlife district. I chose to do this through a more flexible system of lighting and textural interventions that I

hoped would provide enough attractiveness and guidance to increase the general walkability of the entire district. These interventions, mixing new LED technologies with traditional lamp- and lantern-like forms, and including even lower-technology vegetative and paving textures, have the potential to enhance visibility and to create interest and focal points across the length of pedestrian paths leading to and from transit.

Reflection on Process

The difficulty of controlling scope during this project was not entirely unexpected, but was indeed the dominant challenge. The number of fields my research touched on revealed the vastness of knowledge needed to be a skilled urban lighting designer. Learning about the technicalities of lighting is a career-long endeavor, and although I did not attempt to dive too deeply into technical points,

it became clear the more I organized my findings that a better understanding of light quality would be necessary to do justice to any of the concepts I briefly sketched out in the design portion. Not having architectural or interior design training, I had always meant to minimize research into outdoor architectural lighting, since I felt this would be an area too much outside my particular field and already well written about by others. The public function of outdoor artistic installations, however, remains an area with not a lot of formal study dedicated to it. Wayfinding and gender issues – the complicated relationship women in particular have to nighttime public spaces – became much larger components of the research than I had initially conceived. Environmental graphics and wayfinding would probably take on an expanded focus and more deeply developed design in a more official proposal for treatment of this site. I had also initially not wanted to overly focus on safety (or the perception of an area being crime-free), since I thought this would be a topic well written about in sociological and environmental psychology fields, but it turned out not only to not be as well-covered as I thought, but the existing writings offered few solutions to perceptions of danger (besides “more light” and CPTED principles that are not always well-regarded when actually put into practice). It became more clear throughout the research and writing process that this was the key issue that I was seeking to resolve with strategically placed lighting interventions.

My initial goal to build a catalog of parts that could be used in other parts of the city had led me to focus initially on the form of the parts/installations; but the site context, perhaps as it should, ended up dominating; it is a fairly flat piece of topography, with oddly angled streets, little vegetation, and little in the way of water, etc.; in another site, the choice of installations and interventions would have more of an interaction with natural vegetative, water, and topographic features.

My most essential findings were about the potentials and limits of technology itself to provide security. Modern lighting technology (since Victorian gas lamps) has completely revolutionized the urban night landscape and our access to it, but more technology does not always equal a greater sense of security, and an overlit, gaudy street is no model for most circumstances. Lighting as entertainment is also a function of many interactive light art

pieces, which is valuable but not the full extent of a strategy for improving the nightscape. There is much experimenting to be done with rapidly changing light technologies; multiple professionals I spoke to said that the easily controlled, highly energy-efficient LED lighting that is taking over the decades-old discharge lamps will completely change the industry and what can be done with flexible, adaptable lighting schema. However, my role approaching this project as a landscape architect was not to delve into the minutiae of lighting controls and specific design details of each installation (tempting as such a track was), but to incorporate them into a district-wide network that focused on natural surveillance techniques and wayfinding clues as much as on large pieces that could star at light festivals. Although difficult to show in an urban design, I also found that the key to a good nightscape was not to light every corner of it to the maximum, but to hold lighting effects in balance with the natural dark that we, along with other species, need for our full, healthy circadian rhythm.

Learning from professionals was an important part of developing my thinking over the course of this thesis. Particularly helpful were interviews and tidbits of information gleaned very early in the process that filtered through my thinking over the course of the next few months to the extent that I realized at certain points near the end that I was thinking about some factors in a nearly opposite way to how I had at the beginning. I hope I have credited everyone that I officially interviewed or had an email exchange with in my acknowledgments, but there were many more side or incidental conversations that also had an influence on my thinking.

Further explorations

My approach to studying appropriate interventions for the Landtern site was heavily literature and interview-based. Although I conducted numerous interviews with allied professionals on goals and techniques for improving a night district, there were many other potential resources for data gathering and designing that would make for useful expansions to this thesis.

Hospital survey of workers. I had initially wanted to include thoughts from people who actually work at Swedish Hospital in

the design of the site, but getting in contact with the right people turned out to be more difficult than I had anticipated. Although the ideas presented here for improving nighttime pedestrian are not limited to benefitting the hospital, it is a major part of my considerations and a survey indicating the travel patterns, impressions, and suggestions from people who are in the area on a nightly basis could be informative.

Other interviews with local stakeholders.

Tracking pedestrian traffic in the area. My impression of existing circulation in the area and pedestrian interest in using alternate routes is based on written observations made over the course of four site visits in different seasons. With such a limited frame of reference to draw conclusions from, a more comprehensive pedestrian tracking count at more diverse times (weekends, holidays, etc.) would improve proposals for locating interventions.

Conducting a similar analysis and design for the other sub-districts around the station.

Light in the transit-oriented night/cape

As cities grow and public transit becomes a more dominant part of urban residents' lives in the U.S., our need to access transit will lead to spending more time in public spaces centered on transit and walking or bicycling along urban networks that will take us to those spaces. There are many opportunities to make these intermediate places valuable and appealing at nighttime. These opportunities might be revealed through festive, playful installations, through skillful application of advanced lighting technologies, through skillful application of very simple technologies and crafts, through attention to creating an environment that takes into account our increased need for safety and sensory reassurance at nighttime, and through thoughtful design that accepts the beauty of the night itself and takes advantage of its qualities on a nightly basis.

7

Recommendations

Strategies for Improvement

7 Recommendations

Establishing a cohesive yet varied nightscape requires taking a number of approaches simultaneously. Start the design process with questions that consider the site as two kinds of spaces: first, as discrete “rooms” that are analyzed and designed on their own terms, and second, as a network of routes that are planned sequentially and take into account the transitions between the various qualities of light experienced around each intervention. Following the questions are a series of suggestions for improvement of the Landtern site that, while site-specific, could also be applied in many locations according to commitment level, goals, and space typology.

Determining needs

SPACES: CREATE OUTDOOR ROOMS

- What kind of space is it? [How many and what kind of users does it have? How wide or narrow is it? How intimate or public? What are the particular defects or attractions of that space?]
- What effect does the current lighting have? [Is there glare? Is there a strong contrast in lighting conditions? What are the current types of lights? What amount of illumination is there in lumens or footcandles? Is the scale of lighting aimed at pedestrians or cars or bicyclists? Are there gaps in lighting?]
- What activities happen in the space?
- Can any night events take place in the space to establish familiarity and comfort with it?
- How much lighting should there be? Should lighting be added or reduced? Is the lighting suitable to the spatial typology?
- Is there a sense of direction? In relation to the station, would points not directly within eyesight of the station still provide clues about distance and direction to the station?
- Are there any areas that are particularly difficult to see? Any blind corners, or pathways with unclear direction/ endpoints?
- What other senses are engaged? [touch, sound, smell]
- How secure is the footing? Does the ground surface itself have any interest? Is it easily traversable?
- What should the overall mood be? [Bright, lively, calm, soft, wide awake?] What light quality would establish that

mood?

- How much brightness is needed to facilitate a good sense of direction and positive activities? If possible, estimate footcandles.
- Which areas can be minimally lit without compromising safety & comfort?
- These questions are mainly to establish awareness of the perception of the nightscape, and conceptualize other ways of experiencing it. Further questions about budget and maintenance would follow in a more technical lighting analysis.

ROUTES: CREATE A SEQUENCE

- What does it feel like to go from one designated space to another? Are there any major changes in brightness?
- Are some elements repeated across the route?
- Does the pedestrian walking along a full route pass a variety of interventions?

Short-term Approaches / Small Interventions

GOAL: QUICK WINS

Evaluate whether the space will be changing in the near future or have changing needs by season. If so, an easily changed or inexpensive design should be used. There is no need to wait until a large and expensive improvement or change can be made; quick, temporary options can act quickly to change perceptions of an underused space. The goal is to create a shift from an unappealing or intimidating path to a route that offers sensory engagement and points of interest, even when a complete overhaul is currently out of reach.

Visibility

- Painting with white or reflective paint on the edges of sidewalks or along other pedestrian routes makes paths easier to see and more intuitive to follow.
- Putting up chains of lights or lanterns is an inexpensive and easily installed intervention that adds low levels of light in a warm and welcoming way.

Wayfinding

- Low-tech wayfinding cues, such as painted figures on the ground or paste art low on facades can be a short-term way to mark out a route.

Placemaking

- Photo projections can be a fascinating way to simultaneously animate and enliven a space. They can be done simply, cheaply, and very temporarily: flip a switch and no traces are left.

Long-term approaches / Professional Interventions

GOAL: ESTABLISH A SYSTEM

A district-wide emphasis on creating a good nightscape will need cooperation among business and residence owners to implement and maintain non-municipal lighting strategies and other nighttime improvements.¹ These interventions will require more of an investment in budget and design process planning. The goal should be to have a consistent, yet diversified, district approach that will enhance the comfort, security, and pleasure of walking in the dark.

Visibility

- Create a system of lighting that is pedestrian-scaled and -oriented (low height, relatively low levels of illumination, with a warm temperature yet giving good color rendering).
- Place light fixtures in areas that are currently dark and unsafe feeling (without filling every possible corner and space).
- Install underfoot lighting throughout the routes, e.g. recessed into the pavement.
- Set up a flexible lighting system that responds to the time of night and amount of activity with increasing/decreasing levels of illumination.

Wayfinding

- Place small, distinctive lighting elements (icons/beacons) throughout the district to identify distance and direction to the station and other important areas (the historic district, the hospital).
- Place larger, distinctive lighting elements (vertical beacons) at key turning points. Place these elements so that when

standing by one beacon, the next is always visible.

Placemaking

- Establish a festival featuring light art and other forms of art that take advantage of the night (incorporating mirrors, sound, etc.)
- Seek out other festive and seasonal events to consistently provide a sense of liveliness and activity in the district's routes.
- As an extension of festival displays, incorporate some light art pieces into the landscape on a seasonal or rotating basis, maintaining a sense of freshness and interest in the qualities of the spaces during the long-dark-night-seasons.
- Install small, surprising light art at irregular intervals throughout the route: place constellations of twinkly lights at unexpected heights, or create art that is only visible when motion-activated, etc.
- Acknowledge the natural presence of night through night gardens.
- Integrate a unique paving pattern at repeated points throughout the routes.

1

“SDOT: Westlake Streetcar Plaza/McGraw Square.”

Components

ARTS + FESTIVITY + SOCIAL

Consider aesthetics, programming, identity, and mood when designing spaces for positive interaction.



Play is part of increasing activity and interest on the street. It is especially useful in areas that have some pedestrian activity and a little extra space but no current reason for a pedestrian to pass through slowly or look around. It expands the possibilities and experience of a space, and can also take on a therapeutic role. The level of investment for creating playful atmospheres can take place over the whole spectrum, from low (painted lines, paste art underneath light) to high (technologically complex interactive pieces).

Use light and landmarks to create a sense of identity both throughout the district and at individual points along the way. Providing a focal point in identified “room” spaces aids in developing a sense of ownership, and therefore comfort, in each space. A place that feels identified and considered will seem less like an indeterminate area to pass through quickly and more like a monitored and enjoyable place. Unique objects or groups of objects (landmarks) immediately lend their character and identity to their site context. They help to create a more psychologically satisfying sense of distance, providing markers to compensate for the increased difficulty in judging distances at nighttime. Landmarks could be light art installations, but they could also be simple icons, or even commercial facades or signage.

Play

- Make tracing a path interesting by including visual variations in the ground surface – reflective lines, lights -- that can be followed.
- Interactive installations that require pedestrian participation for activation encourage play.

- Encourage colorful/artistic details on designated facades; can be non-destructive community-based (paste art).
- Use color in lighting to create a festive atmosphere or provide opportunities to make silhouettes.

Placemaking

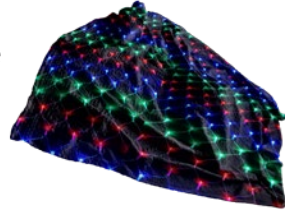
- Create a sense of warmth through lighting temperature.
- Keep lights at a pedestrian scale so the pedestrian feels welcome and wrapped in a person-sized light atmosphere (not drowned in high-intensity traffic lighting).
- Install unique features aside from evenly spaced standardized lighting.
- Use customized stand-alone light art that makes a space immediately identifiable.
- Create night gardens and paving patterns that enforce a sense of physical texture.

Landmarks

- Inventory existing landmarks and note areas where there is a long distance (one or two minutes walk) between landmarks. Place icons or other interventions in those areas.
- In areas without landmarks where the walk has some other valuable characteristics, keep landmarks small and subtle to avoid cluttering the landscape or interfering with existing qualities.

TECHNOLOGY + PATHMAKING

Wayfinding is more difficult at night due to our biological dependence on sight. Since we perceive distance differently and are strongly influenced in judging distance by lights, a wayfinding system based on lights should have an appropriately subtle level of lighting that is easy to look at from a range of distances. Similarly, paths should be illuminated by lights that are adjusted down to a level allowing for at least partial nighttime vision.



Integrate information -- about the destination point or the current surroundings -- into the path. This could take a technological approach through, for example, digital readouts giving the time of arrival of the next train/streetcar. There are many possibilities for art forms that communicate some other data about the city or current conditions, keeping pedestrians aware of their larger environment or their own role in activating a space. Information could also come from an environmental graphics approach or from materials as simple as small markers in the ground.

Establish good connections when designing a path. Many route-takers will be accessing the station or other destinations from points other than the two (Bergen Plaza, Swedish Hospital) discussed most extensively here. The transition points to the neighboring districts containing those other destinations (thresholds) should be treated as wayfinding elements in themselves, with the continued placement of environmental graphics, paving, and so on that has been used internally. Visually connecting surrounding blocks also contributes to an overall sense of security and place, making clear that routes across these particular few blocks do not exist in isolation.

Information

- Integrate information cues into the wayfinding system.
- Use paint or small metal markers to indicate location and distances.

- Use variations on an established symbol (e.g. a repeated neon icon) that change with proximity to an endpoint.
- Choose interactive or digital art that shifts color or its display in response to time or weather-based data.

Wayfinding

- Use small cues like engraved metal markers that catch the light as a simple way to guide routes.
- Use iconic lighting elements visible from a distance as a more attention-getting way to direct pedestrian paths.

Neighborhood Connections

- Note perceived boundary points to areas with distinctly different characteristics.
- Mark those points (thresholds) with the same system of wayfinding used internally in the neighborhood.
- Ultimately, extend wayfinding, play, and landmark systems across those thresholds.

SAFETY & SUSTAINABILITY

Improve visibility both for the immediate surroundings and over a distance. Visibility of immediate surroundings is affected through even illumination at pedestrian levels (as opposed to high and bright traffic lighting, which creates contrast and glare) and through ground texture/illumination. Build safety through natural surveillance, or eyes on the street, the desired outcome of many of the elements discussed here. Building natural surveillance is a cyclical process: increased pedestrian presence will improve natural surveillance, and improved natural surveillance will lead to further increased pedestrian presence. Human activity of a prosocial type is the key aspect here. Businesses and commercial activities play an important role in keeping a station area or any district feeling alive and monitored at night. At the same time, adding lighting for safety should be balanced with controlling excessive use of energy and preventing light pollution /overillumination. This is becoming easier to do with energy-efficient, remotely adjustable LED lighting technology.



ground surface more apparent.

Natural Surveillance

- Extend business hours to keep spaces active later in the night.
- Increase permits for kiosks and food trucks that keep people out.
- Leave lights on in front shop windows to give the impression of presence.

Visibility

- Identify gaps in lighting.
- Install pedestrian-scaled lighting in areas that feel dark and unsafe.
- Identify blind corners where beacons or other landmarks can be placed.
- Identify paths with unclear destinations or dark side areas where beacons or other landmarks can be placed.
- Place foot-level lights or recessed lights at ground level instead of relying solely on overhead lighting.
- Use interesting paving patterns with light colors to make

MYSTERY + DARKNESS

Often lost in discussion of lighting and of CPTED principles that emphasize safety above all else, mystery is an inherent quality of night that should not be banished by completely ubiquitous lighting. Although the desire for mystery and the attendant atmosphere of shifted perceptions can be difficult to reconcile with real urban needs for clarity, even in a densely built zone there is room for small preservation of night, and for use of light that is not overpowering.

***Mystery***

- Use low or small lights where possible.
- Keep some sources of light hidden.
- Small subtle lights are enough to increase a feeling of warmth without disrupting the night.
- Take advantage of shadows through patterns and colored shadows.
- Keep illumination on pathways consistent enough to avoid glare or dark patches, but vary intensity & type enough to create a sense of progression

Nature/Climate

- Install lights that dim through the night.
- Leave some areas with low lighting.
- Plant vegetation that is not extremely sensitive to urban light levels.
- Plant vegetation that blooms at night and attracts night pollinator species.

- Install lights with hoods or directed light cast to control light pollution.
- Choose interactive or digital light art that reveals weather and atmospheric conditions.

Texture

- Take advantage of reduced color perception and attraction to light-colored objects by creating garden areas with dramatic texture and structure, large leaves, and pale foliage or flowers.
- Architectural illumination can also highlight interesting building textures.
- Repeat a unique paving pattern throughout the district.

Space typologies

This section applies some of the questions from the list at the start of the chapter to the street typologies found on site. Although these questions are asked and answered in relation to *specific locations*, the observations and suggestions are applicable to these typologies in other locations as well.

TYPE: RESIDENTIAL ALLEY



- Details specific to site: A narrow space about 5 minutes' walk from the station, bordered by an apartment building (residences) and a parking garage (blank façade). The alley connects two streets (Tallman and Russell) but the connection is not immediately visible from either street. One end is directly in front of the hospital.
- Activities observed: Accessing residence, crossing between streets, light socializing, parking.
- Atmosphere: Living space. The “room” is narrow, intimate, isolated, and enclosed feeling. Atmosphere should be intimate, cheerful and usable without attracting excessive attention from the public. A feeling of privacy and quiet activity should be maintained.
- Proposed light levels: Low intensity, low height – enough to suggest a usable space without ominous corners, but not so much to create a strong atmosphere of festivity. Be careful to avoid glare in residents' windows.
- Interventions Minor-Moderate: there should be enough to encourage more surveillance but not heavy use due to respecting residents' space.
- Suggestions: Create unique paving texture. Improve vegetated strip against parking garage with ground cover, white-flowering perennials and bulbs, and structural woody plants with interesting branch structure and /or winter seed pods. Hang strings of lights at the ends of the alley, preferably with interesting historical forms. Place a way finding element at the entrances.

TYPE: PARKING LOT CUT-THROUGH

- Details specific to site: 1) Wide enough for two rows of parked cars and plenty of space for pedestrians. Connected on both ends (Tallman and Russell), currently used by pedestrians. 2) Connected on only one end (Leary); the size of a building footprint; wide enough for two rows of cars and pedestrian access. 3) Connected only on one end (20th); narrow service alley way; wide enough for one parallel parking strip and pedestrian access.
- Activities observed: Fast pedestrian walking. Parking.
- Atmosphere: 1) Very open, not immediately adjacent to residences, entrance clearly visible from hospital. Atmosphere could be quite active. 2) Semi-open, bordered by blank commercial facades. Atmosphere is currently dark and empty but could be much more activated at night. 3) Very enclosed, long, narrow and bordered by blank commercial walls. Very bright glaring security lighting. Could be much more conducive to pedestrian movement but is not large enough for significant lingering or social activities.
- Proposed light levels: Moderately high – both as a currently unsafe feeling space and as a potentially social one
- Interventions: Extensive; space is wide enough for interesting art and activities but severely underutilized socially.
- Suggestions: Open up connections on non-connected ends of alleys to increase the pedestrian network and foot traffic to businesses. Remove one or both rows of cars and place textural or play interventions. Mark thresholds well. Use these areas as a base for experimental installations and light festivals. Ultimately convert the larger lot into a small park with distinctive lighting and simple, bold vegetation, easily accessible from the hospital and nearby residences.

TYPE: WIDE, UNDER-USED INTERSECTIONS

- Details specific to site: These are confusing locations since the streets do not follow an intuitive right-angle grid. In addition a lot of space is wasted since the large triangle created by the obliquely angled roads is used by neither cars nor pedestrians.
- Activities observed: Crossing the road. Pedestrians confused about directions.
- Atmosphere: Busy; car traffic as an obstruction; commercial lights visible nearby but not immediately adjacent in most cases.
- Proposed light levels: No significant changes needed to intensity of light, but quality of light should be more pedestrian oriented, with lower light fixtures and more interesting forms.
- Interventions: Moderate; only so much room can be taken away while preserving the integrity of the road network.
- Suggestions: Beacons and wayfinding icons should be placed here as a major priority. The unutilized road space could be converted into small islands with night-blooming vegetation to attract nighttime pollinators.

TYPE: SIDE STREET, SOME COMMERCIAL, TRAFFIC SPEEDS <25 MI



- Details specific to site: Tallman, Russell, and 20th all have a few commercial entities, but otherwise are mostly multi-family residential. The restaurants at the north end by Market have some distinctive signage that serves as landmarks. Tallman and Russell feel deserted south of the hospital (Tallman) and the 20th intersection (Russell). A large parking garage dominates the midsection of these streets and one other, Central.
- Activities observed: Crossing the road. Pedestrians walking along sidewalks.
- Atmosphere: Not entirely safe feeling; blank facades, construction zones, and gaps in lighting do not contribute to the pedestrian experience. The street feels safe to cross since traffic flows are fairly low.
- Proposed light levels: Moderate, low height. Most need for lighting is pedestrian-scale. Care should be taken not to disturb the residences.
- Interventions: Moderate-Extensive, depending on the section of the street.
- Suggestions: To make the most immediate impact with the least amount of effort, efforts should focus in the beginning on the street with the most potential for improvement. Here, that is probably Russell Street. It has the most gaps in lighting, borders several construction sites, has narrow sidewalks and blank facades, and is located in between the major entry points of the district in a way that makes navigation somewhat challenging. The parking lots, construction lots, and extended triangular corner sidewalks at the non-right-angle-intersections are good potential sources for interesting projects to be established. The parking lot at the north end of Russell has excellent potential for becoming a park space.

TYPE: MAJOR STREET, COMMERCIAL, WIDE SIDEWALKS



- Details specific to site: Two main streets, Market and Leary. Market is by far the dominant commercial strip in the site, with numerous colorful lights and distinctive signage. Some of that activity overflows onto Leary but Leary gets quiet and less welcoming very quickly, with car traffic and lighting for cars dominating the nightscape. Even illumination is maintained but offers few surprises or points of interest.
- Activities observed: Crossing the road. High levels of pedestrian activity. Going into and out of shops/dining. Bicycling. Talking in groups.
- Atmosphere: Highly lit with all types of lighting, active, open and safe feeling (Market).
- Proposed light levels: High. Avoid light pollution, but this street can handle a lot of light.
- Interventions: Low. This area would receive good amounts of pedestrian traffic at any art installation, but it is also well-established as a comfortable pedestrian zone and is less in need of focused efforts.
- Suggestions: Expand placement of pedestrian-oriented lighting and introduce more subtle lighting in and on vegetation. Extend the wayfinding-lights system from the side streets onto the main street and ultimately across the main street into neighboring districts. Mark side streets branching off the main street with threshold or beacon interventions.

Appendix

Further Analysis, Light Survey, Bibliography

Appendix



Figure 9-124. Evaluating site conditions. 1 bar = poorest conditions found on site / 5 bars = top conditions found on site

negative points

positive points



Figure 9-125. Analyzing site points according to typology and need

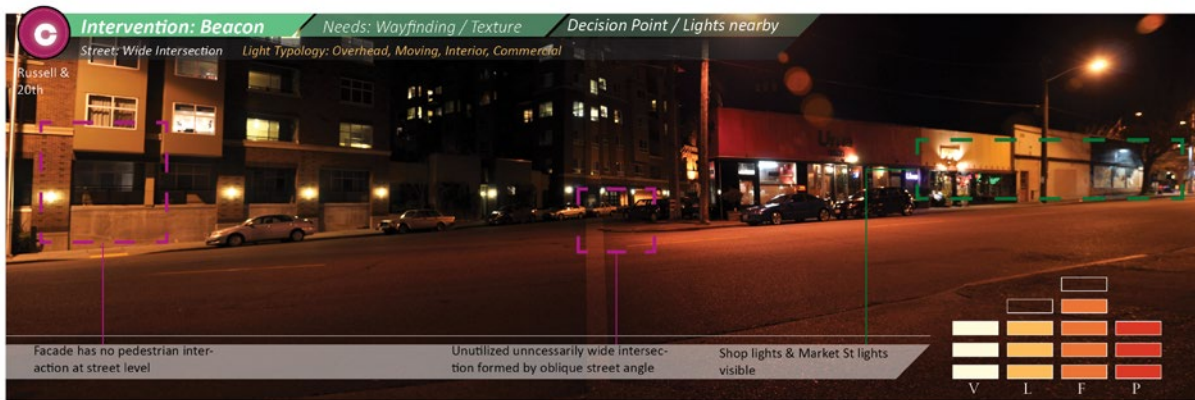
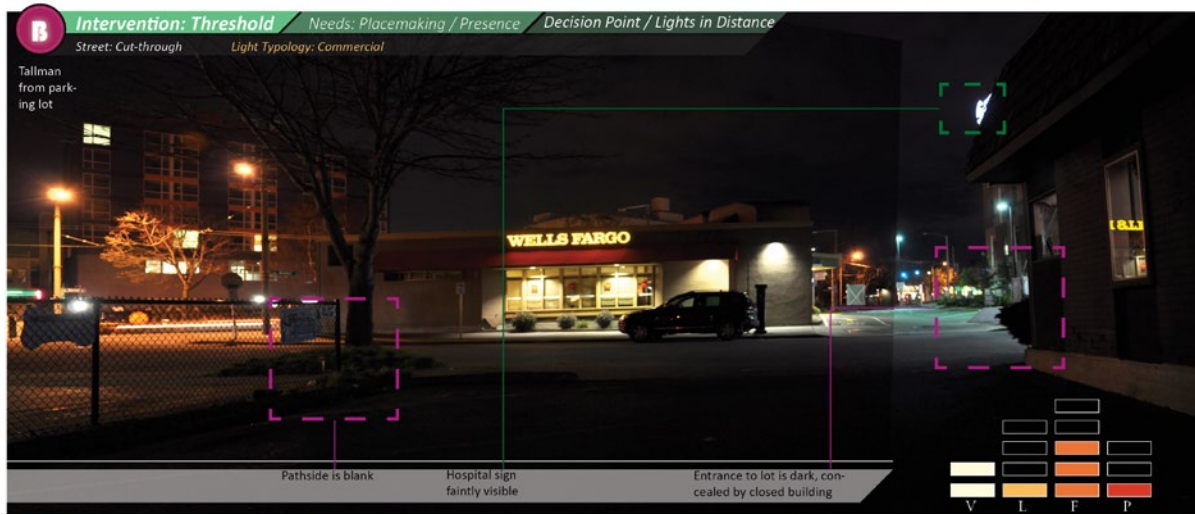
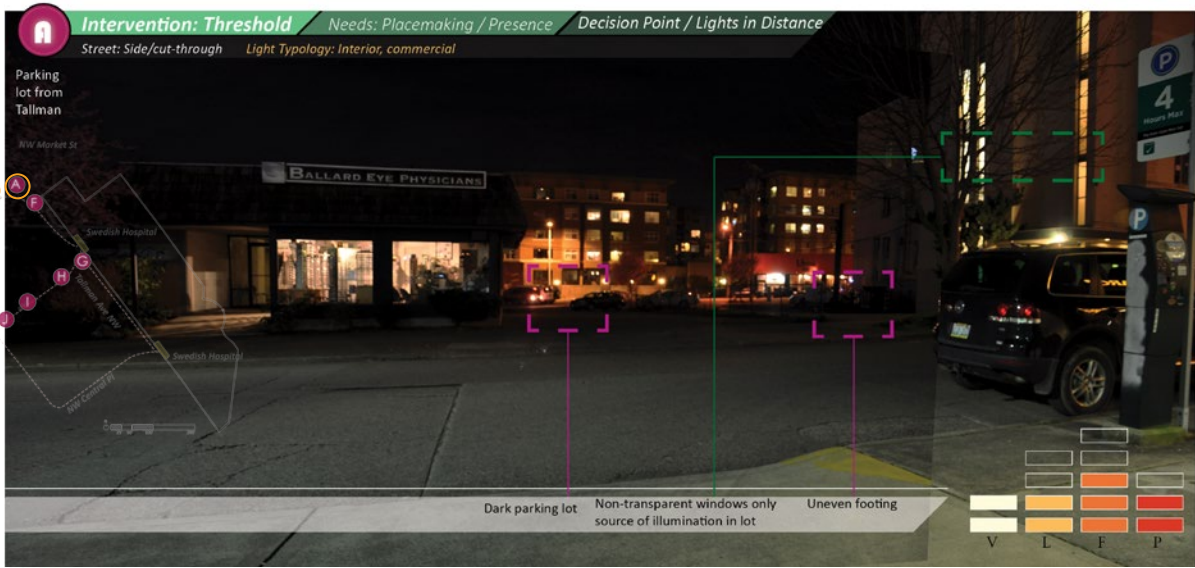
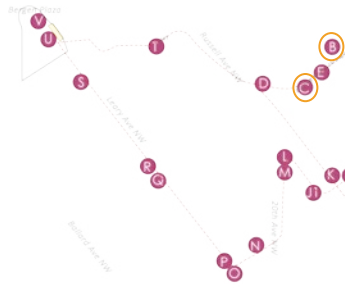


Figure 9-127. Points A-C analysis

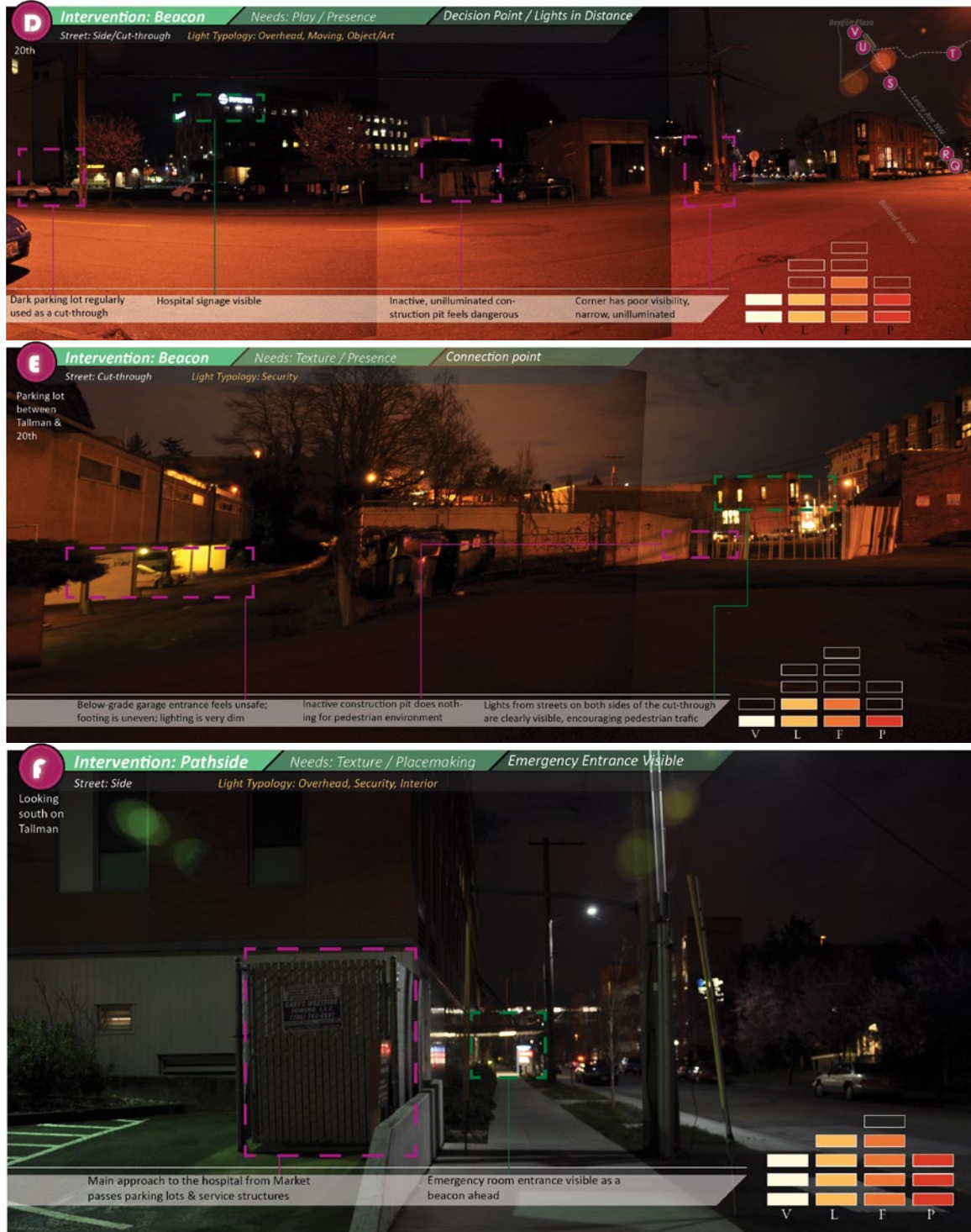


Figure 9-128. Points D-F analysis



Figure 9-129. Points G-H1 analysis

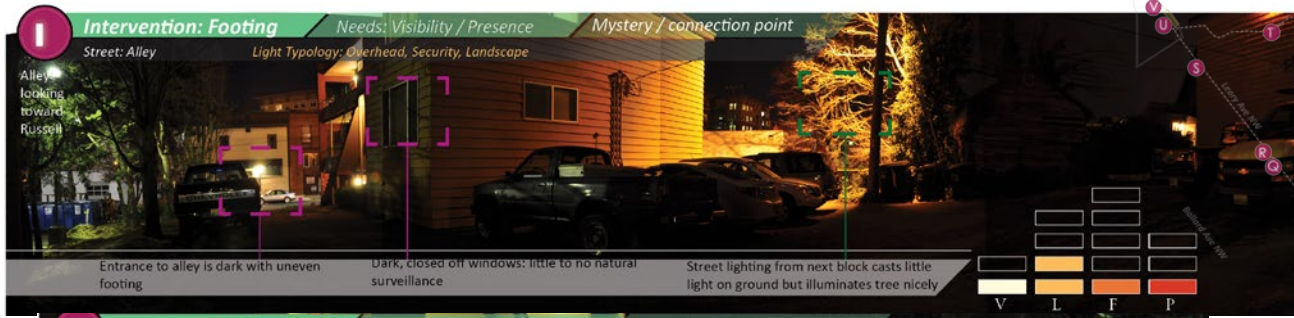


Figure 9-130. Points I-J1 analysis

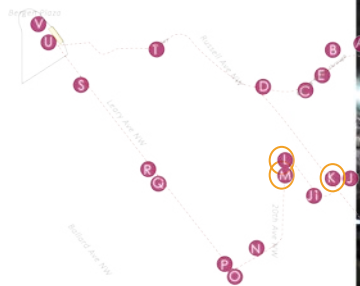
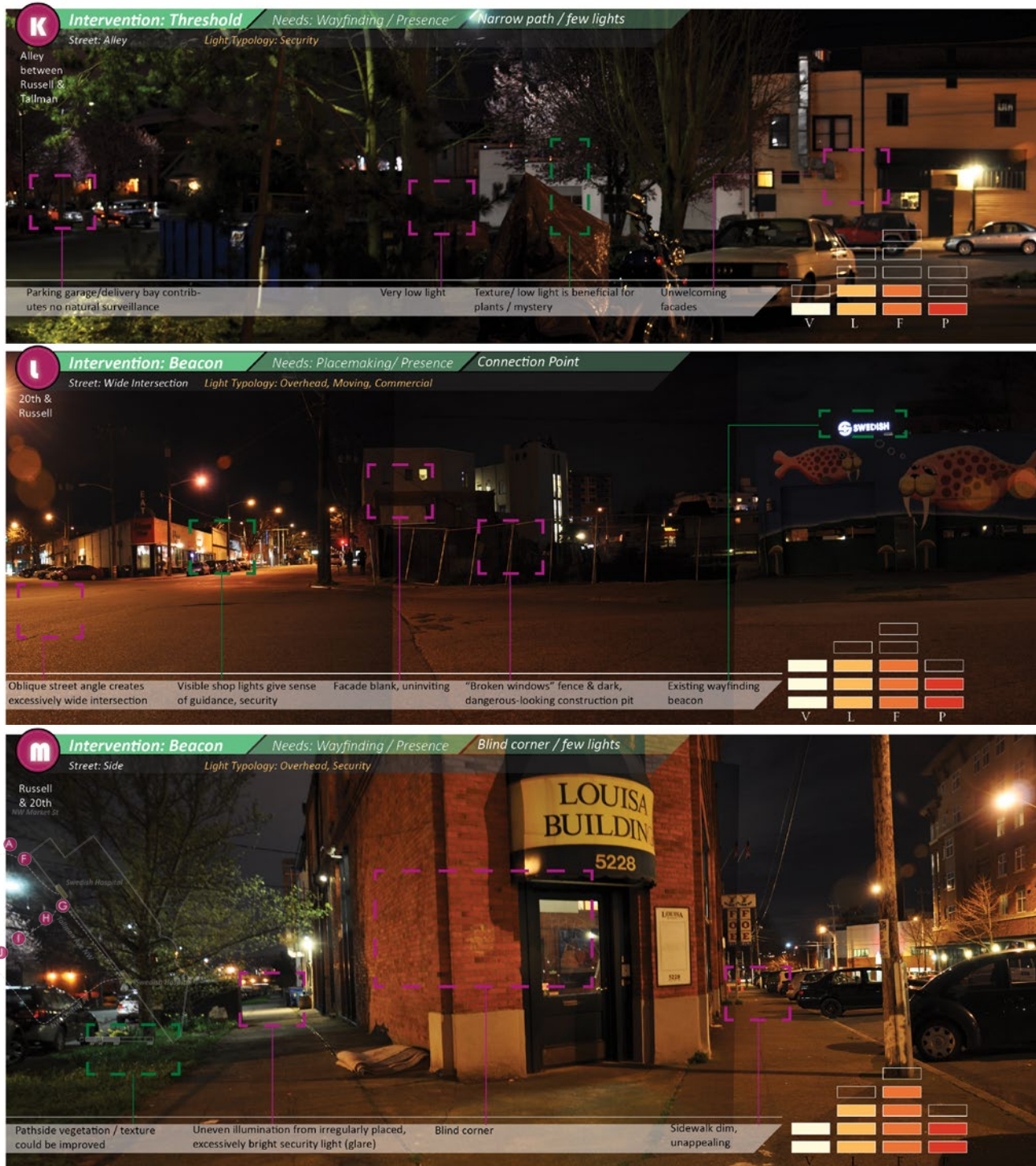


Figure 9-131.
 Points K-M
 analysis

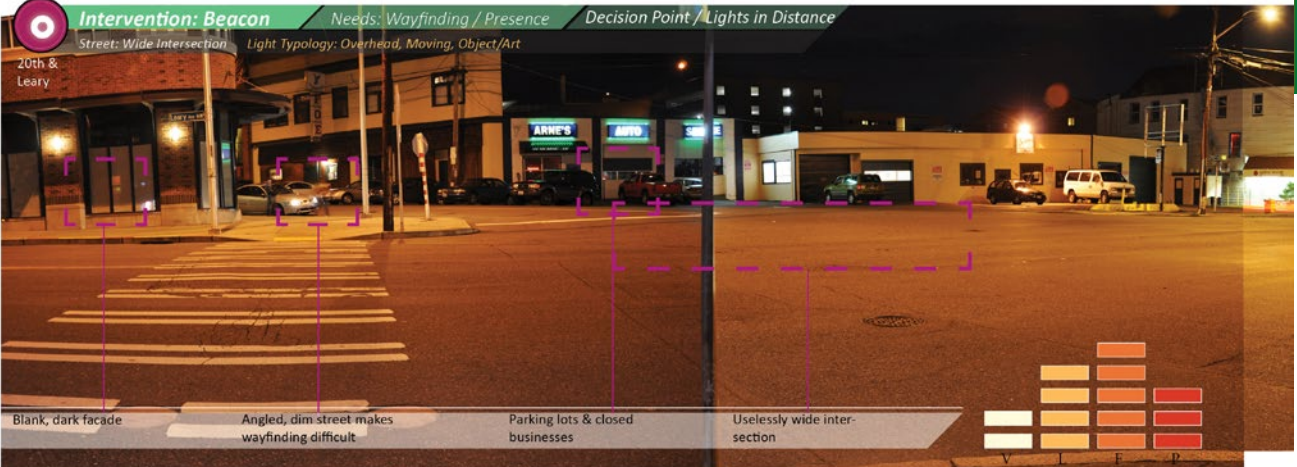
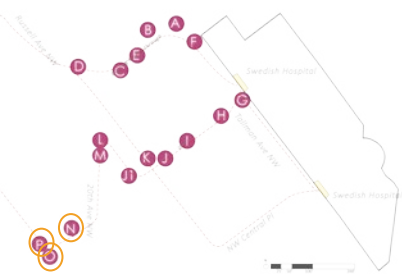


Figure 9-132. Points N-P analysis

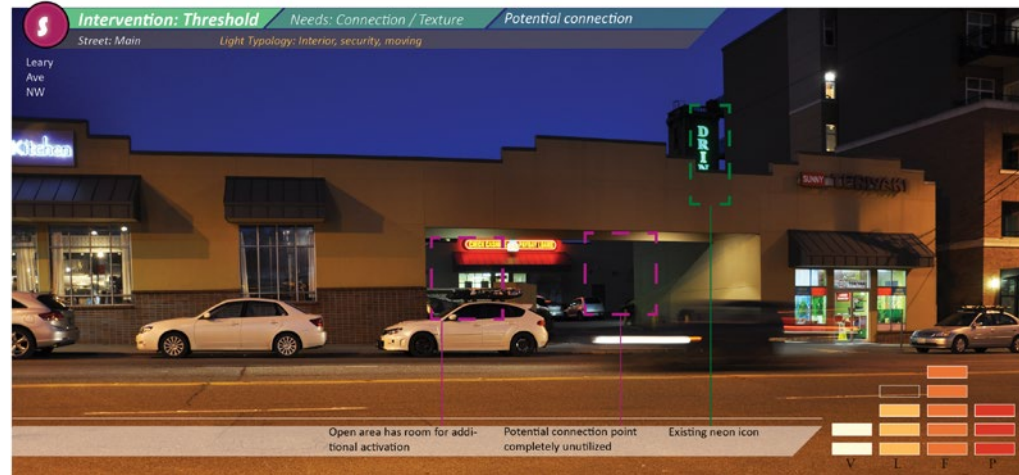
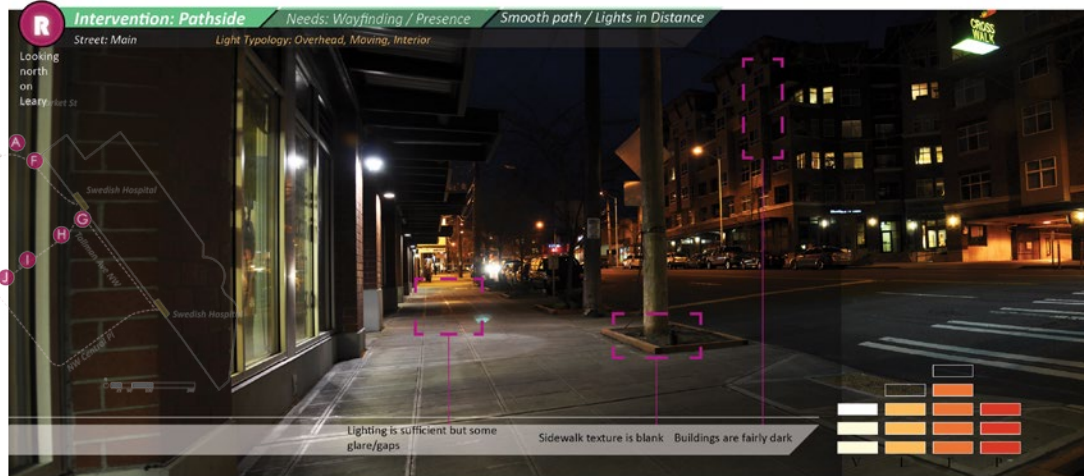


Figure 9-133. Points Q-S analysis

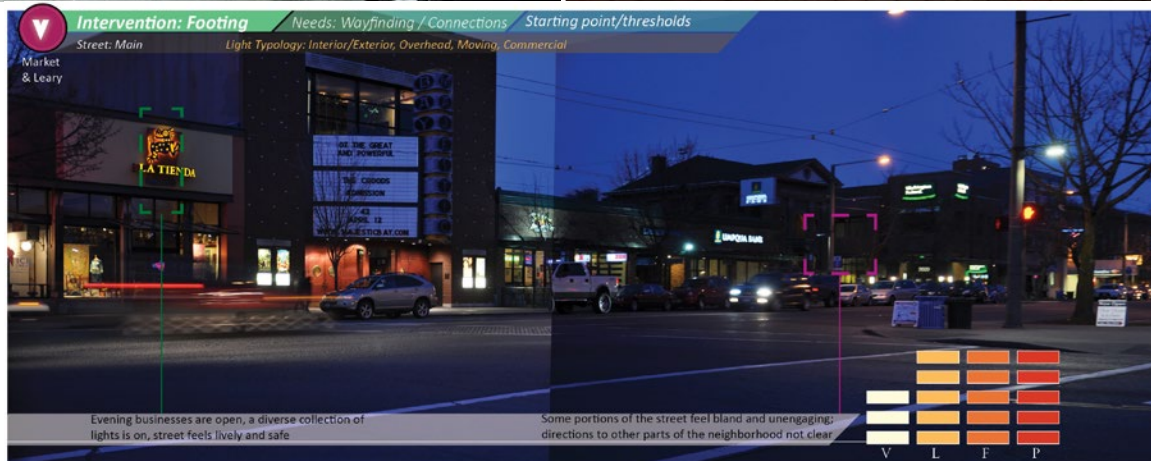
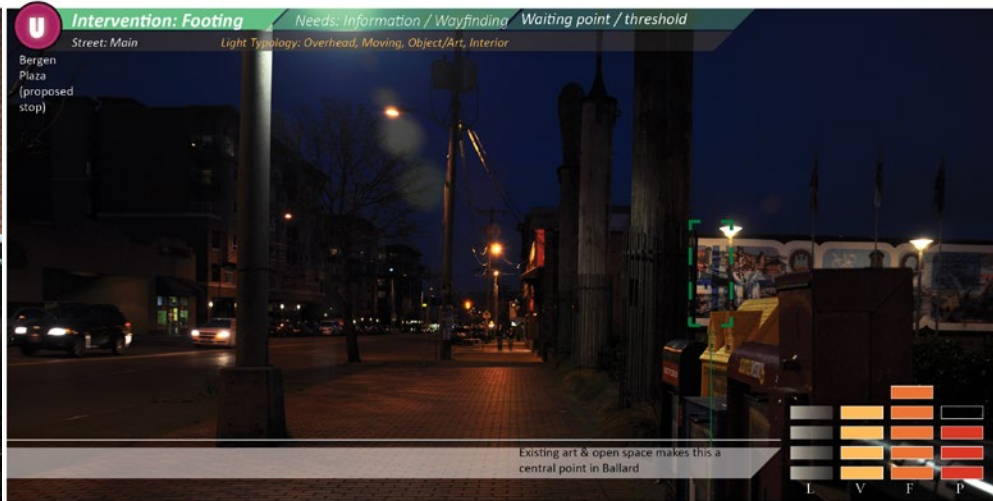


Figure 9-134. Points T1-V analysis

light survey

This survey was conducted over the course of a couple of hours in January 2014. It details the location and lighting type of each light or group of lights observed over the site. The results from this survey were then converted into the visual graphic shown in Chapter 5, page 89.

Lighting type	Location	Description	Num	Spacing
HPS street light	20th between Market & Leary W side		6	~65'
	Russell Ave W side		2	~70'
	Leary Ave NW, southwest side		3	~65'
	Leary Ave NW, northeast side		4	~65'
	20th w side of street		4	?
	Russell, E side by parking garage		2	?
	Tallman, E side	white street lights, not LED	5	?
	20th btwn Russell & Ballard Ave		3	only on N side of street - s side feels
	Vernon btwn Russell & Ballard		1	mid-block, illuminates street pretty
	traffic light	Market & Leary - 4 sides		4
Leary & 20th		flashing crosswalk signal	1	
bright fluorescents	Russell before 20th	bright garage entrance	1	
	Russell se of 20th	parking garage for swedish		
	Tallman	emergency entrance to Swedish	1	main source of illumination for bloc
	Tallman	parking garage for swedish - stairwells	2	
wall sconces	Russell SW side			
	E side of 20th @ Leary	by parking lot	?	
	20th w side		10?	~15'
	Russell, w side, south of 20th	security lights, not too bright	2	
	NW Central Pl, n side	very yellow security lights, not strong shadc	?	
white LED street	Vernon btwn Russell & Ballard	small historical-style lanterns	4?	confirm #? - seem to be placed by at
	20th Ave @ Russell		1	
commercial signage	Market		5	
	Barnes Ave NW - visible from many points	Swedish hospital sign	1	
	20th w side by Russell	Uma restaurant	1	
	Russell SW side off Market	Firehouse restaurant	1	
	Russell NE side off Market	Sparkee Cleaners	1	
	20th e side by Vernon	auto repair sign (bright)		

Table 9-1. Light survey

Lighting type	Location	Description	Num	Spacing
interior lights	Leary south to NW Vernon	storefronts	?	
	Leary - senior center	low level		about 20' stretch?
	Leary Ave NW south end of block @20th	not too bright		closes early - 7? 8?
	Tallman, e side of street, by NW Central Pl	low level, curtains drawn	2	20-25'
	Russell btwn Central & Ione	4-story MFR - whichever apartments are lit	2	both sides of street (?) - no street-le
façade lighting	Russell btwn Central & Ione	building entrances	4	2 on each side of street
	Tallman - middle of block	ambulance bay marquee-style lights		off-road about 15'?
white Christmas	up and down Market		?	re-visit?
	Ballard Ave			
"shakkei" lights	Leary Ave NW parking lot on sw side by 20t	view of Magnolia lights	-	
	20th btwn Market & Russell	Swedish hospital sign	1	
	Vernon btwn Russell & Ballard	Swedish parking garage lights		
landscape lighting	Leary - nw side of street, MFR courtyard	landscape uplighting	4	6-8'
	NW Central Pl	4' high bright torchiere style	?	in 6' long viburnum bed

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