

Cultivating Urban Nature: Recontextualizing Perceptions of Nature in the Everyday Urban Experience

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Abstract

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This thesis explores how perceptions of nature can be cultivated in everyday urban experiences through design. By developing and utilizing the Nature Perception Design Framework based on Rachel and Stephen Kaplan's Reasonable Person Model (RPM) and Nature Perception Categories, I develop a diagrammatic master plan and more detailed site plan for an electrical utility right-of-way transecting nine blocks in the Greenwood neighborhood of Seattle, Washington. The proposal highlights the different forms that urban nature can take in people's perceptions. The designs developed for this site explore the design process through multiple scales and functions. They model how the framework is utilized and could be implemented beyond the confines of this case study.



CULTIVATING URBAN NATURE

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1. Introduction

As someone who always lived in urban areas growing up, I had few chances to experience the great outdoors (or the idealized idea of Nature with a capital “n”). My everyday experience of nature consisted of neighborhood parks, weeds that sprouted through sidewalk cracks, the local beach, plants in my backyard, and the occasional field trip to more natural locales further out from the city. My appreciation for and relationship with nature continued to grow even though my exposure was primarily limited to urban settings. Thus, my conception of nature has never been divorced from humans. Nature has always been something that has been there alongside me. Though I see nature as ephemeral, multi-faceted, and up for interpretation, not everyone perceives it in the same way.

Definitions of what is considered nature are contentious, varied, and have shifted through the ages (Cronon 1996a; Evernden 1992). A person’s concept of nature is dependent on culture, context, and personal connection. People have a sense of nature but may have difficulty expressing exactly what it means to them. Is it in the flowers they water every day on their windowsill? Is it in the tree-lined streets they pass during their lunchtime walks? Is it in the mountains they backpack through every summer? Is it in the persistent green that seems to inevitably peek through cracks in concrete? The uncertainty of its definition brings forth many questions, the most central of which is: are humans a part of nature or separate?

The nature of nature: a brief background

People often understand nature as an overarching idea or as the actual reality that said idea encompasses. Neil Evernden (1992), professor of environmental studies, distinguishes between the idea or system of nature and the colloquial sense of being in the natural world by referring to the former with capitalized “Nature” and the latter with lowercase “nature.” It is a commonly understood but rarely verbalized belief that Nature is “a world devoid of the properties we associate with humans – in short, devoid of subjectivity” (Evernden 1992, 50). In this regard capital “n” Nature is understood as an untainted entity which operates objectively and outside the reaches of human influence.

The human/nature dichotomy is tied to the question of whether people’s conceptions of nature include them. The meaning of nature originally encompassed everything but evolved to meaning everything except a certain something (like God) (Evernden 1992). During the Renaissance, human qualities and previous ways of knowing nature were excluded from Nature. Nature moved “from a nature of symbols and sensibilities to a Nature of certainty and reason” (Evernden 1992, 78). Nature became an objective concept, untouched by the subjectivity that defines the human experience. The validity of that opinion has been called into question with scholarship exploring the relationship between nature and humans. In his essay “The

trouble with wilderness; or, Getting back to the wrong nature,” historian William Cronon (1996b) questions the notion of wilderness as divorced from human presence as historically inaccurate. He argues that this idea creates a dualism that allows us to not take responsibility for our actions since nature is seen to be something outside the sphere of our everyday lives. Though wilderness and nature have different implications, the basic idea is the same: our social and cultural values and histories are inherently tied to our perceptions of nature.

Nature as a dynamic, cultural construct

Two key insights from research about the concept of nature: (1) the natural world is more dynamic, changeable, and entangled with human history than previously believed and (2) nature is more a human construction than a natural entity (Cronon 1996a). According to the work of environmental historians, humans have been manipulating ecosystems for as long as there have been records (Cronon 1996a). Many contemporary commonly held beliefs stem from the premise “that nature is a stable, holistic, homeostatic community capable of preserving its natural balance more or less indefinitely if only humans can avoid ‘disturbing’ it” (Cronon 1996a, 24). This erroneous belief can be traced back to the views of early American ecologists at the turn of the twentieth century (Cronon 1996a). They believed that ecosystems evolved towards a natural climax community that, once reached, would stay in stasis unless something disturbed the system. Other scholars also refuted this idea of nature as static and moving towards an idealized end goal. According to geography scholar Lenore Newman (2005), nature and culture are interrelated subsystems of one whole that evolves dynamically. They continue to change

as they shape and are shaped by each other.

While nature is a dynamic concept tied to human history, it is also an idea that has been shaped by our cultures and values. Nature can be easily identified but “the way we describe and understand that [nonhuman] world is so entangled with our own values and assumptions that the two can never be fully separated” (Cronon 1996a, 25). Even if we wanted to visualize conceptualize nature as a separate entity, the very act of engaging with it mentally or verbally brings in our subjectivity. Instead, they “are cultural constructions that reflect human judgements, human values, human choices” (Cronon 1996a, 26). As an idea of our own creation, we cannot divorce nature from us nor from the landscapes it in which it occurs. Landscape architect Joan Nassauer muses on the role of culture and ecology in where and how nature could be situated in the landscape:

Where nature should be in settled landscapes to improve their ecological function is a critical question for which landscape ecology suggests answers. Where nature can be in the enormously complex but fundamentally pragmatic cultural process of making places is equally fundamental. Science may give us normative criteria for new landscape patterns, culture will give us the realized design. (1997b, 5-6)

One such place where nature and culture can come together is in cities.

Nature and cities

How can nature be reconsidered in the contemporary world? With the trend of people migrating to cities, our primary contact with nature is increasingly through urban

Table 1.1 Comparing nearby nature and mundane nature

Type of nature	Forms	Description	Source
Nearby nature	Edge Links Elevated	Nearby nature is nature that is physically or mentally close. Nature at edges define boundaries. Nature as links connects spaces. Elevated nature utilizes verticality.	Kaplan, R., Ivancich, De Young (2007)
Mundane nature	Remnant Accidental Cultivated	Mundane nature is found at the boundary of nature and culture. Remnant nature occurs in leftover spaces. Accidental nature is ephemeral and appears in abandoned spaces. Cultivated nature are industrial or agricultural applications of urban nature.	Newman and Dale (2013)

nature (Dunn et al. 2006). Though the common convention skews towards conceptual separation, studies suggest a more holistic relationship between nature, people, and cities (Beatley 2011; Hough 2004; Michael 2017; Short and Benton-Short 2013). Landscape architect Michael Hough (2004) argues that there is an inseparable link between nature, cities, and sustainability. He describes some design principles that shape urban form which have come from insights from urban ecology and urbanism: process, economy of means, diversity, connectedness, environmental education begins at home, making the most of opportunities, making visible the processes that sustain life (Hough 2004). These dynamic principles link different scales and elements that comprise urban landscapes. Further, geography professors Lisa Benton-Short and John Rennie Short (2013) suggest that cities are hybrid spaces uniting the natural, social, and socio-economic flows that characterize contemporary society. They call the city “an environmental and a social construct” where “emergent connections between the political and the ecological are revealed and contested” (Short and Benton-

Short 2013, 2). This idea of the city as an environmental and social construct mirrors nature’s position as a cultural construct. They both shape and are shaped by us with their metaphorical and physical proximity.

Nearby nature, mundane nature

Nearby nature and mundane nature are facets of nature that are overlooked, underappreciated, and long overdue for renewed focus (Kaplan, S. and Kaplan 1989; Kaplan, R., Ivancich, and De Young 2007; Newman and Dale 2013). They may be the seemingly spontaneous flowers that sprout from cracks in the pavement or the tree one passes by every day when walking to school or work. **Table 1.1** compares the forms that each can take.

Nearby nature is defined by its physical or mental proximity. Proximity to green spaces is important to how much people use or interact with the space; the closer the space is, the higher the proportion of interaction (Van Herzele and Wiedemann 2003). Environmental

psychologists Rachel Kaplan and Raymond De Young and computer scientist J. Eric Ivancich (2007) introduce opportunities for incorporating bits of nearby nature by framing nearby nature into three broad categories: nature at an edge, nature links and spaces, and elevated nature. These categories demonstrate specific forms that nearby nature can take in cities. Nature at an edge defines boundaries while still providing positive benefits. This kind of nature can take the form of hedges, corner plantings, or plantings in transitional spaces. Nature as links and spaces gives the chance for a moment of respite which can take the form of a well-placed bench, courtyard, or planted corridor. Elevated nature incorporates the vertical propensity of urban environments in the form of window boxes or roof gardens that can provide a surprising yet welcome view of nature. These forms of nearby nature would be incorporated into planning for increased urban density. With increasing urban density, there may not be large pieces of land available for more significant expanses of green space, so nearby nature fills an important and growing need. Nearby nature provides positive benefits like opportunities for exploring, walking, respite, social interaction, privacy, and weather protection (Kaplan, R., Ivancich, and De Young 2007) and has “the capacity to promote reasonable behavior, foster community, and bring joy to people’s lives” (Kaplan, R. and Kaplan 2005, 290). Though nearby nature may consist of spectacular views, it may just as easily be everyday views that are unnoticed and underappreciated.

Mundane nature includes the sort of nature we pass by every day. Though their natural forms stand out against the built urban environments, they are simultaneously invisible to us. Three forms of mundane nature are found

at the boundary of nature and culture: remnant nature, accidental nature, and cultivated nature (Newman and Dale 2013). Remnant nature is found in leftover spaces such as undevelopable land. Accidental nature is ephemeral and found in vacant lots and other abandoned spaces. Cultivated nature is industrial or agricultural manifestations of urban nature like rooftop gardens or urban rearing. Scholars Lenore Newman and Anne Dale describe how mundane nature in cities are overlooked: “The nature found in the hybrid spaces created by human cultures is very different from our collective conception of ‘wild.’ It is a mundane nature; the nature found in the corners and forgotten spaces of our cities” (2013, 403). This captures the strange, liminal space that mundane nature occupies in cities – neither “wild” nor “human” and connected to yet invisible in the spaces we have created.

Mundane nature has the capacity to connect us to larger systems at work. Newman and Dale (2009) argue that increased mundane nature can strengthen ecosystems and social relationships as well as reconnect us with the ecosystems that support us. They also argue that mundane nature can have impacts far beyond the reaches of its humble appearance:

Sites of mundane nature serve as third spaces with a difference; they allow us to reconnect to our animal nature and better understand ourselves and our relation to the larger world. A city that fully engages with its mundane nature could over time evolve to a place less single-mindedly wedded to the nature/culture duality, moving to more and more regeneration of critical landscape features necessary to ecosystem and human wellbeing. (Newman and Dale 2013, 406)

In their view, increasing the value of mundane nature will increase the integration of nature and culture (Newman and Dale 2013). By using the connections that mundane nature embodies, we can better understand, relate to, and find deeper meaning in the systems that we inhabit.

Integrating nature with landscape architecture and design aesthetics

According to a recent United Nations Report, 68% of the world's population is projected to live in cities by 2050 (United Nations Department of Economic and Social Affairs 2018). Urban areas will keep growing as people continue to seek the economic prospects, human capital, and vibrant cultural opportunities that urban settings offer. With the continued influx of people, we must ask ourselves how this affects the quality of life for those who live or are planning to relocate to cities. Increased population density has negative effects on well-being (Evans 2003). Nature, with all the greenery it can entail, buffers negative aspects of living in cities which include feelings of over-crowdedness, pollution, and the gray drabness characteristic of many urban landscapes (Evans 2003; Michael 2017; Nowak, Crane, and Stevens 2006; Ulrich 1981).

The concept of nature is necessary from sustainable and human health perspective. Numerous studies point towards the physical and mental benefits of nature (Berman, Jonides, and Kaplan 2008; Kaplan, R. and Kaplan 2005; Kaplan, S. and Kaplan 1989), but as important as nature's benefits are to humans, it also provides processes that don't directly benefit us. Nature is an essential part of our world and for our cities to continue to thrive, nature must be better re-integrated into its folds (Marx 2000).

Through countless attempts to control natural processes, we have come to see that we aren't always able to comprehend nor contain the forces of nature (McPhee 1989). Perhaps the key is to reexamine the scale at which we understand and shape the world. Landscape architecture is one way to understand these issues since it is about examining context and understanding spatial dynamics at scales from the global to the material. Our approach to and understanding of nature should be similar – the experience of nature can be all encompassing to the minute, lone weed sprouting where it is least expected. Typical development strategies of urban areas prioritize the development of buildings and infrastructure at the cost of nature and green spaces. But, as we learn more about the positive benefits that nature provides to well-being, we have come to a clearer understanding of the necessity of nature in cities (Beatley 2011; Short and Benton-Short 2013). Nature provides a physical, cultural, and figurative way to connect the places we live in as well as inform the ways we interact with each other. The profession of landscape architecture, with its wide knowledge base and understanding of the process of facilitating connections, is poised to help nature be the essence that helps to connect cities to us and us back to cities and the landscape as a whole.

Aesthetics, expectations, and finding meaning

Perceptions of aesthetics, care, and ownership shape how people view and relate to the landscape. People develop more of a preference for something the more they are exposed to it through a psychological phenomenon known as “the mere exposure effect” (Zajonc 1968). This can be extended into our perceptions of place; the more we are exposed to features that comprise a space, the more we

develop preferences for them.

Aesthetic qualities are arguable the first things that people notice in landscapes and are important in how they perceive spaces. Joan Nassauer makes a distinction between beautiful landscapes and attractive landscapes, explaining that “we are deeply attached to beautiful landscapes, and we have strong cultural conventions for how an attractive landscape should look” (1997a, 67). While landscapes we consider beautiful fit with scenic aesthetic conventions, attractive landscapes follow aesthetic conventions for care (Nassauer 1997a). The scenic aesthetics draws from the legacy of the eighteenth-century picturesque in which nature is beautiful yet controlled. Even though a landscape may display the scenic aesthetic, it doesn’t mean that is ecologically healthy. The display of care aesthetic comes with the tension between making things appear cared for yet not manicured.

An important part of landscape management is managing expectations for a landscape’s aesthetic appearance within a cultural context. According to Nassauer (1995), for ecological functions to be well-integrated in the landscape, they must be recognizable within the context of cultural values and expectations. In other words, people must recognize ecological functions on a personal or cultural level in order to develop a relationship with them or find any sort of meaning in them. It’s not only about how landscapes look but how they are supposed to look. This also applies to the care or meaning that people perceive from places. For people to care about places, their spaces should be perceived as cared for by someone. Ownership, whether legal or perceived, is another important factor in whether people take care of something. Nassauer writes: “Landscapes that are ecologically sound, and

that also evoke enjoyment and approval, are more likely to be sustained by appropriate human care over the long term,” describing such dependence on human attention as “cultural sustainability” (1997a, 69). She argues that by aligning the aesthetic experience with ecological health, we can create new cultural expectations for ecological health while also building landscape ecological structure. By understanding the roles that aesthetics and expectations play in how people relate to landscapes, we can better design places that will be appreciated and cared for. This understanding can be extended to designing for urban nature.

Design Intent

The central question of my research and design explorations is: how can the perception of nature be cultivated in everyday urban experiences through design? Currently, there is a vernacular view that nature is an entity that is divorced from the workings of human society (Cronon 1996a). There has been much research questioning the validity of this dichotomy. Though I have discussed the idea of nature at length, my focus is on our perceptions of nature as it manifests itself in physical reality rather than on what nature is as an idea. I show that by using design, we can bridge this perception gap and bring back nature as an everyday part of the urban experience. Related topics that I explore are how overlooked landscapes can be brought back into focus and how underutilized urban lands can be designed to increase connectivity to green spaces. This thesis (1) develops a design framework for how perceptions of nature can be incorporated into the everyday experience, especially in the urban context, (2) demonstrates the use of the design framework by applying it to a site design, and (3) synthesizes experiences at the

intersection of nature, design, and perception.

My design framework allows designers to address nature perceptions in a more structured and coherent manner. The Nature Perception Design Framework (NPDF) can be used to guide the process of cultivating people's sense of nature in urban settings and highlighting its different facets. It integrates subjective perceptions of nature into a more formal framework, bringing flexibility into structure. I apply the framework to a design case study on a utility corridor in the Greenwood neighborhood of Seattle, Washington. I develop a diagrammatic master plan for the entire nine-block right-of-way but explore specific design interventions for two block typologies that draw directly from the NPDF. The space allows people to reinterpret nature to which they may be oblivious and acts as part of a network to connect to other open spaces. My designs encourage people to encounter different facets and forms of nature and thus draws attention to the roles nature plays in their everyday lives even if these may not always be obvious. My design developed through the NPDF is one proposal among many possible options to challenge our preconceptions of and cultivate meaningful interactions with nature.

Though one of the outcomes of my thesis is a proposed site design, I am interested in how the NPDF could be used in different scales and contexts to recontextualize perceptions of urban nature. Due to the structure of the NPDF, my design is the product of my own perceptions of nature and as such represents one option in a vast landscape of possibilities. When used by someone else, the framework will produce something completely different yet still be perceived as urban nature. My thesis is also an exploration of the iterative design process and how

inspiration can be sparked from structure. A structured framework, much like cracks in the urban environment, can inspire how we see and interact with nature around us.

2. Methodology

	Helpful to objective	Harmful to objective
Internal to site	<p>Strengths</p> <p>Elements within the site that are assets</p> <p>Ex: sculptural elements, existing plantings, historical context, current usage</p>	<p>Weaknesses</p> <p>Elements within the site that are disadvantages</p> <p>Ex: steep slopes, feels uncared for, narrowness, need for car access, SCL maintenance needs, easy to overlook</p>
External to site	<p>Opportunities</p> <p>Elements off-site that are assets and possible opportunities</p> <p>Ex: proximity to other resources, borrowed views, lack of nearby green spaces, single family home context</p>	<p>Threats</p> <p>Elements off-site that are disadvantages</p> <p>Ex: next to major arterial, some high traffic on non-arterial streets, lack of sidewalks</p>

Figure 2.1 SWOT analysis matrix

One of primary goals of my thesis is the development of a design framework that guides the cultivation of urban nature: the Nature Perception Design Framework (NPDF). The framework relates design and people's perceptions of nature through Nature Perception Categories which I developed from the literature on perception, categories, and interpretations of nature and from precedent studies. SWOT analysis is also used to understand the context of the site.

SWOT analysis

SWOT analysis is a strategic planning technique to identify the Strengths, Weaknesses, Opportunities, and Threats to a system. Though typically used in business or project planning settings (Panagiotou 2003), I have adapted it as a form of site analysis; in the context of the design framework, the site will be the system I examine. It is important to understand that how each criterion is analyzed depends on what the designer considers to be the objective of the design. Depending on the design goals, the analysis of the same site would shift.

The four SWOT analysis criteria are considered along two axes: how helpful or harmful each is to specific objectives and whether they are internal or external to the system (Figure 2.1). Strengths refers to elements within a site that are assets. This can include sculptural elements, existing plantings, historical context, and current usage.

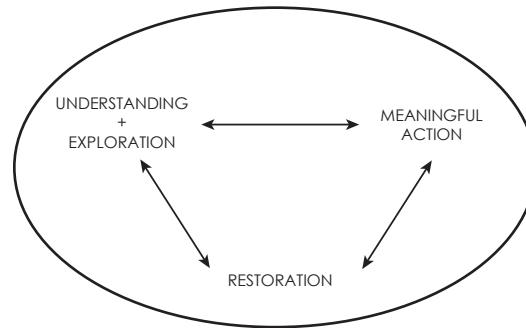


Figure 2.2 Reasonable Person Model (adapted from Kaplan, R. and Kaplan 2005)

Weaknesses are elements that are disadvantages which can include steep slopes, the feeling of being uncared for, or the need for car access. Opportunities are off-site elements that are assets and provide possible opportunities. They include proximity to other resources, borrowed views, or a single-family home context. Threats are external elements like high traffic and lack of sidewalks that are negative. Performing a SWOT analysis provides a structured assessment of site opportunities and constraints.

Theoretical framing

I used two primary sources for scaffolding the NPDF: the Reasonable Person Model (Kaplan, R. and Kaplan 2005) and Nature Perception Categories. Literature about perception, categorization, and reimagining nature as well as precedent studies contributed to the development of the Nature Perception Categories (Clément 2004; Kaplan, S. and Kaplan 1989; Kowarik 1992; Mozingo 1997; Odum 1969).

Reasonable Person Model

The Reasonable Person Model (RPM) was developed by environmental psychologists Rachel and Stephen Kaplan and is a framework for understanding human actions and convictions based on informational needs (Kaplan, R. and Kaplan 2005). It posits that “people are more reasonable when the environment supports their basic information needs” (Kaplan, R. and Kaplan 2005, 273). It is a way to understand people’s behavior through the lens of environmental factors and addresses people’s connections to each other and to their environment. In this framework, information is the means through which people understand and ultimately act in their surroundings. RPM is composed of three interrelated elements: understanding and exploration, meaningful action, and restoration (Figure 2.2).

Exploration and understanding are about making sense of and navigating a space. This element can be expanded upon by the preference matrix, also developed by Rachel

	Understanding	Exploration
Immediate	Coherence	Complexity
Inferred	Legibility	Mystery

Figure 2.3 Preference matrix (adapted from Kaplan, R. and Kaplan 2005)

and Stephen Kaplan, by adding in degree of inference. By organizing understanding and exploration on one axis and degree of inference on the other, it attempts to explain people’s preferences with the four preferences that emerge: coherence (immediate understanding), complexity (immediate exploration), legibility (inferred understanding), and mystery (inferred exploration) (Kaplan, R. and Kaplan 2005) (Figure 2.3). A place does not need to be new to be a candidate for exploration; as the Kaplans clarify, “even very familiar places, for which we have considerable understanding, can continue to invite exploration” (2005, 276).

The second element of RPM is meaningful action which addresses the needs of people to participate and play purposeful roles, especially when contributing to larger goals (Kaplan, R. and Kaplan 2005). Meaningful action can be a strong force in the attachments people form to places. The act of active participation gives people a sense of investment in a place. The Kaplans express how certain places can encourage us to contribute in meaningful ways: “Special places, places for which we have a strong attachment, are likely to be ones where we are invested in meaningful action. They are places where we can feel needed, where our participation can contribute to their

long-term viability” (2005, 279). However, while special places may inspire meaningful action, such action may be the catalyst that develops place attachment.

The final element of RPM is restoration which refers to resting one’s directed attention. This stems from the Kaplans’ work in attention restoration theory that posits people are able to more effectively process information if they have a chance to rest their directed attention through restorative environments (Kaplan, S. 1995; Kaplan, S. and Kaplan 1989). Other components of attention restoration theory include directed and involuntary attention. Directed attention involves voluntary effort to stay focused while involuntary attention is attention that requires no effort, often with the help of fascination (Berman, Jonides, and Kaplan 2008; Kaplan, S. 1995). Fascination, which may manifest itself as soft fascination in certain natural contexts, can provide opportunities for reflection which also allows for rest from directed attention (Kaplan, S. 1995; Kaplan, S. and Kaplan 1989). Along with fascination, the Kaplans propose three other components essential to restorative environments: being away, extension, and compatibility (Kaplan, S. and Kaplan 1989). Being away involves being psychologically removed from one’s issues which frees one from the directed attention that normally goes towards dealing with those mental processes. Extent refers to an immersive, coherent, and engaging environment with enough scope to engage one’s mind. Compatibility involves how individuals fit into their environment, “where one’s purposes fit what the environment demands... [and] the environment must provide the information needed to meet one’s purposes” (Kaplan, S. 1995, 173).

Since prolonged mental effort from directed attention can

cause fatigue, exposure to nature is one way people can restore their mental state (Kaplan, S. 1995). The Kaplans propose that “the natural environment has a particularly strong restorative effect for many people” (2005, 278). This helps to explain why so many people feel drawn to natural settings, especially when they experience mental stress. Other studies support the mentally restorative effects of interacting with nature, even in relatively passive capacities (Berman, Jonides, and Kaplan 2008).

RPM brings together how we perceive the world and how we act in it. Figure 2.4 shows how the elements of RPM contribute to active or passive interactions between people and their environment. Meaningful action tends to lead to more active interactions while restoration leads to more passive interactions. Understanding and exploration contains attributes of both active and passive interactions.

RPM is a useful theoretical scaffolding for developing the NPfD design framework because it connects the way people process information, and their resulting subjective perceptions of nature, with everyday landscape experiences.

Reimagining nature

When asked to visualize what nature looks like, common responses include parks, wilderness, or other places that appear primarily natural. However, as the environment continues to transform with climate change and urbanization, this ideal image of nature may become a thing of the past. Thus, there is a need to explore alternative visions of how our concept of nature will continue to evolve. Some of these models come from a European context and are influenced by environments



Figure 2.4 Interaction types of the Reasonable Person Model elements

that have been shaped by post-World War II development (Clément 2004; Kowarik 1992).

The following interpretations of nature reintegrate parts of the landscapes that have been overlooked, forgotten, or underutilized, yet still existing at the periphery of perception; they are “Third Landscapes”, “nature of the fourth kind”, and “drosscapes.” The term Third Landscape was coined by landscape architect Gilles Clément to describe spaces leftover by humans in which the landscape evolves through nature (2004). They include leftover, transition, neglected spaces, swamps, roadsides, and embankments. They also include set aside spaces like inaccessible places, barren land, and national parks. Clément (2004) goes as far as to describe the Third Landscape as “the genetic reservoir of the planet, the space of the future.” Due to its wild and spontaneous character, “the Third Landscape forms a privileged area of receptivity to biological diversity,” acting as a reservoir of biological capital (Clément 2004). Similarly, the idea of

“nature of the fourth kind” builds on the idea of nature that develops in leftover spaces. Ecologist Ingo Kowarik (1992) introduced the idea of nature of the fourth kind in “The Four Natures approach.” The Four Natures conceptual framework structures and communicates different types of urban green spaces without implicitly valuing one kind of nature over another (Kowarik 2013). In this framework, he separates nature into four kinds that can support urban wilderness. Nature of the first kind are remnants of pristine landscapes that still exist. These include environments like mostly undisturbed forests or wetlands. Nature of the second kind consists of agricultural land. Nature of the third kind consists of designed urban green spaces like parks or gardens. Finally, nature of the fourth kind, which Kowarik argues is the most characteristic type of nature in the post-war urban landscape, are spontaneous, wild, urban ecosystems that can develop in places like wastelands or vacant lots. As cities have cycled through economic, industrial, and urbanized change, wastelands have formed through urban sprawl and economic and productive forces (Berger 2006). “Drosscape” is a design

framework that describes an emphasis on reintegrating and reusing waste landscapes back into the urban fabric (Berger 2006). It takes overlooked, wasted landscapes and reenvisioning how they can be transformed into more productive spaces. Landscape architect Alan Berger describes the term as dross (waste) and scaped (resurfaced) being recombined through human intent (2006).

These views of how nature can be understood in urban landscapes inspire ideas about the forms that nature can take when no longer confined to the idea of being natural. They suggest that nature can be comprised of facets that aren’t traditionally thought of as natural. These can be wild, spontaneous, neglected, and parts of leftover landscapes. Nature can exist beyond the physical and figurative bounds that we have placed around it. One way nature manifests itself is through landscape designs that challenge the common assumptions of what nature should look like. Figures 2.5 to 2.8 show precedents that explore the forms that urban nature takes.

Precedents



Figure 2.5 Crack Garden (source: CMG Landscape Architecture)

Crack Garden

Designer: CMG Landscape Architecture

Location: San Francisco, CA

Size: 750 ft²

Completed: 1995

This project used a jackhammer to generate cracks in a concrete slab and planted in the cracks (Figure 2.5). The cracks expose the soil underneath thus creating the possibility for a garden to form. The project was inspired by the natural resilience of plants that colonize cracks that form in the urban landscape. The formal lines of the cracks contrast with the random, mixed plantings of herbs, vegetables, flowers, and weeds. The cracks reveal the potential for beauty that lie under the concrete.



Figure 2.6 The High Line (source: Iwan Baan)

The High Line

*Designer: James Corner Field Operations (Project Lead), Diller
Scofidio + Renfro, and Piet Oudolf*

Location: New York City, NY

Size: 6 acres

Completed: 2009

The High Line is an iconic adaptive-reuse project that transformed a 23-city block-long elevated railway into a linear public space with distinctive paving, furnishing, and plantings (Figure 2.6). Before redevelopment, the High Line was an abandoned elevated railway that was seen as an eyesore but had become home to thriving wild plant communities. The design takes inspiration from the nature that sprouted forth from this forgotten leftover space. It is a project that reimagines how nature and industrial spaces can be intertwined, creating something beyond what people usually consider nature.



Figure 2.7 Freeway Park (source: Freeway Park Association)

Freeway Park

Designer: Lawrence Halprin and Angela Danadjieva

Location: Seattle, WA

Size: 5.2 acres

Completed: 1976

Freeway Park was the first park to be built over a highway, sitting on top of the Interstate 5 (Figure 2.7). Concrete, plants, and water are the building blocks of this project. Spaces are defined by concrete architectural forms which shape plazas, pathways, and fountains. The contrast between soft greenery and brutalist concrete architecture make the space feel urban yet natural. The combination of concrete and plants is one form that urban nature can take.



Figure 2.8 Albertson Parkway (source: Friends of Santa Teresa Park)

Albertson Parkway

Designer: Callander Associates (CALA)

Location: San Jose, CA

Size: 2.6 acre

Completed: 2009

The Albertson Parkway is a 0.5-mile trail that runs under a powerline easement (Figure 2.8). Before the trail was re-designed, it was straight, unlandscaped, and frequently a site of dumping and graffiti. The parkway was designed to be more winding and include interpretive signage. The project show how infrastructure and nature can be integrated.

Categorizing nature

Perception, preferences, and categorization are interrelated and help us understand the world around us. They help us understand nature as well. Preferences are often seen as subject to a person's specific tastes and as such can be inconsistent and subjective. According to the Kaplans (1989), preferences provide a basis for understanding perception categories. Empirically based categories are described through two types though subjects can overlap: content and spatial configuration (Kaplan, S. and Kaplan 1989). Content-based categories are often easy to identify and handle a specific object or elements. Spatial configuration categories deal with how elements are arranged in space whether physical or implied. Factors that influence categorization include human signs in natural environment, domain, and familiarity (Kaplan, S. and Kaplan 1989). Research suggests that the degree of human influence is an underlying component of perception in regards to content-based categories (Kaplan, S. and Kaplan 1989). Spatial configuration categories propose that we evaluate scenes in terms of possible actions and limitations. We look at spaces in terms of what they offer us and how we are able to function in them. The degree of openness and spatial definition are important for distinguishing nature categories (Kaplan, S. and Kaplan 1989).

One way nature could be categorized is by compartmentalization. Ecologist Eugene Odum's (1969) four compartment zoning model of landscapes is one way to understand categories. From Odum's perspective, environments are divided by their functional uses. The compartment model has four basic environments required by humans: urban-industrial, productive, protective, and

compromise environments. The basic idea behind the Compartment model is for "growth-type, steady-state, and intermediate-type ecosystems [to be] linked with urban and industrial areas for mutual benefit" (Odum 1969, 268). Urban areas are divided into these four categories to maintain regional and global balances of energy and material exchanges. Compartmentalization allows for multiplicity of use and limits the chance that one category will overtake others. Protective environments are mature systems or pristine areas such as national parks that provide basic life-support services such as air and water purification. Productive, or growth system, environments provide space for food production. Compromise environments are a middle ground between protective and productive environments. They are spaces of multiple uses that provide goods and services. Urban-industrial environments are nonvital systems that consist of environments where industry take place.

Another way to categorize nature is landscape architecture professor Louise Mozingo's four categories of ecological landscape designs: "preservation of existing, functioning ecological systems; enhancement or re-establishment of degraded ecological systems; intensification of ecological processes to mitigate potential or existing ecological degradation; and environmental interventions which reduce non-renewable resource consumption" (1997, 47). In Mozingo's framework the function of the ecological landscape design defines her categories.

Both Odum (1969) and Mozingo's (1997) categories are based on natural process functions. **Table 2.2** summarizes these categorization models. These distinct categories illustrate how preferences and function can shape the development of perceived nature categories.

Table 2.2 Categorization models

Model	Elements of Model	Description	Categorization Criteria	Source
Categories	Content Spatial configuration	Content-based categories deal with a specific object or element. Spatial configuration categories deal with how objects are arranged in a space.	Based on content	Kaplan, S. and Kaplan (1989)
Compartment Zoning Model	Urban-industrial Productive Protective Compromise	Different environments are divided by functions. Urban areas are compartmentalized into these four categories to allow for multiple uses and checks and balances. Urban-industrial environments are where industry take place. Productive environments produce food. Protective environments are mostly pristine systems that provide vital environmental services. Compromise environments serve to function between protective and productive environments.	Based on natural process functions	Odum (1969)
Categories of Ecological Design	Preservation Enhancement Intensification Intervention	Preservation deals with preserving existing ecological systems. Enhancement deals with bettering degraded systems. Intensification deals with reinforcing processes to handle degradation. Intervention deals with reducing non-renewable resources use through environmental means.	Based on natural process functions	Mozingo (1997)

They informed the development of my Nature Perception Categories.

Nature Perception Categories

Building from the previously explored work in **Table 2.2**, I have developed the Nature Perceptions Categories to explore how nature is perceived in urban contexts. Through observation and precedents I identified seven categories. Nature as: playspace, resilient, educational, productive, therapeutic, habitat, and natural. These categories are content-based though when used in conjunction with site design they also have spatial configuration implications. They conceptualize nature in ways that can be easily understood and defined based on their functions in urban environments. Design interventions that address each category could expand people's sense of what urban nature could look like.

Nature Perception Design Framework

The Nature Perception Design Framework is divided into four steps: Distillation, Exploration, Grounding, and Synthesis (Figure 2.9). RPM incorporates subjective perceptions of nature while SWOT analysis brings in site specificity into design proposals.

Step 1: Distillation – Categorizing Nature Perception Categories

The Nature Perception Categories are divided into “meaningful action” and “restoration” based on the designer's subjective ideas about nature and its functions.

Step 2: Exploration – Design Intervention Ideation

Design interventions are investigated or proposed such that they address each of the nature perception categories as understood through the lens of “meaningful action” and “restoration.” SWOT analysis information makes ideas site specific.

Step 3: Grounding – Addressing the Preference Matrix

Design ideas are evaluated based on how they address understanding and exploration by fulfilling the elements of the preference matrix. This step is an iterative process in which ideas are refined to address coherence, complexity, legibility and mystery.

Step 4: Synthesis – Final Design Proposal

In this step design elements are synthesized to create a comprehensive design proposal within the site.

The design framework formalizes a methodology for making design choices. The intention for this framework is to bridge the gap between theory and practice. Though designers may already be doing these steps informally, having a formalized method is helpful at times where one may be lost in the design process.

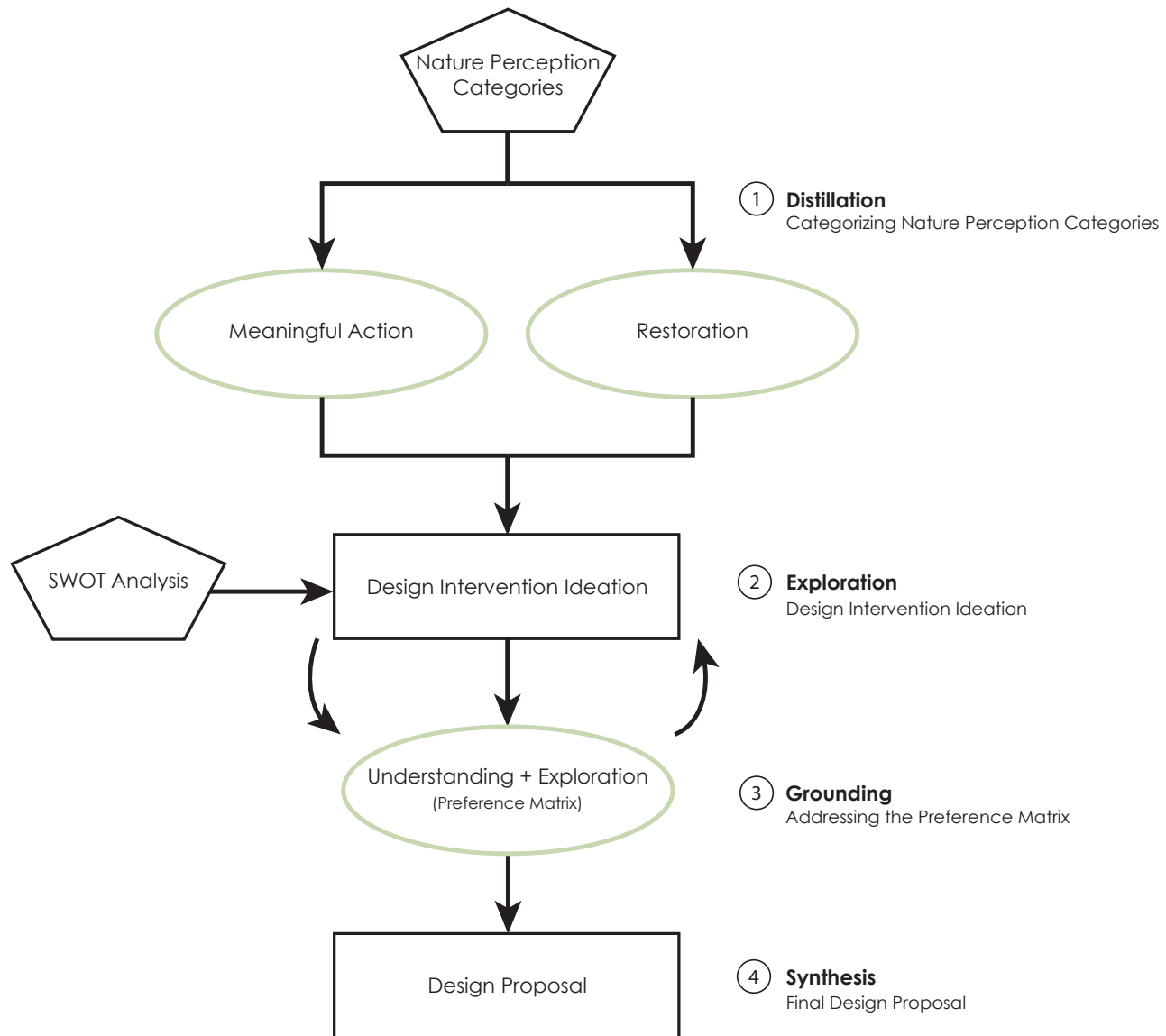


Figure 2.9 Nature Perception Design Framework

3. Site

A site grounds design ideas in reality and informs design decisions. The site analysis process informs the designer of current site context and conditions which influence how the design develops. This research helps to identify needs and possible constraints.

Site selection

I was interested in testing this framework in Seattle. I concluded that downtown and urban cores possess constraints such as lack of vacant space, traffic, and noise that inhibit the explorations I wanted to conduct. Therefore as a first test of the framework, I focused my search for a site on the lower density northern half of Seattle.

To identify a site, I utilized the aerial map view of Google® maps. I used a grid system to systematically locate vacant parcels. I examined the grid for areas that appeared to be vacant and were bigger than streetscape scale since there is less design flexibility with that scale. I identified four potential sites: an industrial area along the Burke-Gilman trail in Fremont, the Aurora Ave N onramp in Wallingford, a Seattle City Light (SCL) right-of-way in Greenwood, and the NE Ravenna Blvd medians in Ravenna. I selected the SCL right-of-way after visiting each location. This site was chosen for its unexpected existence and the diverse characteristics present throughout the site.



Figure 3.10 Greenwood location in the context of Seattle's green spaces

Site overview

The SCL right-of-way is long, narrow, and located centrally in the Greenwood neighborhood (Figure 3.10). It runs between Evanston Ave N and Fremont Ave N from N 105th St to N 90th St and is situated south of the Viewland/Hoffman Electrical Substation. The substation was built

Block 1



Block 2



Block 3



Block 4



Block 5



Block 6



Figure 3.11 Current site conditions and context

in 1977 and features public art along the walls of and adjacent to the substation. The SCL right-of-way spans nine blocks with most of the adjacent properties developed as single-family homes. Many properties appear to have extended their fence and property lines into SCL right-of-way treating it as part of their private property.

The corridor spans nine blocks (about $\frac{3}{4}$ mile) with

widths ranging from 40' to 60' and exhibits a range of characteristics (Figure 3.11). Though the site is primarily a SCL right-of-way, there is a Seattle Department of Transportation (SDOT) right-of-way corridor in the blocks between N 97th St and N 90th St. The Evanston P-Patch is situated on part of the SCL right-of-way through an agreement between SDOT and SCL.

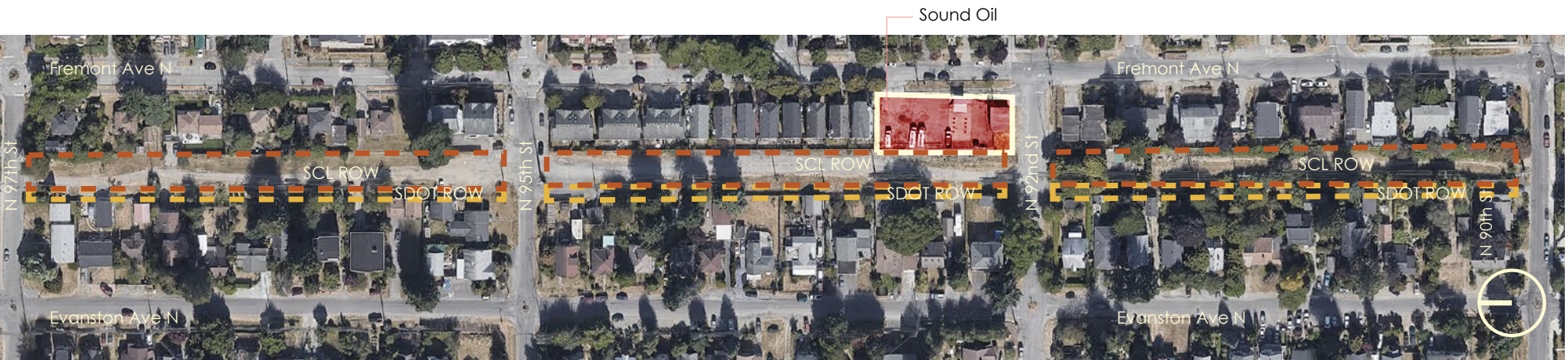
Block 7



Block 8



Block 9



The site is located at the crest of a flat-topped ridge running north south with topography sloping very gently down the same direction. The elevation changes 50' across corridor which amounts to a one-percent slope. When walking along the corridor, it feels flat. The topography and location provide clear views of the Olympic Mountains looking west and the Cascade Range looking east from the north end of the site.

As a SCL utility corridor, there are many utility poles along the corridor bringing electricity and other utilities to buildings in the area. There are several types of utility poles: transmission, distribution, and guy-poles or communication-only poles. Highest voltage lines are located at the top and lower voltages below. They are prominent and sculptural elements along the utility corridor. Utility poles have maintenance needs so vehicle

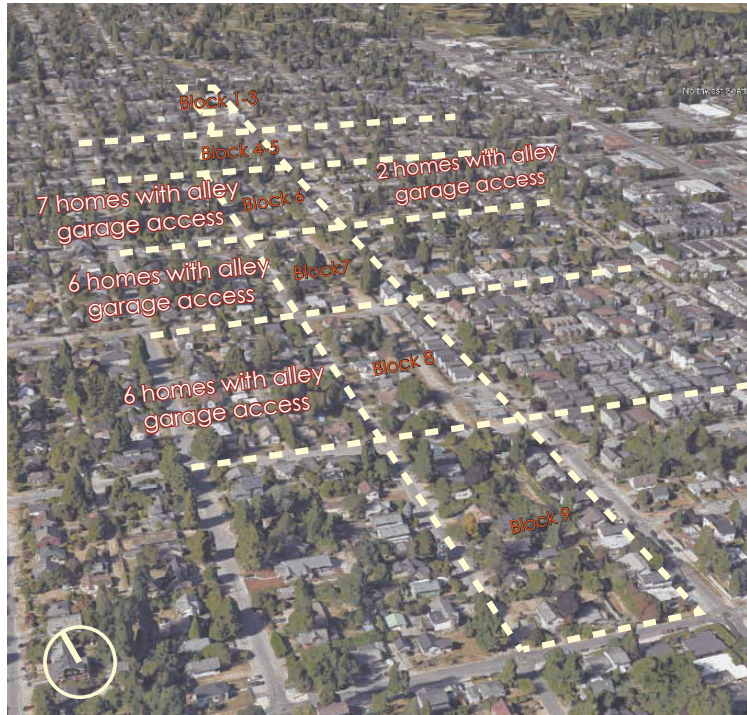


Figure 3.12 Alley garage access needed in the site

access to the right-of-way is essential. Vehicular access is also needed because of alley access to garages on Block 6, Block 7, and Block 8 (Figure 3.12).

Vegetation in the corridor consists of woody plants along the margins and herbaceous plants along used areas with more woody plants towards the south end of the corridor. Much herbaceous vegetation are grasses mixed in with weeds and maintained to varying degrees. Though not

on the site, woody vegetation from neighboring private properties contributes to the perception of vegetation in the space. The largest trees in the immediate vicinity are on neighboring properties. These help frame the corridor. Though there are some trees in the right-of-way, it is unclear who planted them, and they are kept short for safety reasons. They include fruiting trees, deciduous trees, and pine trees. There are invasive species in swales, ditches, and other areas that are less trafficked; they include Himalayan blackberry (*Rubus armeniacus*), spurge-laurel (*Daphne laureola*), butterfly-bush (*Buddleja davidii*) and an unidentified bamboo species (*Bambusoideae sp.*).

For my analysis, I numbered the blocks from 1 through 9 north to south. Block 1 is adjacent to an arterial street and is comprised of a weedy field with cars parked along its edge. Block 2 is also a grassy field but has a grassy, weed covered depression on the west side of the right-of-way. Block 3 is not part of the SCL right-of-way and is adjacent to Early Learning & Development Center, a children’s learning center, and a warehouse for Coast Electric. Block 4 is a 14’ wide grassy alley that run adjacent to the Evanston P-Patch. Block 5 is a grassy field well-maintained by neighbors. Block 6 is comprised of a 40’ gravel and dirt garage access road running adjacent to single family residences. Block 7 is a 60’-wide gravel and dirt garage access road with many depressions and running adjacent to single family residences. Block 8 is a garage access road paved with concrete at the northern end of the block and Sound Oil, a heating oil supplier, at the southern end. Block 9 is one of the most intimate feeling blocks with fences and plantings making the space feel enclosed. There are clear signs that this block is used

Table 3.3 Current site conditions

Block #	Location	Width	Characteristics
Block 1	N 105th St to N 104th St	60'	Grassy field; cars park along the edge; not well maintained; utility boxes on northern end; next to arterial road
Block 2	N 104th St to N103rd St	60'	Grassy field; weed covered depression on western edge; Himalayan blackberry is prominent; concrete ecology blocks deter vehicles; last maintained a few years ago
Block 3	N 103rd St to N 102nd St	40'	Grassy field; not part of SCL right-of-way; next to children’s early learning center; next to Coast Electric; depression on western edge
Block 4	N 102nd St to N 101st St	14'	Grassy alley; adjacent to Evanston P-Patch; part of the SCL right-of-way is used by the P-Patch
Block 5	N 101st St to N 100th St	40'	Grassy field; appears well-used; well-maintained by neighbors; concrete ecology blocks deter vehicles
Block 6	N 100th St to N 97th St	40'	Garage access alley; gravel and dirt road; single family residences on both sides of the road
Block 7	N 97th St to N 95th St	60'	Garage access alley; gravel and dirt road, single family residences on both sides of the road; many depressions in the ground
Block 8	N 95th St to N 92nd St	60'	Garage access road; half concrete and half dirt road; adjacent to Sound Oil
Block 9	N 92nd St to N 90th St	60'	Walking trail; vehicle gates at both ends of the block; intimate feeling; fences are hidden by vegetation; dirt bike mounds

– a clearly worn trail in the ground as well as dirt bike mounds. **Table 3.3** summarizes the site conditions of the corridor. The appendix provides further information and images of each block condition.

Site analysis

Greenwood background

Prior to Euro-American settlement, what is now the Greenwood neighborhood was a bog called Woodland. The Greenwood area was originally composed of mostly

marshy swamp, lakes, and woods. There is a well-documented history of houses being flooded if they were built on unsuitable, boggy land (Fiset 2001).

The Seattle-Everett Interurban Railway, now the location of the Interurban Trail, reached Greenwood in 1906 (Fiset 2001). This connection linked Greenwood to downtown and other neighborhoods of Seattle spurring its growth. Most of Greenwood was north of the Seattle city limits and the area north of N 145th St was annexed into the city of Seattle in 1954. Though the annexation was supposed



Figure 3.13 Arterial roads, bike trails, and zoning around the site

to bring infrastructural upgrades like paved streets and sewers, it took another fifteen years for improvements to materialize (Fiset 2001). Even now, many Greenwood streets lack sidewalks.

The neighborhood is primarily zoned for single family residences with a main commercial corridor running along Greenwood Ave N and Aurora Ave N (Figure 3.13). There are also areas zoned for multifamily residential. Within the neighborhood, there is a range in building ages and styles which could be signs of the initial stages of gentrification.

Transportation connections

The site is near transportation networks that link it to greater Seattle. Figure 3.13 describes the arterials and bike trails in vicinity. The Interurban Trail runs along Fremont Ave N, adjacent to the SCL right-of-way blocks. This trail follows the Interurban Rail Line that historically linked Seattle to Everett. It is now a popular bike trail.

Arterials such as N 105th Street and Aurora Ave N are nearby. There are RapidRide buses within walking distance on Aurora Ave N and other local lines that stop near the right-of-way. Being near arterials means that high traffic and noise can be a problem. However, this also means that the site is easily accessible by car or public transportation. When the Northgate Link light rail station opens in 2021, this will be another connection into the area.

Lack of green

Examining the current green spaces in the Greenwood neighborhood, there is clearly a lack of public open space. Though there are clear views of the Olympics in the west

and the Cascades in the east, the borrowed views do not compensate for the lack of green space. The main green spaces within the neighborhood are Greenwood Park, Sandel Park, and the Evanston P-Patch (Figure 3.14). Though there are substantial open spaces like Carkeek Park, Green Lake, and Evergreen Washelli Cemetery, they are more than half a mile from the site which is inconvenient for pedestrian travel. The addition of the SCL utilities corridor as a formal green space will substantially increase the neighborhood's open space resources. It can even become a resource for the adjacent neighborhoods like Licton Springs, Crown Hill, and Phinney Ridge.

Overall, the site is underutilized and has the potential to provide a neighborhood amenity that addresses human and environmental well-being while also being a way to positively challenge the standard notions of the perceptions of nature in the urban context.

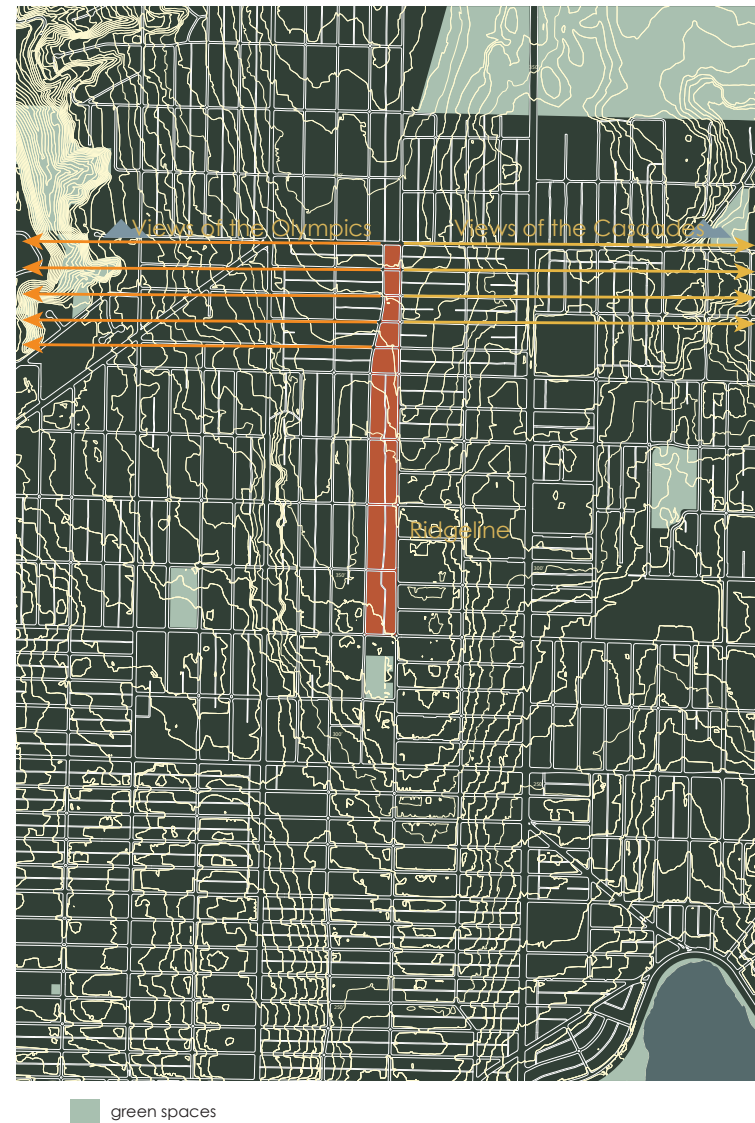


Figure 3.14 Terrain, views, and green spaces around the site

4. Design

Design proposal overview

The NPDF can be utilized on broad scale master plans as well as on smaller scale site designs. My focus is on its applications for site scale design. I used the design framework to develop a diagrammatic master plan for the whole SCL utilities corridor. Then I implemented the design framework to generate a more detailed site design for two blocks.

My design proposals for the corridor apply the design framework onto specific sites. It illustrates how the framework could be utilized on other sites. For the site I chose, the specific character of each block drives the design decisions. My decision to separate out experiences on the site are inspired by each block's distinct characteristics.

Program goals

The program goals for the project are to better connect the neighborhood to open space within and outside

site boundaries and provide places where people can encounter different forms of urban nature and experience passive recreation in an urban nature setting. Though I retain vehicular access through the corridor, since SCL maintenance occurs infrequently, it is primarily used by neighbors, some of whom need access to garages.

Since this is a long and narrow site that houses overhead utilities, there are constraints specific to these conditions. Utility poles are a central feature of the space and are the reason the site exists as it does today. There will be occasional vehicular access through the site for SCL maintenance needs and for access to residential garages along the road. Safety, visibility, and privacy are a concern for adjacent private residential properties. The vegetation height must be limited to keep it below electrical wires and keep sightlines open. My proposals include minimal physical manipulation of the site to keep maintenance accessible. Shifting focus from built elements to planting also emphasizes the goal of cultivating urban nature.

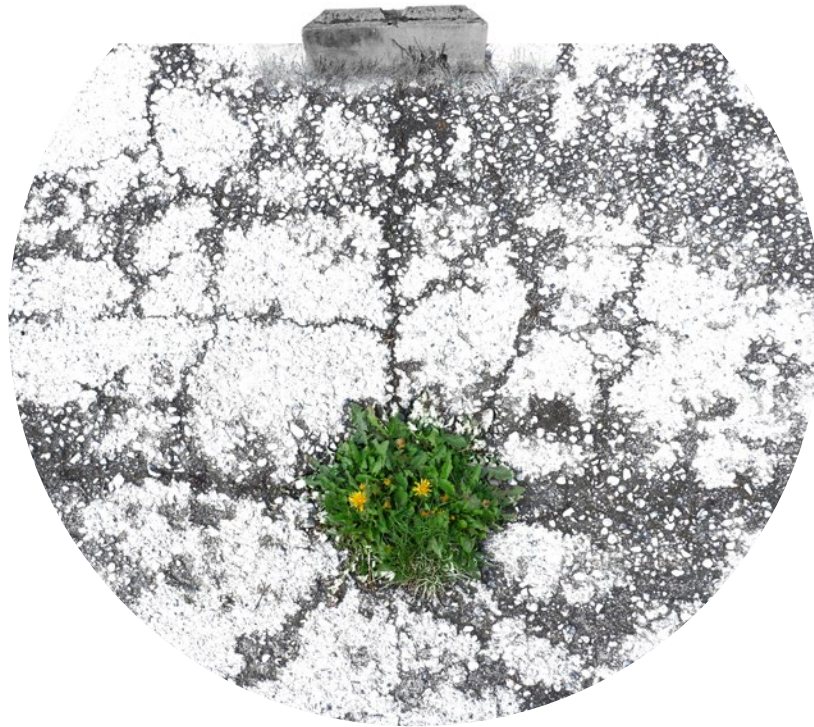


Figure 4.15 "Cracks" as a conceptual framework

Conceptual framework

I use the idea of “cracks” as a conceptual framework because it addresses the idea of connecting spaces and draws attention to things that already exist. This concept wasn’t generated directly from the NPDF but is a useful way to frame the overarching design vision. The Crack Garden project is one way that cracks can be utilized (see Figure 2.5 on page 13). Cracks manifest themselves much like nature does in urban environments – they are

an inevitable and natural process, a display of resilience in breaking through the urban fabric, create physical connections, and a record of time and events (Figure 4.15). This concept has different roles at different scales. In the master plan context, it is used in a figurative sense with the cracks being a way to connect each of the blocks. The nine-block site can be read as a metaphorical crack in the city grid. When using the concept in a smaller scale site design, along with being a form of connection, the cracks manifest themselves as design elements.

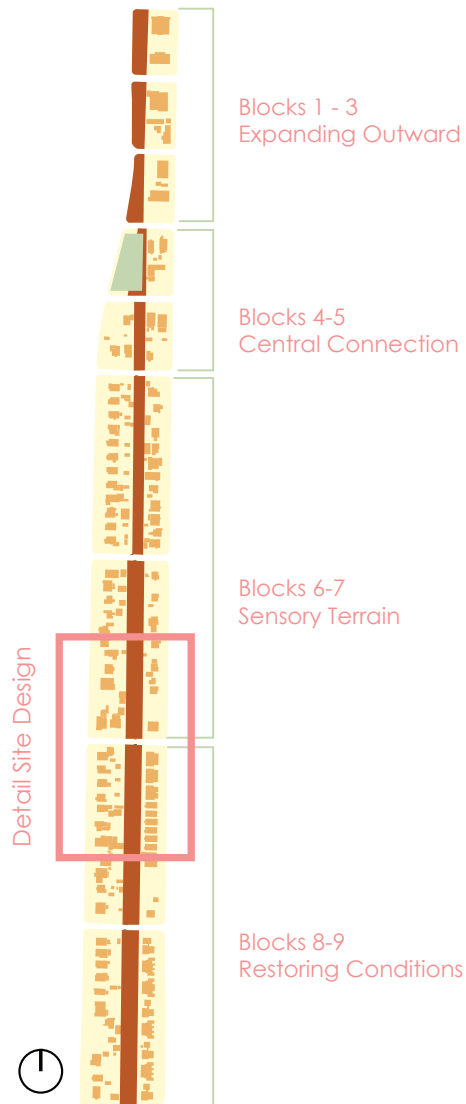


Figure 4.16 Diagrammatic master plan

Master plan

Currently, each corridor block feels very separate from the others because they are physically separated by cross streets. Maintaining a cohesive connection between blocks is an important aspect that the master plan addresses. The blocks are linked through a thematic thread as well as ground patterning. The site is organized from north to south from large-scale to small scale. It starts looking outwards with the sweeping views of the Olympics and Cascades and focuses down to ground-scale interventions through the right-of-way (Figure 4.16). The northern and southern ends of the site will be a nature trail to bring a sense of coherence and signal that visitors are passing a threshold.

The master plan brings cohesion to the whole site. However, since detailed site design is the focus of my investigation, the master plan remains diagrammatic. NPDF served as a guide rather than a requirement. Themes were extracted from the design ideation process which formed the basis of the thematic master plan.

Blocks 1 to 3 are about expanding outward. They are the northern gateway to the site and a buffer from the busy traffic of N 105th St. They take cues from the sweeping views of the Olympics and the Cascades and seek to expand outward past the confines of the site and connect with networks in place like the Interurban Trail. Interventions in this section will include a nature trail and plantings inspired by the Cascades and Olympics.

Blocks 4 and 5 function as a central connection. This is both the central connection point within the site and connecting point between the site and the Greenwood

Block 7

Strengths <ul style="list-style-type: none">•Wider than Block 6•Existing plants•Utility poles are prominent sculptural elements	Weaknesses <ul style="list-style-type: none">•Feels uncared for•Limits to what can be near poles•Depressions in the gravel road
Opportunities <ul style="list-style-type: none">•Opportunities to connect to Block 6 and Block 8•Proximity of schools•Large trees in neighboring properties	Threats <ul style="list-style-type: none">•N 95th Street has traffic•Proximity of homes•Need for vehicular alley garage access•Cars may use the alley as a shortcut

Figure 4.17 SWOT analysis matrix for Block 7

neighborhood. Along with the existing Evanston P-Patch, there will be a central gathering space that draws in those from the neighborhood and beyond.

Blocks 6 and 7 consist of sensory terrain. Taking cues from the neighborhood terrain and the garage access road that passes through this portion of the site, this section focuses on the neighborhood context and human experience of place. Interventions include sensory plantings and fruit and vegetable beds where local residents can grow produce.

The final section which spans Block 8 to Block 9 is focused on restoring conditions. This section examines and seeks to improve the environmental conditions of the site, especially regarding the presence of Sound Oil. Interventions include phytoremediation plantings and a nature trail. The former will help to mitigate any petroleum residues that may be found in the soil due to the activities of Sound Oil as well as from vehicular waste. The nature trail provides a connection to the nature trail

Block 8

Strengths <ul style="list-style-type: none">•One of widest part of site at 60'•Undeveloped land•Utility poles are prominent sculptural elements	Weaknesses <ul style="list-style-type: none">•Feels uncared for•Limits to what can be near poles•Feels not open to the public•Depressions in the road•Half paved, half dirt road
Opportunities <ul style="list-style-type: none">•Views of Olympics on N 92nd Street•Opportunity to connect idea of nature with an urban industrial context•Proximity of schools•Large trees in neighboring properties	Threats <ul style="list-style-type: none">•Sound Oil located on south end of block•Need for vehicular alley garage access

Figure 4.18 SWOT analysis matrix for Block 8

located at the northern entrance of the site and take advantage of the fact that people already used the space as a nature trail.

Site Design

Block Selection

I focus my design efforts on exploring site level intervention for two of the blocks. I used SWOT analysis to determine each block's strengths, weaknesses, opportunities, and threats which helped me pick two blocks to explore with more detailed design interventions: Blocks 7 and 8 (Figures 4.17, 4.18). I chose these blocks because they are adjacent, so I was able to explore transitional spaces between blocks and they also contained different characteristics. They both serve as alley garage access. However, Block 8 feels more barren due to the wide swath of paved surface and lack of green. In contrast, the scale of Block 7 feels smaller due to the existing vegetation on the site.

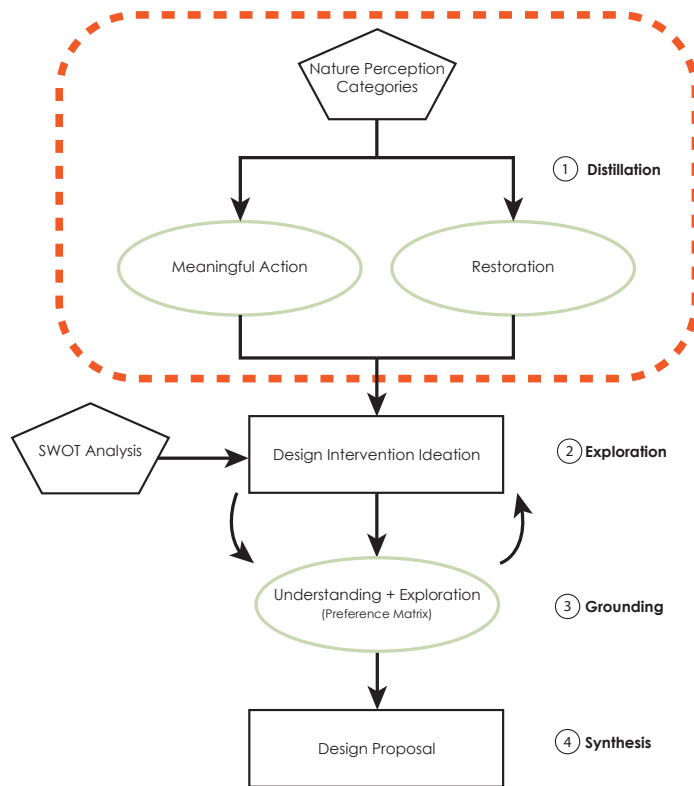


Figure 4.19 NPDF Step 1: Distillation

Using the Nature Perception Design Framework

Distillation: Categorizing Nature Perception Categories

The Nature Perception Categories of playspace, resilient, educational, productive, therapeutic, habitat, and natural are categorized into “meaningful action” or “restoration” (Figure 4.19). Since the categorization process is dependent on the designer’s subjective ideas of nature, I categorize the Nature Perception Categories based on my perspective of nature. “Restoration” includes playspace, resilient, productive, therapeutic, habitat, and natural. “Meaningful action” includes educational, productive therapeutic, habitat, and natural. If community engagement had been incorporated, it would have generated different categories.

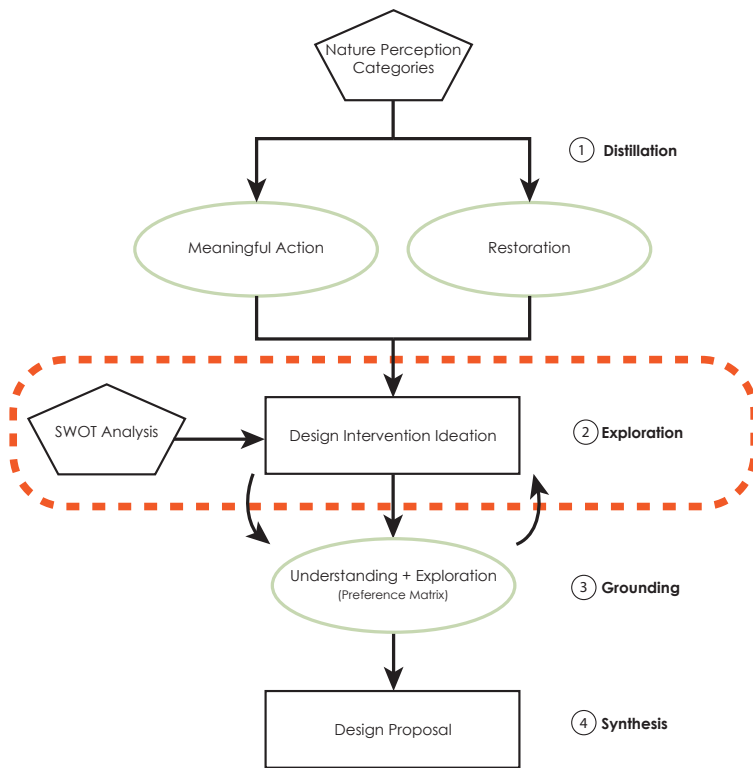


Figure 4.20 NPDF Step 2: Exploration

Exploration: Design Intervention Ideation

During the design ideation process, I use sketches to explore potential design interventions (Figure 4.20). To develop a broad range of ideas quickly, I limited myself to ten minutes for each design idea. Through these quick design exercises, I amassed 36 potential design interventions that were informed by Nature Perception



Figure 4.21
Sketch of urban agriculture



Figure 4.22
Sketch of sensory plantings



Figure 4.23
Sketch of climbable planters

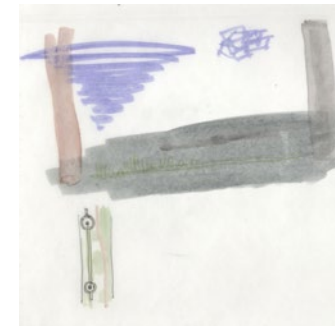


Figure 4.24
Sketch of cracks between utility poles

Categories (see appendix for design sketches). Though I didn't use all the ideas, having many choices gave me flexibility to develop interventions suitable for each block. Figures 4.21 to 4.24 show some sketches that inspired my design interventions choices of sensory plantings, phytoremediation, crack-patterned paving, fruit and vegetable plots, a play sculpture, and experimental plantings.

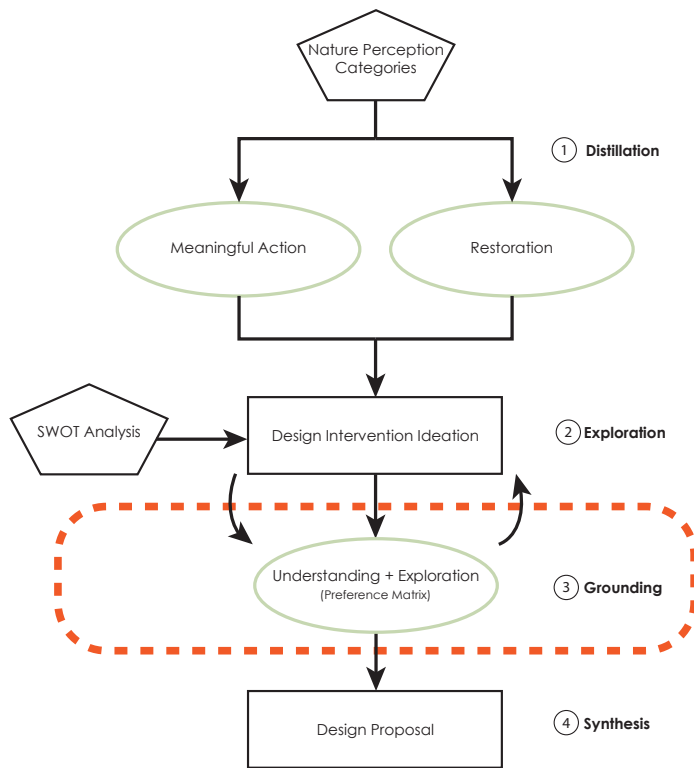


Figure 4.25 NPDF Step 3: Grounding

Grounding: Addressing the Preference Matrix

In this step, my design interventions are evaluated against elements of the preference matrix: coherence, complexity, legibility, and mystery (Figure 4.25). Coherence is immediate understanding that is addressed through the two path typologies, the cracks with plantings, and the entry plazas at each end of the block. Having two paths, one that follows the utility poles and another that weaves through the site gives a sense of immediate understanding. The repeated cracks with plantings and entry plazas fulfill



Figure 4.26
Initial sketch idea for Block 7 design

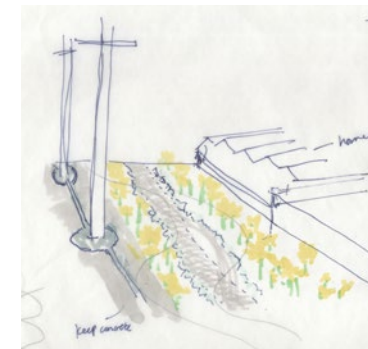


Figure 4.27
Initial sketch idea for Block 8 design

the same purpose. Complexity occurs when the quality of exploration is immediately inferred and is addressed through the elevation change, the different plant types, and the winding path. Legibility, or inferred understanding, is addressed through the division of sensory planting, the repeated design elements, and connections to the utility road. Finally, mystery, or inferred exploration, is addressed through the winding paths and the ability to choose one's route. Figure 4.26 and Figure 4.27 show some of the initial design sketches that came from this step.

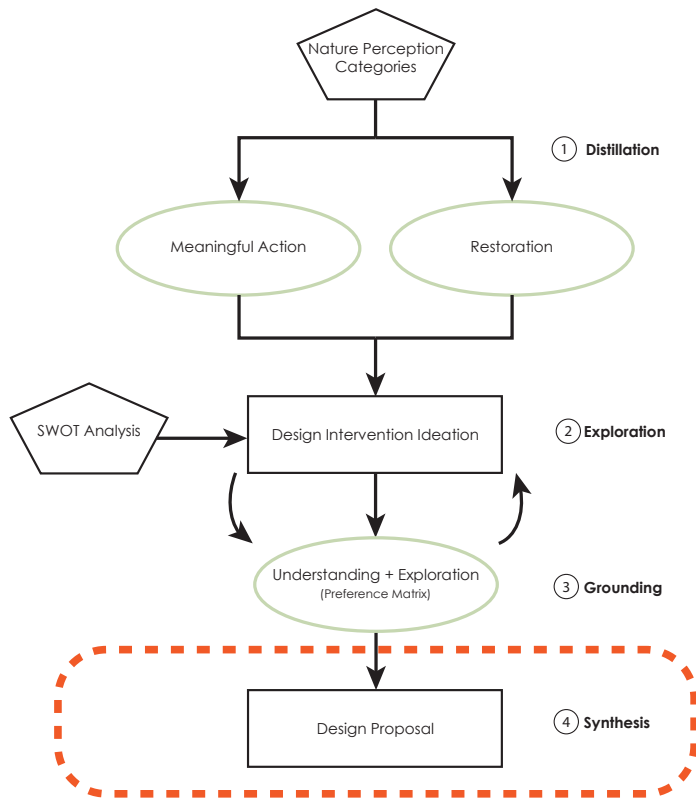


Figure 4.28 NPDP Step 4: Synthesis

Synthesis: Final Design Proposal

In the synthesis step, the selected design interventions are incorporated into the detailed site plan (Figures 4.28, 4.29).

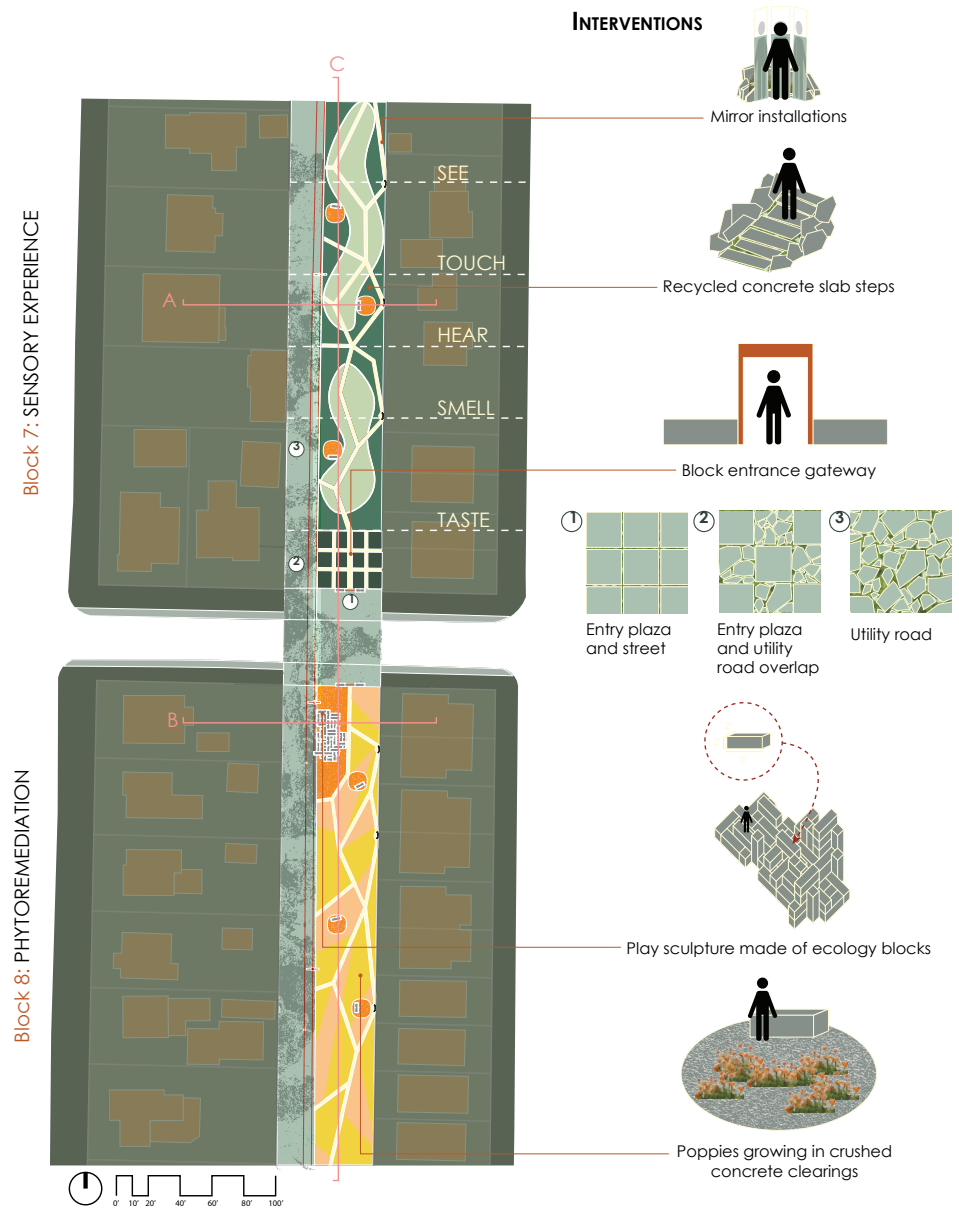


Figure 4.29 Detail site plan and interventions

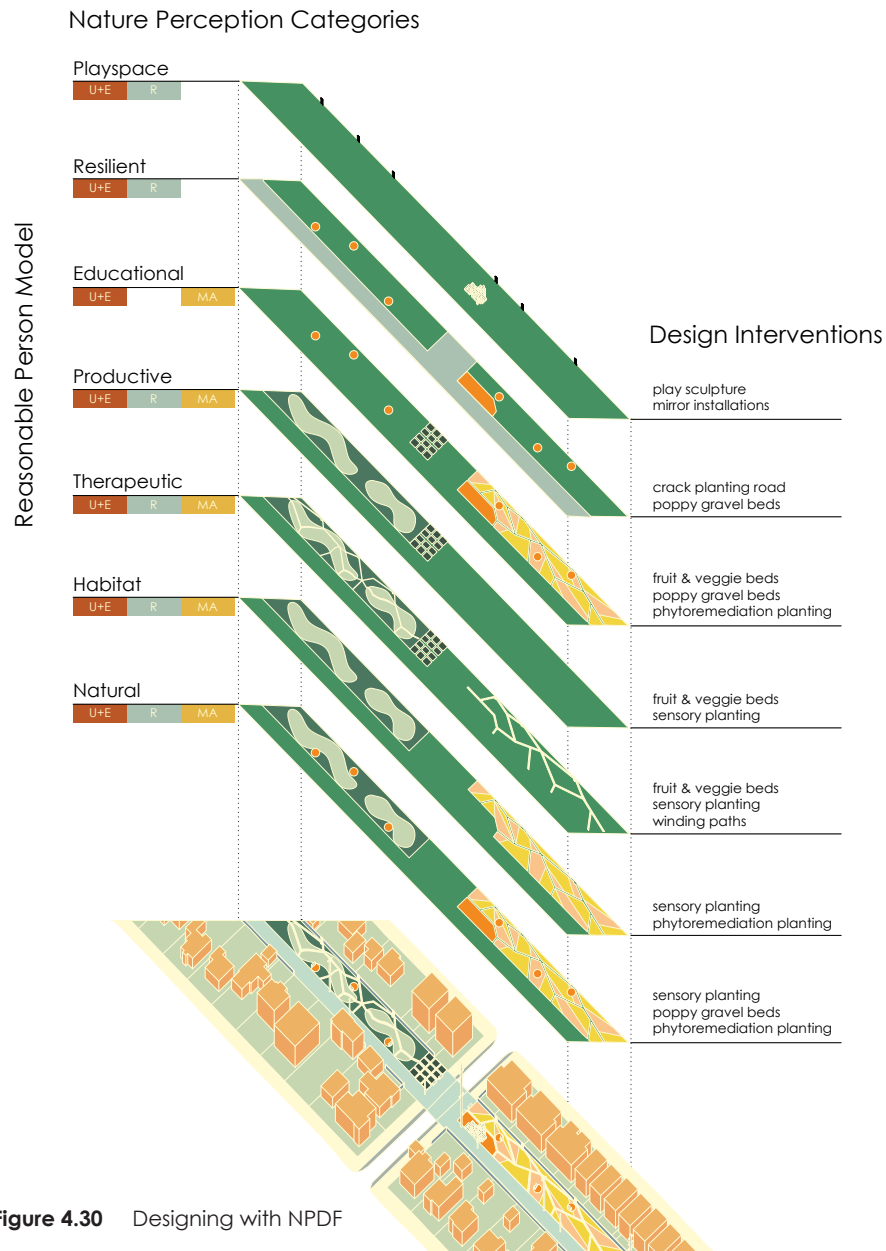


Figure 4.30 gives an overview of the final design interventions and their relationship to RPM and the Nature Perception Categories. The extensive overlap between RPM and design elements as they address Nature Perception Categories illustrates how flexible the design framework is in incorporating the designer's perspectives.

Repeating elements throughout the site help convey a more connected design even though it is physically divided by streets. These interventions bring legibility to the site plan. Many of them integrate reclaimed concrete due to the current material vernacular of the site and acknowledge the prevalence of concrete in many urban environments. The trails that crisscross the site are meant to conceptually resemble cracks and give people a chance to choose which direction they want to take. There are two primary path choices: the paved utility road on the west side of the site which provides straight, efficient access and meandering, crisscrossed paths on the east side of the site. Mirror installations along the east edge of the site are distributed along the corridor boundary. They provide imaginative interpretations of the site and act as buffers for privacy. As people stop at a mirror installation, they will be facing adjacent private properties in the east, but their focus will be on the reflected images of their surroundings. Recycled concrete slab steps will come from the site and its vicinity. Having all paths composed of the same materials makes the site seem more connected. Concrete block gateways at the ends of each block indicate that one is passing a threshold. Three types of paving delineate different spaces in the site: the square-shaped paving is in the entry plaza and the street, the crack-shaped paving is on the utility road, and the hybrid crack and square-shaped paving is used where the entry plaza

Figure 4.30 Designing with NPDF

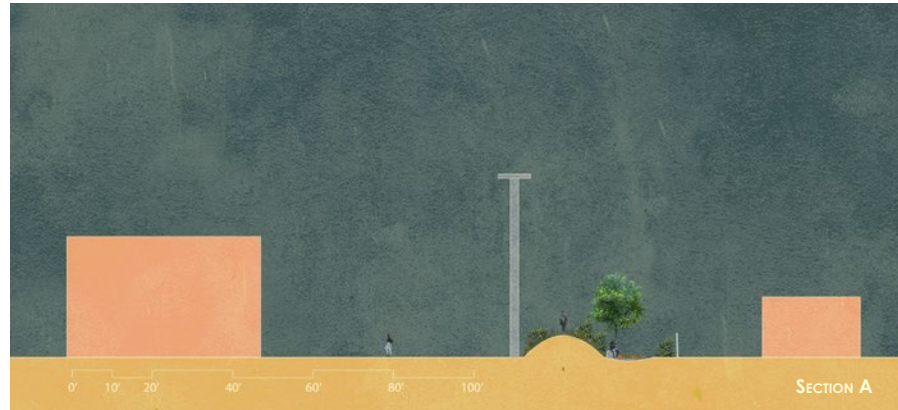


Figure 4.31 Section A showing Block 7



Figure 4.32 Section B showing Block 8

and utility road overlap. There will be Irish moss (*Sagina subulata*) planted between the cracks. The play sculpture on the north end of Block 8 is composed of concrete ecology blocks. I use this material because ecology blocks are already used along the corridor to prevent vehicles from driving onto the corridor. The play sculpture adds an element of play and provides elevational interest in the otherwise flat area. Crushed concrete clearings will be testing grounds for what will grow in these types of conditions. California poppies

(*Eschscholzia californica*) will be the first species to be tested due to their hardiness. Clearings will also have a concrete ecology block for seating.

The sections in Figures 4.31 and 4.32 show how utility poles are a prominent part of the landscape and how the mounds, play sculpture, and plantings fit into the scale of the site. Since the site is flat, interventions need to be carefully considered so that they don't overwhelm the site.

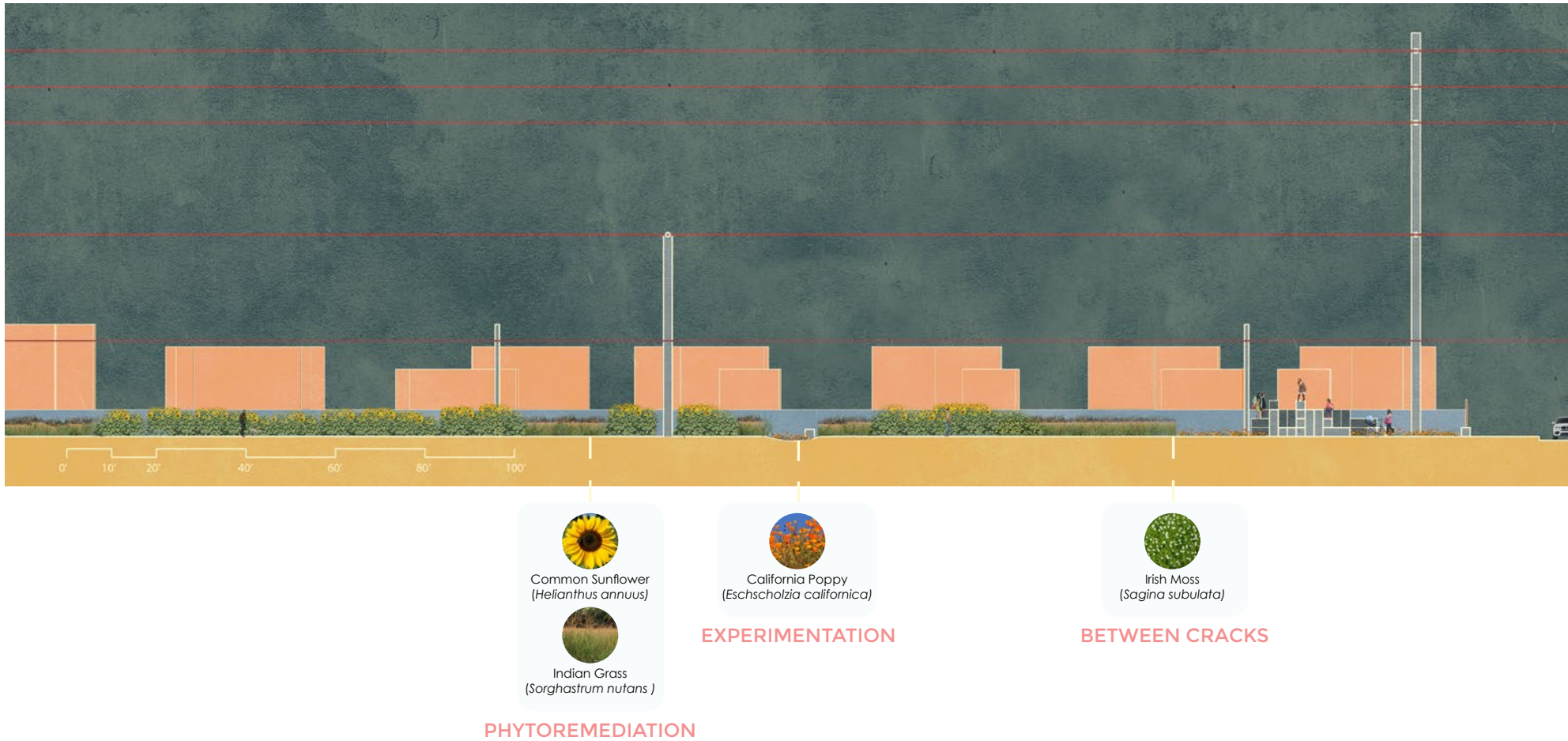


Figure 4.33 Section C showing Block 7, Block 8, and plant palette

Blocks 7 and 8 deal with sensory experience and phytoremediation respectively. Figure 4.33 describes plant choices and locations for Blocks 7 and 8 that fit those functions. In the sensory planting section, plants are grouped by taste, smell, hear, touch, and see, allowing for people to focus on different senses when moving through the site. Some plants fall under more than one

sensory category which allows for continuity and legibility when moving through the site. The phytoremediation plantings are plants that have been shown to take up soil contaminants. The plants used for experimenting in the concrete clearing and the plants to be planted in cracks are known to be resilient even in unfavorable conditions.



SECTION C

- 
Salmonberry
(*Rubus spectabilis*)
- 
Evergreen Huckleberry
(*Vaccinium ovatum*)
- 
Salal
(*Gaultheria shallon*)
- 
Adirondack Crabapple
(*Malus 'Adirondack'*)
- 
Cornelian Cherry
(*Cornus mas*)

TASTE

- 
Woodland Phlox
(*Phlox divaricata*)
- 
Yarrow
(*Achillea millefolium*)
- 
Mock Orange
(*Philadelphus lewisii*)
- 
Oyama Magnolia
(*Magnolia sieboldii*)

SMELL

- 
Pheasant Tail Grass
(*Anemanthele lessoniana*)
- 
Thick Headed Sedge
(*Carex pachystachya*)
- 
Dwarf Pampas Grass
(*Cortaderia selloana 'Pumilla'*)
- 
Tufted Hairgrass
(*Deschampsia cespitosa*)

HEAR

- 
Smoketree
(*Cotinus coggygria*)
- 
Broadleaf Stonecrop
(*Sedum spathulifolium*)
- 
Dwarf Pampas Grass
(*Cortaderia selloana 'Pumilla'*)
- 
American Fringe Tree
(*Chionanthus virginicus*)

TOUCH

- 
Smoketree
(*Cotinus coggygria*)
- 
Fireweed
(*Chamerion angustifolium*)
- 
Red-Flowering Currant
(*Ribes sanguineum*)
- 
Ocean Spray
(*Holodiscus discolor*)
- 
Chicory
(*Cichorium intybus*)

SEE



Figure 4.34 Perspective looking north on Block 7

Plants and topographic changes in Block 7 provide a variety of sensory experiences (Figure 4.34). The mounds are about seven feet tall to fit within the residential scale of the neighborhood. As people walk along the trails, they'll pass through plant sections dedicated to the five sensory interactions we have with the environment: sight, touch, hearing, smell, and taste. Some plants appear in more than one sensory section since they appeal to multiple senses. This allows for a more cohesive plant experience when passing through the different sections. The sight

section focuses on plants that have visually appealing features such as vibrant colors or attracting pollinators. The touch section focuses on plants that have features that encourage people to touch them like soft foliage. Plants in the hearing section include grasses that make sounds in the breeze. The smell section features plants with scented flowers, foliage, or bark. The taste section focuses on plants that produce edible things like fruit. Adjacent to this section are planting plots where neighbor can grow fruits, vegetables, and other produce.



Figure 4.35 Perspective looking south on Block 8

Block 8 is dedicated to phytoremediation with plant choices reflecting their ability to remove contaminants from soil (Figure 4.35). Sunflowers (*Helianthus annuus*) and Indian grass (*Sorghastrum nutans*) were chosen for both phytoremediation abilities and visual interest. The plants are grouped into fields divided into crack-like patterns. Having the plants grouped into large fields rather than planted in a matrix gives focus to the plant massing and give the feeling of being enveloped by the plantings.

One of the goals of the NPDF is to bring together perceptions of nature, design, and site context. Though

these were the design interventions that I developed by using the NPDF, these represent a single designer's vision of what nature could look like on this site. In the hands of someone else, different visions of cultivating urban nature would undoubtedly emerge.

5. Conclusion

The iterative design process can be messy and subject to inspiration from unexpected sources. My thesis develops a design framework for visualizing the design process of incorporating nature into everyday urban experiences. The NPDF provides structure and guidance to this process and my design proposals are a model of what can be created using the design framework. In essence, the framework allows designers' subjective perceptions of nature to be incorporated into a more systematic design method. It incorporates flexibility into a structured way of thinking about the design process.

By exploring design at multiple scales through the lens of the design framework, I demonstrate its flexible potential for creating spaces that allow urban nature to be perceived and enjoyed. To keep the scope of the thesis manageable, I focused my design explorations on the detail site design. The master plan design, though not the focus of my explorations, is important to consider due to the long and narrow nature of the site. Developing a cohesive master plan allows for the more detailed block-scale designs to make sense in the context of the whole site. The Block 7 design is a typological site design for areas that abut residential properties while the Block 8 design demonstrates how areas with primarily impervious surface can be addressed. Though I chose to lay out the elements as I did, this isn't necessarily the final design for this site. The designs I developed help to imagine the

numerous possibilities that could exist.

The perceptions of nature are subject to the context of the site. The final design proposal represents my interpretation of the different forms that nature could take in the urban landscape. Interacting with people from the community, though outside the scope of this thesis, would have been vital if this project were to be built. For example, though I used cracks and concrete as central elements of the site design, it is possible that people from the community may not have seen those elements as being attractive ways to cultivate nature. In fact, they may be interpreted as signs of neglect or as being too harsh to be a facet of nature.

Through the design interventions developed through the NPDF, I explored ways we can cultivate urban nature. Though it often encompasses the mundane, everyday landscapes we overlook, urban nature is a relatable way for people to link human and environmental well-being. In the end, my design thesis isn't really about focusing on this particular site but rather on seeing this site as a case study for how the NPDF could be applied in an urban context. It is an exploration of how Seattle, and beyond, could look if we used design to recontextualize our perceptions of everyday urban nature.

6. Reflections

Writing this thesis was one of the most challenging things I have had to do, yet it has also been a fulfilling exploration of a complex topic. Though I knew I wanted my thesis to focus on some aspect of urban nature, it was extremely difficult to narrow the scope and what I really wanted to accomplish—nature is an all-encompassing experience after all. I spent weeks muddling around in literature and my thoughts to no real avail, investigating topics ranging from alleyways to green infrastructure. It wasn't until I selected my site that ideas began to slowly coalesce. A physical site has the capacity to ground vast and grandiose ideas. With a site, I could finally have a sense of how research and ideas could be applied to the physical world. Being stuck in a mental space is a rabbit hole of possibilities; pulling things into the real-world overlays real world constraints, potentials, and possibilities.

The utility corridor was one of four possible sites that I identified. It was not my top choice initially. However, when I visited for the first time, I was struck by the curious feeling of the place. Here, in the middle of a residential neighborhood, was this strip of seemingly underused land that was just there. I was also struck by the range of characteristics demonstrated by each block. Each space had a peculiar quality that differentiated it from the others. This feeling of multiplicity, in the end, ties into what I believe nature to be – ephemeral, multi-faceted, and up for interpretation. Each space, much like nature,

addressed different facets of the urban experience. What is considered nature may also change – with setting, with viewer, and with time. Nature is a powerful concept for understanding our human experiences and our roles in space and time. It gives us perspective about the ostensible insignificance of our existence and the existential dread that may appear in the grand scheme of time. Nature, as a constant even in urban contexts, can ground us, our ambitions, our hopes and dreams, our interactions with the world and life around us, and ultimately it contributes to our understanding of ourselves. It is something that is always around us but may just be overshadowed in our daily lives.

Is nature ever truly mundane? Even a lone flower sprouting from a crack in the sidewalk can inspire delight and for a moment, a brief connection with what nature can be in the urban environment. I hope that the work I have done will help us reconsider our perception of nature and how it touches our everyday lives, that we take some time to reflect on the nature that has always been there but was often passed over without a second glance. This thesis is as much about the design process as it is about challenging what we perceive nature to be. Nature is not something that we necessarily have to go out in the wilderness to find. It is all around us – albeit sometimes it may take some extra time to pause and recognize its presence in our everyday urban experiences.

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Appendix

A. Site photos



Figure A.1 Block 1 grassy field



Figure A.2 Block 2 weedy ditch



Figure A.3 Block 2 ecology blocks



Figure A.4 Block 3 stormwater swale



Figure A.5 Block 4 grassy alley adjacent to Evanston P-Patch



Figure A.6 Block 5 grassy field



Figure A.7 Block 6 garage access road



Figure A.8 Block 7 garage access road



Figure A.9 Block 8 garage access road



Figure A.10 Block 8 weeds growing in lines



Figure A.11 Block 9 dirt bike mounds



Figure A.12 Block 9 trail

B. Site visit sketches

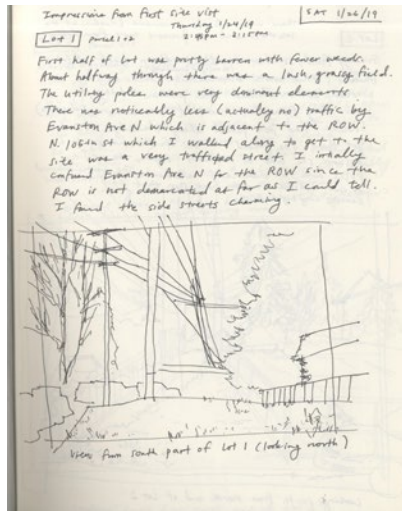


Figure B.1 Block 1 sketch

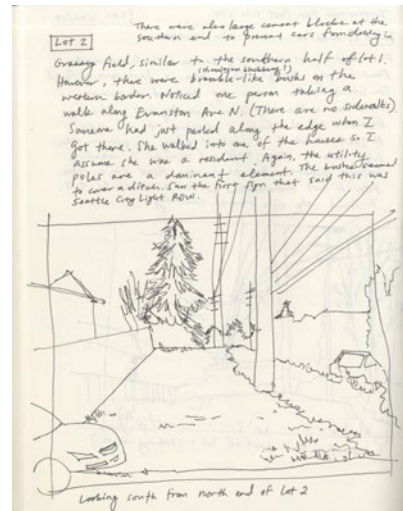


Figure B.2 Block 2 sketch

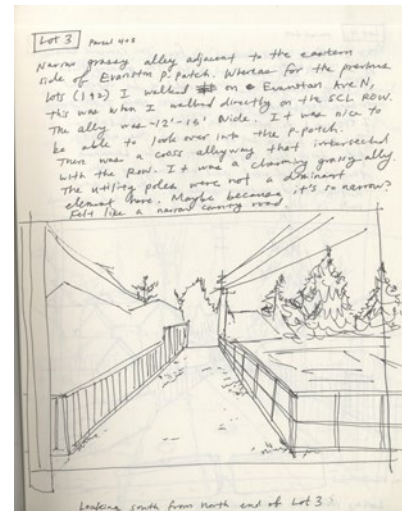


Figure B.3 Block 4 sketch

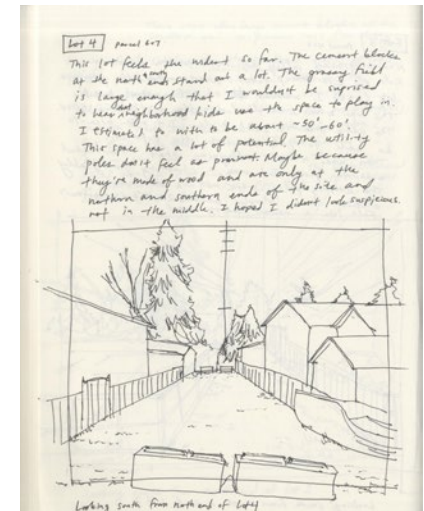


Figure B.4 Block 5 sketch

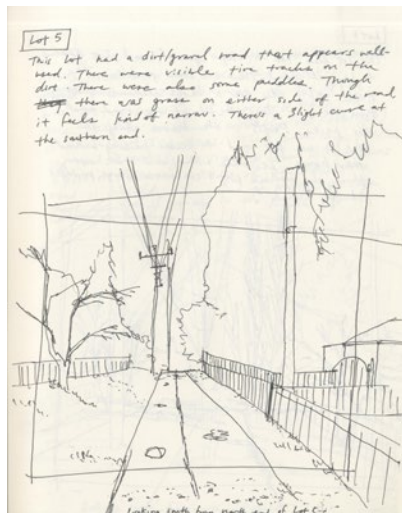


Figure B.5 Block 6 sketch



Figure B.6 Block 7 sketch

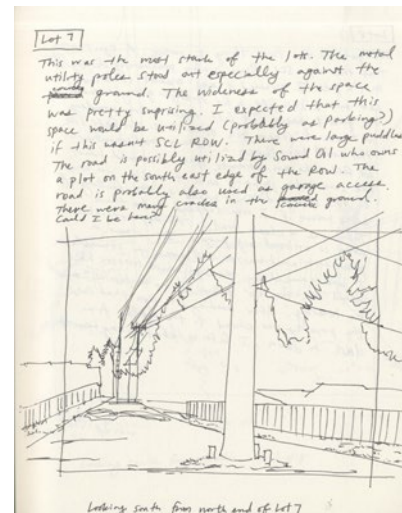


Figure B.7 Block 8 sketch



Figure B.8 Block 9 sketch

C. SWOT analysis for the site

Block 1

Strengths	Weaknesses
<ul style="list-style-type: none"> • Easy access from arterial • Fairly flat and wide (~60') • Acts as an entrance • Utility poles are prominent sculptural elements 	<ul style="list-style-type: none"> • Utility poles in the middle of the block • Electrical boxes at the north end of the block • Feel uncared for
Opportunities	Threats
<ul style="list-style-type: none"> • Proximity to Viewland/Hoffman Electrical Substation • Visibility from the street 	<ul style="list-style-type: none"> • Noise from traffic • Cars could drive onto the block

Figure C.1 Block 1 SWOT analysis

Block 2

Strengths	Weaknesses
<ul style="list-style-type: none"> • Fairly flat and wide (~60') • Swale manages water • Utility poles are prominent sculptural elements 	<ul style="list-style-type: none"> • Utility poles in the middle of the block • Himalayan blackberry • Feel uncared for
Opportunities	Threats
<ul style="list-style-type: none"> • Proximity to children's learning center 	<ul style="list-style-type: none"> • Cars could drive onto the block

Figure C.2 Block 2 SWOT analysis

Block 3

Strengths	Weaknesses
<ul style="list-style-type: none"> • Swale manages water • Not part of the SCL ROW 	<ul style="list-style-type: none"> • Half grassy field and half concrete
Opportunities	Threats
<ul style="list-style-type: none"> • Visibility from the street • Proximity to a children's learning center 	<ul style="list-style-type: none"> • Proximity to a warehouse • Need car access

Figure C.3 Block 3 SWOT analysis

Block 4

Strengths	Weaknesses
<ul style="list-style-type: none"> • "Grassy country lane" feeling • Community care • Utility poles are prominent sculptural elements 	<ul style="list-style-type: none"> • Narrowness (~14' wide) • Less visibility because of houses bordering the east side
Opportunities	Threats
<ul style="list-style-type: none"> • Proximity to Evanston P-Patch • Potential for community engagement 	<ul style="list-style-type: none"> • None

Figure C.4 Block 4 SWOT analysis

Block 5

<p>Strengths</p> <ul style="list-style-type: none"> • Very flat and wide (~60') • Well maintained by neighbors • Utility poles aren't in the middle of the block • Used by neighbors • Utility poles are prominent sculptural elements 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Feels private since it has houses on the east and west side
<p>Opportunities</p> <ul style="list-style-type: none"> • Potential to engage children 	<p>Threats</p> <ul style="list-style-type: none"> • Next to a street with high traffic

Figure C.5 Block 5 SWOT analysis

Block 6

<p>Strengths</p> <ul style="list-style-type: none"> • "Country road" feeling • Feels enclosed by plantings • Utility poles are prominent sculptural elements 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Feels uncared for • Limits to what can be near poles • Depressions in the gravel road
<p>Opportunities</p> <ul style="list-style-type: none"> • Linked to other alleys 	<p>Threats</p> <ul style="list-style-type: none"> • Proximity of homes • Need for vehicular alley garage access • Cars may use the alley as a shortcut

Figure C.6 Block 6 SWOT analysis

Block 7

<p>Strengths</p> <ul style="list-style-type: none"> • Wider than Block 6 • Existing plants • Utility poles are prominent sculptural elements 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Feels uncared for • Limits to what can be near poles • Depressions in the gravel road
<p>Opportunities</p> <ul style="list-style-type: none"> • Opportunities to connect to Block 6 and Block 8 • Proximity of schools • Large trees in neighboring properties 	<p>Threats</p> <ul style="list-style-type: none"> • N 95th Street has traffic • Proximity of homes • Need for vehicular alley garage access • Cars may use the alley as a shortcut

Figure C.7 Block 7 SWOT analysis

Block 8

<p>Strengths</p> <ul style="list-style-type: none"> • One of widest part of site at 60' • Undeveloped land • Utility poles are prominent sculptural elements 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Feels uncared for • Limits to what can be near poles • Feels not open to the public • Depressions in the road • Half paved, half dirt road
<p>Opportunities</p> <ul style="list-style-type: none"> • Views of Olympics on N 92nd Street • Opportunity to connect idea of nature with an urban industrial context • Proximity of schools • Large trees in neighboring properties 	<p>Threats</p> <ul style="list-style-type: none"> • Sound Oil located on south end of block • Need for vehicular alley garage access

Figure C.8 Block 8 SWOT analysis

Block 9

<p>Strengths</p> <ul style="list-style-type: none"> • Unexpected nature trail • Evidence of use (i.e. dirt bike mounds) • Fences hidden by vegetation • Utility poles are prominent sculptural elements 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Some areas are narrow • Feels like a private space with the proximity of houses and gates at the entrances • Fewer sightlines
<p>Opportunities</p> <ul style="list-style-type: none"> • Potential to engage children 	<p>Threats</p> <ul style="list-style-type: none"> • Some homes have moved their fences into the SCL corridor

Figure C.9 Block 9 SWOT analysis

SCL Utility Corridor

<p>Strengths</p> <ul style="list-style-type: none"> • Utility poles are prominent sculptural elements • Variety of characteristics • Undeveloped land 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Disconnection between block • Corridor feels not open to the public • Lack of formal paths • Feels uncared for in some blocks
<p>Opportunities</p> <ul style="list-style-type: none"> • Connection to Greenwood Park and Interurban Trail • Views of Cascades and Olympics • Adjacent to Evanston P-Patch 	<p>Threats</p> <ul style="list-style-type: none"> • Tree limitations near utility poles • Proximity of homes • Need for vehicular access for some blocks • Narrowness of SCL utility corridor

Figure C.10 Entire site SWOT analysis

D. Design ideation sketches



Figure D.1 Green canopy arbor



Figure D.2 Experimental seating



Figure D.3 Netting above plant

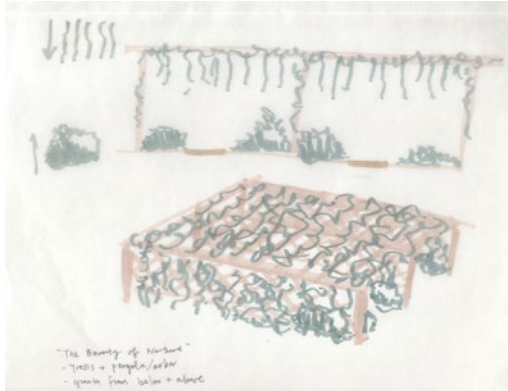


Figure D.4 Combined trellis and arbor



Figure D.5 Substrate for spontaneous ecology



Figure D.6 Broken concrete lining paths



Figure D.7 Different seating



Figure D.8 Urban agriculture



Figure D.9 Shallow wading stream



Figure D.10 Mound between tunnel of trees

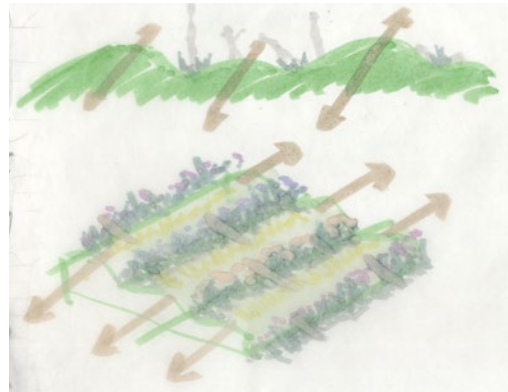


Figure D.11 Rolling hills with flowers



Figure D.12 Planted jungle gym arbor



Figure D.13 Walking bridge over swale



Figure D.14 Lighting mimicking foliage



Figure D.15 Wildlife shelters



Figure D.16 Different scale and textures



Figure D.17 Concrete garden



Figure D.18 Sensory plantings



Figure D.19 Art installation with light and shadow

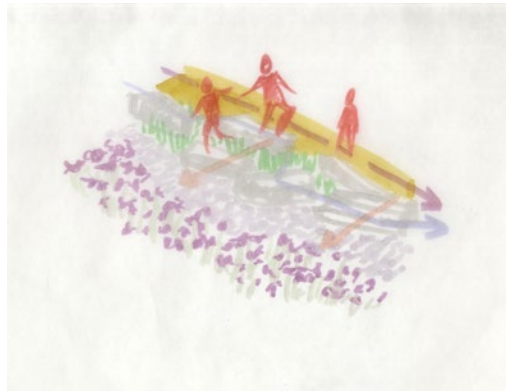


Figure D.20 Different path types



Figure D.21 Wildflower life cycle



Figure D.22 Concrete green walls and planters

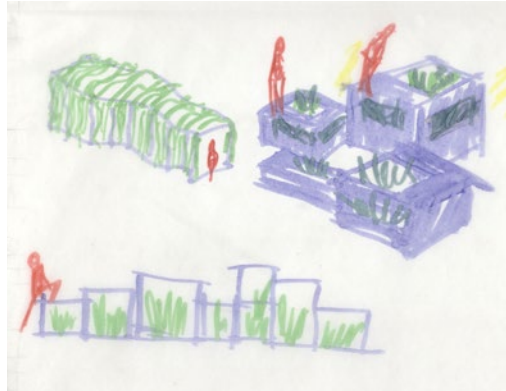


Figure D.23 Modular climbable planters



Figure D.24 Formalized walking trail



Figure D.25 Water feature



Figure D.26 Keyhole garden and permaculture



Figure D.27 Self-sowing annuals

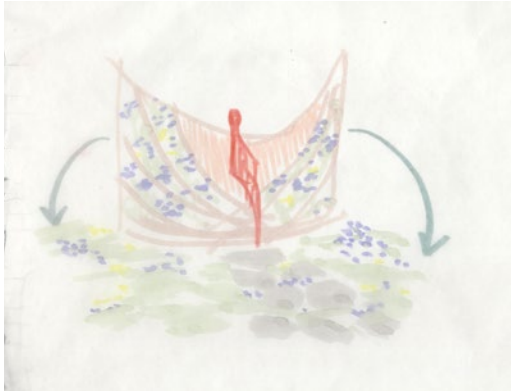


Figure D.28 Self-sowing planters and seating

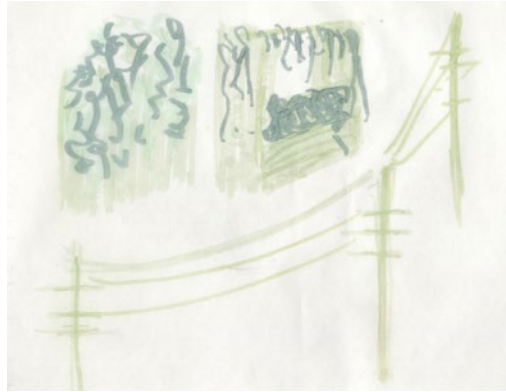


Figure D.29 Bamboo planters

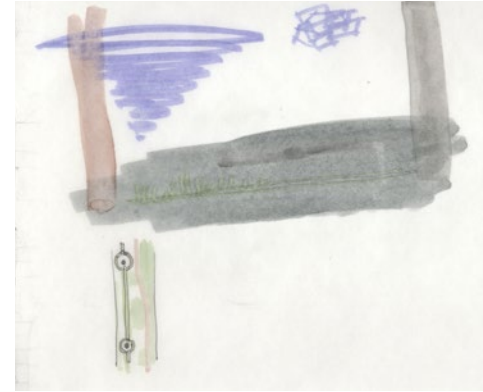


Figure D.30 Cracks between the utility poles



Figure D.31 Horticulture cycle

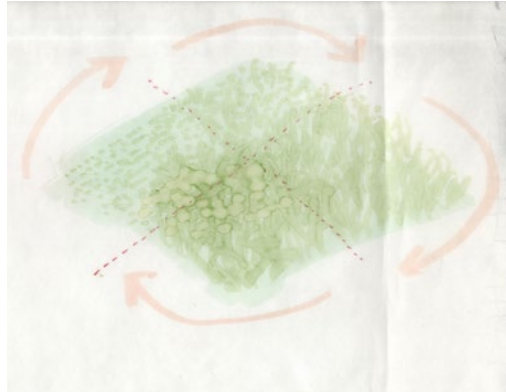


Figure D.32 Succession garden



Figure D.33 Restorative space



Figure D.34 Mounds



Figure D.35 "Wild" play area



Figure D.36 Pollinator friendly habitat