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Metronatural™: Inventing and reworking urban nature in Seattle

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Abstract

Seattle has long been considered a city in harmony with nature, a metropolis inseparable from and infused with the dramatic and picturesque Pacific Northwest landscape. Today, the city is frequently cited as a leader in sustainable urban development and this is due in large part to its unique relationship with its natural surroundings. However, the historical record of Seattle reveals this harmonious relationship between humans and nature to be a social construction. The founders of Seattle adopted an urban development approach similar to other North American cities and implemented large-scale engineering projects to rationalize the landscape while solidifying the municipal government as the ultimate arbiter of human/nature relations. The unintended economic, environmental, and social consequences of this so-called 'Promethean' approach to urban nature would be debunked in the 1950s, catalyzing a wide array of approaches by the municipality and residents to restore, protect, and live with nature in more benign ways.

In this article, I examine the politics of nature in Seattle to understand how changing perceptions of the urban landscape are related to different forms of expertise, governance, and citizenship. I focus specifically on activities to reorient urban water flows because they reveal the multiple tensions between humans and nature. The article adds to contemporary scholarship in landscape architecture, human geography, and environmental history on the dilemma of urban nature while highlighting the central role of technical experts, practices, and networks as well as issues of governance, citizenship, and management. Seattle's reputation as a green metropolis serves as an entry point to interpret the various relationships between humans, technology, and nature while also suggesting potential routes to realize more sustainable urban futures.

1. Chapter 1

Table 1.1 Definition of Metronatural™ (Source: SCVB, 2006)

In October 2006, the Seattle Convention and Visitors Bureau unveiled the term Metronatural™ as a new 'brand platform' to market the city to tourists and convention goers (SCVB, 2006). Metronatural™ serves as an adjective to describe the perceived character of the city and also a noun to embody the city as well as its residents. The branding campaign draws upon the perception that Seattle is a city defined first and foremost by its setting in a pristine and picturesque landscape. Local reception to the MetroNatural™ concept was lukewarm at best (see James, 2006; Johnson, 2006)

but the notion that Seattle is a city in harmony with nature continues to resonate with both residents and non-residents alike. In this vein, Raban (1993: 33) argues that Seattle was the ‘first big city to which people fled in order to be closer to nature.’

In contrast, the historical record of Seattle’s development reveals a very different relationship between wilderness and civilization, one that closely mirrors the development patterns of other North American cities. Early Seattleites struggled to survive in a landscape that hindered economic development and initiated massive engineering projects to flatten and rationalize the landscape to allow the city to grow. The rise of municipal governance in Seattle was founded on these Promethean activities to tame nature, resulting in a bureaucratic, expert-driven approach to manage the relationship between Seattleites and their material surroundings. These historical activities reveal the seemingly ‘natural’ landscape of Seattle to be a product of significant and deliberate human invention, an attitude that would dominate until the 1950s when widespread recognition of environmental pollution would inspire new approaches to urban nature. Today, there are a plethora of activities by the municipal government and community activists to rework the landscape in many different ways, all of which contribute to Seattle’s reputation as a leader in sustainable urban development (see Portney, 2003; SustainLane, 2006; Athens, 2009).

This article contributes to the critical study of urban nature that has undergone various iterations since the nineteenth century. Today, the topic involves a wide array of scholars from urban environmental history, cultural geography, landscape theory, and ecological politics who recognize that ‘cities are built in nature, with nature, through nature’ (Keil and Graham, 1998: 102). Spirn (1984: 5) summarizes the contemporary perspective of urban ecologists, writing, ‘The realization that nature is ubiquitous, a whole that embraces the city, has powerful implications for how the city is built and maintained and for the health, safety, and welfare of every resident.’ Gandy (2002: 5) furthers this perspective by emphasizing its political implications, writing, ‘The production of urban nature not only involves the transformation of capital but simultaneously intersects with the changing role of the state, emerging metropolitan cultures of nature, and wider shifts in the social and political complexion of city life.’ Such perspectives are helpful for studying urban nature because they do not rely on the common distinctions of nature and social, wild and constructed, and urban and rural, but rather emphasize the connections between these elements. Thus, it is an ecological perspective that is informed not by the science of ecology but by the recognition that the world is composed of relations, it is a product of relations (see Whatmore, 1999; Latour, 2004; Murdoch, 2006; Jones, 2009).

In this study, I use a narrative-driven case study methodology to interrogate the historical and contemporary relations of urban nature in Seattle. And I focus on a particular form of urban nature, water, because it ‘plays an important role in reconstructing the urban space with its closely choreographed intersection between technology, space, and society’ (Gandy, 2004: 366). Since its founding, Seattleites have benefited from and struggled with the abundance of water, including the large waterbodies that surround the city, the multitude of smaller waterways that divide and sculpt the landscape, and atmospheric water in the form of rain that creates a year round green landscape. This ambivalent relationship between cities and water, the choreography between the social and the material, the built and the unbuilt, the controlled and out-of-control, reveals a number of intriguing tensions between humans and their non-human surroundings.

I interpret Seattle as a ‘paradigmatic’ case study, one that is neither exemplary nor average but offers a range of context-dependent examples to explore issues of urban nature (see Flyvbjerg, 2001; Flyvbjerg, 2006). Research methods consisted of archival and contemporary document analysis as well as semi-structured interviews. For the document analysis, I studied primary and secondary materials in the University of Washington Library’s general and special collections, the City of Seattle Library, and the Museum of History and Industry. Materials included engineering and planning reports, maps, photographs, plans, local history accounts, academic dissertations and theses, journals, newspapers, magazines, and websites. In addition to the document analysis, I conducted 18 semi-structured interviews between 2006 and 2008 with actors involved in environmental activities in the city, particularly those involved in reorienting water flows. Interviewees included eight local and regional government officials, six design professionals and natural scientists, and four community and environmental activists. I granted these individuals anonymity to elicit unguarded opinions about the activities in question and protect them from possible negative repercussions for participating in the study. Interviews typically lasted between 60 and 90 minutes, although in a few cases the conversations lasted for more than two hours. Using qualitative content analysis software, I coded the information into the smallest practical fragments to ‘get intimate with the data’ (Esterberg, 2002: 157) and then constructed a narrative to relate the various perspectives and activities into a cohesive whole. The resulting study is not a comprehensive environmental history of Seattle but rather a series of significant examples that illustrate how urban nature has been invented and reworked from the city’s founding to the present day.

The study is presented in two parts. In part one (Chapters 2 and 3), I describe key activities that exemplify Seattle’s relationship with water between the mid-nineteenth century and World War II. I refer to this as the ‘invention era’ where the Promethean approach of controlling urban nature was realized through massive engineering projects while also contributing to the rise of technocratic municipal governance. These activities are frequently touted as positive contributions to the economic and cultural development of Seattle but this Progressive storyline neglects many unintended consequences, including social inequity, increased landscape instability, and undesirable population growth that were a direct result of rationalizing the landscape. In the second part (Chapters 4, 5, and 6), I examine four contemporary examples of water interventions to understand how urban nature is being reoriented by a variety of actors. The projects exemplify the ‘reworking era’ of urban nature in Seattle and highlight various implications for citizenship, governance, culture, and ecological health. In Chapter 7, I conclude by reviewing the key ideas in the study and present a framework of urban environmental politics to understand how different interpretations and practices of urban nature resonate and conflict with one another.

The aim of the study is threefold. First, it offers another richly detailed study of how nature, technology, and people interact in cities. Here, it is understood that ‘cities are dense networks of interwoven sociospatial processes that are simultaneously human, material, natural, discursive, cultural, and organic’ (Swyngedouw and Kaika, 2000: 568). Second, it strengthens the connections between urban environmental history, landscape and ecological design, and the sociotechnical study of cities by focusing on technical practices, networks, and expert knowledge that are central to the production of urban nature. Technological development is understood as both a material and social phenomenon that binds the city into particular configurations. And third, the study connects notions of hybrid natures from critical, post-structuralist, and landscape scholars with notions of politics, governance, and citizenship from scholars of environmental politics and ecological democracy. Thus,

it connects how we think about urban nature and how we collectively act upon it through practices and governance structures.

Urban nature continues to be a topic of significant debate and disagreement despite major advances in technological development, ecological science, democratic governance, and cultural understanding over the last century. The city of Seattle provides a helpful lens for studying these tensions and exposing the importance of the materiality of the built environment to our experiences and identities as urban residents. Swyngedouw (2007: 24) writes, 'The political and the technical, the social and the natural, become mobilized through socio-spatial arrangements that shape distinct geographies and landscapes; landscapes that celebrate the visions of the elite networks, reveal the scars suffered by the disempowered and nurture the possibilities and dreams for alternative visions.' Only by recognizing the dilemma of urban nature and taking steps to resolve the problems that it creates can we realize improved urban futures.

2. Chapter 2

Seattle is defined first and foremost by its location at the heart of the Pacific Northwest, a region also referred to as Cascadia, the Great Northwest, the Great Raincoast, God's Country, the Promised Land, and Ecotopia. The geographic extent of the region is dependent upon one's emphasis on climate, economics, culture, or a combination of the three. Schwantes (1989: 1-2) argues that 'any search for commonly agreed upon boundaries for the Pacific Northwest will prove fruitless...The regional perimeter, except along the Pacific Ocean, remains as indistinct as a fog-shrouded promontory.' The western border is always defined by the Oregon and Washington coasts while the other boundaries are contested, sometimes extending north to Alaska, south to San Francisco, and east to Montana. Despite the lack of consensus on the region's geography, Schwantes (1989: 368) notes:

In the Pacific Northwest, as in few other parts of the United States, regional identity is almost wholly linked to natural setting. The Pacific Northwest without its mountains, its rugged coastline, its Puget Sound fogs, its vast interior of sagebrush, rimrock, and big sky is as unthinkable as New England without a Puritan heritage, the South without the Lost Cause, the Midwest without its agricultural cornucopia, or California without its gold rush mentality.

And a specific form of nature, water, is at the heart of this regional identity. Edwards and Schwantes (1986: 3) write:

Beaver and evergreen symbolize the states of Oregon and Washington respectively. But an equally appropriate symbol for both might be a drop of water. In the Pacific Northwest as in few other regions of the US, water is an abiding, if not always appreciated, presence; fog and rain, glacier and waterfall, irrigation canal and tidal estuary, the Columbia River and Pacific Ocean.

Throughout the twentieth century, water has been understood as a significant driver of the regional economy. This was particularly evident during the storied infrastructure development period from 1930 to 1970, when hydroelectric dams were constructed to harvest 'white coal' as an inexpensive electricity supply (Edwards and Schwantes, 1986; White, 1995; Findlay, 1997). The prominence of hydroelectric dams in the region suggests that the 'promised land' was an unfinished one, requiring

large engineering projects to perfect the landscape and make it habitable for humans. Furthermore, the dam projects, largely initiated and funded by the federal government, solidified the notion of the Pacific Northwest through the promotion of a regional planning logic. The inexpensive electricity from the dams was applied to the defense industry during World War II and the Cold War, transforming the Pacific Northwest from a sleepy region into an international economic center (White, 1995; Findlay, 1997). The idea of the region was founded not only on its remote character and intrinsic beauty but also on the potential of the landscape to be exploited for economic gain.

2.1. Water and Seattle

In Seattle, water is central to its picturesque beauty. Puget Sound is the most prominent aqueous neighbor, forming the western boundary of the city that serves to 'convey a sense that water is always near' (Sale, 1976: 4) (Fig 2.1). Sale (1976: 6) writes, 'Seattle is a soft city, made up of soft light and hills and water and growing things and a sense that nature is truly accommodating.' Brambilla and Longo (1979: 1) extend this idea further in their description of the city:

Ideally situated on top of seven hills, 80 percent surrounded by water, with spectacular views of Lake Washington on its eastern flank and equally spectacular views of Mount Rainier, the Olympic Mountains and island-dotted Puget Sound, Seattle is a city with so much intrinsic beauty, so many breathtaking sights which can be seen just by looking out the window, that it starts with an advantage over most cities.

Fig 2.1 Seattle is situated between the Puget Sound to the west and Lake Washington to the east (Source: author)

Equally important to Seattle's distinct culture is atmospheric water in the form of rain (Richards, 1981). Situated between the Olympic Mountains to the west and the Cascade mountains to the east, Seattle receives consistent rainfall 150 days per year on average, resulting in a maritime climate that is distinct from the arid inland plains to the east of the Cascades (Brown, 1986). Early accounts of the Pacific Northwest by explorers and settlers, notably Lewis and Clark, included vivid descriptions of the unrepentant and depressing rainfall that plagued the region. The most memorable of these accounts described the coastal conditions to the west of the Olympic Mountains where annual rainfall in excess of 100 inches is common. Fortunately, Seattle lies partially in the rain shadow of the Olympic Mountains, otherwise it would receive excessive rainfalls similar to those experienced on the Olympic Peninsula (Yardley, 2006).

At the end of the nineteenth century, regional boosters debunked the notion of incessant rainfall by developing an 'ideology of climate' to reframe the precipitation patterns as a blessing rather than a curse (Brown, 1986). The campaign emphasized the advantages afforded by the climate of Oregon and Washington territory, particularly its mild and equable qualities. While it was noted that a small portion of the coastal areas of the Pacific Northwest was subject to overly abundant rainfall, the majority of the region enjoyed a climate similar to England, France, and Japan, and promised an equally prosperous future for its residents. Indeed, Seattle's annual rainfall of 36 inches is comparable to that of Dallas, Kansas City, Chicago, and Cleveland, and is only half that of wetter cities such as Miami and New Orleans. And depending on how you define rain, one could argue that it hardly rains in Seattle at all; over two-thirds of rain events are less than 0.04 inches per hour and constitute nothing more than a 'hard drizzle' (Church, 1974). What defines Seattle's precipitation pattern from other cities is its temporal distribution that results in an incessant light sprinkle,

sometimes referred to by the paradoxical term 'dry rain'. A local newspaper columnist (quoted in Laskin, 1997: 89) writes:

It's not the amount of rain that defines the Northwest. It's the persistence. Our rain is a relative you thought you knew until the day he showed up on your doorstep. He came in for the night, stayed through the weekend. Monday, he missed his plane. By Thursday, he had migrated from the spare room to the kitchen to the living room, devouring space as he went. Pretty soon he'd taken control of the refrigerator, the television and the stereo. Eventually, it dawns on you, he's taken over your life. Rain moves in and sets up shop in the imagination.

This mental preoccupation with rain by Seattle residents not only involves precipitation but the unavoidable cloudy and dark conditions. Seattle's location between the Cascade and Olympic mountain ranges is referred to as the Puget Sound Convergence Zone, a place where clouds and rain are trapped for up to three quarters of the year. Fallows (2000: 22) argues that 'if the climate were not so dark and rainy.....everyone would want to live here.' The bright side of Seattle's climate is that the moderate conditions also result in a lack of severe meteorological events such as droughts and flooding, although long-term risks of earthquakes and volcanoes are a continuous threat (Williams, 2005).

The preponderance of water in Seattle and the Pacific Northwest also touches on another important defining element of the region: salmon. The salmon is a totem of the region, similar to the crab of the Chesapeake Bay, the walleye of the Great Lakes, and the lobster of New England (Kling, 2007). Egan (1990) has controversially defined the Pacific Northwest boundaries as any place that salmon can reach. And Cronon (1999: x) argues that it is impossible to separate the species from the region: 'The salmon is not just a keystone species but a cultural icon of the first order, a powerful symbol of all that the Pacific Northwest is and has been.' With the introduction of canning technologies in the late nineteenth century, salmon became an economic opportunity of global proportions for Pacific Northwest fishermen; people throughout the world could now sample a taste of the region (Findlay, 1997). Industrial-scale salmon harvesting, along with the destruction of habitat for hydroelectric dams and urban development, would result in significant declines in salmon populations and by the turn of the twentieth century, Pacific Northwest salmon populations were on life support, with wild populations sustained and supplemented by human-managed fish hatcheries. Taylor (1999) refers to the challenges of maintaining salmon populations in the Pacific Northwest as an 'enduring crisis' that continually attempts to reconcile the human connection with and the potential extinction of this iconic megafauna.

2.2. Creating an ideology of nature

At the beginning of the nineteenth century, the Pacific Northwest was a place of geographic isolation; indeed, the region has only had appreciable Anglo settlement for the past century and a half (Robbins, 2001). San Francisco became the closest link to civilization with the 1849 gold rush and Pacific Northwest towns served as principal trading outposts throughout the remainder of the 1800s. Settlement of the region began after the Civil War but the land was relatively unpopulated until the 1880s and 1890s when settlers came en masse following the 1883 completion of the Great Northern Railroad (Edwards and Schwantes, 1986). Railroad marketing campaigns characterized the region as the 'Great Northwest' and the 'Great Pacific Northwest' to lure settlers and vacationers

with the romance of experiencing the last region to be settled in the continental US (see Bunting, 1997; Findlay, 1997).¹

A significant element in marketing the region to newcomers involved its intrinsic natural beauty. The Pacific Northwest was spared the ravages of the Civil War and rapid industrialization that decimated the landscape in other parts of the country (Edwards and Schwantes, 1986). Raban notes that Anglo populations began to settle the Pacific Northwest just as the notion of the Romantic Sublime came to dominate environmental thought; the region was an ideal place to conceive of how the landscape *should* look, with iconic features reminiscent of the Swiss Alps, the German Forest, and the English Lake District. He (2001: 44) writes, 'It was a quickly established convention that Northwest water was sufficiently still to hold a faithful reflection of a mountain for hours at a time.' Bunting (1997: 42) adds, 'If America was "Nature's Nation", no place looked upon itself more self-consciously as "Nature's Region" than the Northwest.' With respect to Seattle, Beaton (1914: 17) sums up the allure of the city to early residents as follows:

We who live here are persuaded that nowhere else on earth is a city favored such as ours. With every facility for great commerce by land and sea we combine an aesthetic perfection that no other commercial center on the globe can match. Over hills and across valleys the city stretches, and from every doorstep there is a view of mountain and water. Roses, which pay scant attention to the calendar, climb over the palace of the millionaire and the cottage of the artisan. From behind the Cascade Mountains the sun comes up each day and at night falls beyond the jagged peaks of the Olympics, his last rays lighting up a golden path across Puget Sound to the shores that Seattle rests upon. To the south the vista holds Rainier's hoary peak rising majestically above all other heights in any of our states. To the north is the peaceful pathway of water that brings the fleets of all the world to lay commerce on Seattle docks. The climate is a peaceful one, given to no excesses and but scant indulgence in snow or frost. All the year around our lawns are green.

And the innate beauty of Seattle and the Pacific Northwest was not to be admired from a distance. The lush, green landscape was also understood to be full of inexhaustible natural resources ripe for extraction by industrious settlers. As such, nature served double duty, first as an aesthetic source of pleasure and wonder, and second as a source of employment and economic gain (Schwantes, 1989). Early fur trapping activities were gradually supplanted by timber and fishing industries, attracting a population that was largely Anglo and male. The demographics of the region at times fueled an environmental determinist argument familiar to Northern Europeans and Scandinavians that promoted the climate as ideal for Anglos to prosper intellectually and spiritually (for example, see Weber, 1924). Today, the regional demographics continue to be skewed towards Anglos, with the cities of the Pacific Northwest having some of the lowest populations of African Americans in the US, although there are significant numbers of Asian Americans and Latinos (Findlay, 1997).

While the population of the Pacific Northwest tends to be relatively homogenous, the region is heavily influenced by Asian and European cultures as well as the region's original inhabitants, the

¹ The ties to the continent would ultimately be solidified with the expansion of the Interstate highway system in the 1950s. Seattle is at the terminus of Interstate 90 that stretches eastward to Boston and the Atlantic Ocean, and is also on Interstate 5 that serves as the spine of the massive corridor of human settlement on the West Coast extending from Mexico to Canada.

various Native American tribes (Schell and Hamer, 1995). Raban (2001: 41) argues that 'its Indian...past lies very close to the surface, and native American conceptions of landscape and land use remain live political issues here.' The Native American heritage of Seattle has a strong influence on its international reputation, particularly the city's namesake, Chief Seattle or Sealath. Chief Seattle was the leader of the Suquamish and Duwamish tribes and is known throughout the world for his famous speech from 1854, a part of which reads (quoted in Kaiser, 1987: 508):

The earth does not belong to man; man belongs to the earth.
This we know.
All things are connected like the blood which unites one family.
All things are connected.
Whatever befalls the earth befalls the sons of the earth.
Man did not weave the web of life; he is merely a strand in it.
Whatever he does to the web, he does to himself.

The speech of Chief Seattle glorifies the harmonious relationship between Native Americans and nature, and reflects an ecological ethic that seems to be missing in Western industrialized nations. A significant problem with this story is that Chief Seattle never uttered these influential words; the 'Chief Seattle Speech' is a product of American screenwriter Ted Perry, hired by the Southern Baptist Radio and Television Commission in the 1970s to draft a script for an environmental documentary. Perry's words reflect the 1970s environmental politics of the Club of Rome rather than the beliefs of late nineteenth century Native Americans of the Pacific Northwest (see Kaiser, 1987; Furtwangler, 1997). And yet, the myth of Chief Seattle continues to inform the environmental rhetoric of the city and region, espousing a landscape ethic that is purportedly rooted in local Native American philosophy.

Geographic narratives are particularly important for framing the benefits and drawbacks of particular places while also forwarding normative prescriptions for how residents should relate to their material surroundings (Nye, 2003a). The ideology of Seattle as a place where humans and nature can coexist in harmony is one that continues to this day. One need only look to the homegrown outdoor recreation companies such as REI and Eddie Bauer, the popularity of outdoor pursuits such as hiking, camping, and skiing, the aforementioned Metronatural™ campaign of the Seattle Convention and Visitors Bureau, or any tourist guidebook to recognize that nature pervades and defines the city. This reputation is not only due to the landscape characteristics but also to the various stories that have been told and retold by residents, urban boosters, tourism proponents, and visitors since the city's founding. Nye (2003b: 8) argues that 'people tell stories in order to make sense of their world, and some of the most frequently repeated narratives contain a society's basic assumptions about its relationship to the environment.' The stories that Seattleites told and continue to tell about nature are part and parcel of the Seattle's standing as a city in the promised land.

2.3. Improving the promised land

The logging and milling of 'big nature' in the land surrounding Seattle created a small industrial town by the late nineteenth century (Lang, 2003). However, urban boosters recognized that the growth of the settlement could not rely on its original economy of natural resource extraction and would need to expand to compete with the larger towns of Portland and San Francisco. To spur economic growth, a new interpretation of nature would emerge to frame Seattle's nature as beautiful but also

incomplete. Thrush (2006: 89) summarizes this new perspective of a landscape in dire need of human improvement:

Seattle was a bad place to build a city. Steep sand slopes crumbled atop slippery clay; a river wound through its wide, marshy estuary and bled out onto expansive tidal flats; kettle lakes and cranberried peat bogs recalled the retreat of the great ice sheets; unpredictable creeks plunged into deep ravines—all among the seven (or, depending on whom you ask, nine or fifteen) hills sandwiched between the vast, deep waters of Puget Sound and of Lake Washington.

Beaton (1914: 64) makes a similar argument, stating that the glaciers that shaped the landscape left the city as a 'tousled, unmade bed' with undulating hills that provided breathtaking views but hindered economic development.² This new perspective on nature in Seattle at the turn of the century interpreted the landscape as both a blessing and a curse; the city was notable not only for what it contained but also for what it lacked (Findlay, 1997). Furthermore, some of the most rigorous promoters of economic development believed that nature's abundance and the moderate climate led to unproductive behavior; settlers could achieve extraordinary results with little effort, resulting in minimal impetus for urban development and social progress (Brown, 1988; Bunting, 1997). The curse of the bountiful landscape was that it led to idleness and a lack of ambition.³

To correct these problems, the landscape would be subjected to rigorous transformation so nature and its residents could realize their full economic and social potential. This was, of course, the classic formula for Progressive Era urban development at the turn of the twentieth century. The rise of the contemporary city was an attempt to make a physical and cognitive break from the past and non-human wilderness through the construction of an urban landscape that would be human-created, rational, and permanent (Gandy, 2002). Nye (2003a: 10) notes that 'nineteenth century Americans repeatedly told themselves stories about the mastery and control of nature through technology in which radical transformations of the landscape were normal developments.' As such, the domination of nature by humans was central to the notion of progress in the nineteenth century, an idea that can be reduced to a simple formula: 'Progress equals the conquest of nature by culture' (White, 1996: 171). In cities, there was a shared belief that the expulsion of nature from human habitat would result in widespread social improvement.

The domination of nature by humans has been referred to as the 'Promethean Project of Modernity' (Proudhon, 1972; Dryzek, 1997; Foster, 2000; Kaika, 2005; Kaika, 2006). Dryzek (1997) describes the Promethean worldview as a cornucopia of abundance with nature having adequate feedback mechanisms to correct for human abuses. He (1997:45) writes, 'Prometheans have unlimited confidence in the ability of humans and their technologies to overcome any problems presented to them.' For US cities in the late nineteenth and early twentieth centuries, the Promethean approach centered on the development of large technical systems – water, sewer, transportation, and electricity – that would transform the landscape to allow for economic development while also

² A long-standing aphorism to remember downtown street names reflects the unfavorable topographic conditions: 'Jesus Christ Made Seattle Under Protest' (Sale, 1976). The streets (from south to north, in pairs) are Jefferson/James, Cherry/Columbia, Marion/Madison, Spring/Seneca, University/Union, and Pike/Pine.

³ Moody (2003) argues that the lack of ambition by Seattleites continued until the emergence of the so-called Seattle Silicon Rush that began in the 1980s when Microsoft and other companies reoriented the city's economy from manufacturing to high tech.

spurring the development of municipal governance and the related practice of comprehensive city planning (Schultz and McShane, 1978). These systems not only required long-range vision on the part of municipal officials for population growth forecasting, technical network design, and infrastructure financing, but also called for a permanent bureaucracy to administer these issues on a day-to-day basis (Schultz and McShane, 1978; Tarr et al., 1984; Tarr, 1988; Schultz, 1989).

And undoubtedly, the hero of the Promethean storyline is the engineer who would emerge as 'the modern Prometheus, the One Man who would stand alone against nature' (Kaika, 2006: 276). The profession of engineering emerged in the first half of the nineteenth century as self-trained experts were increasingly tapped to resolve the nature/culture dilemma. Well into the twentieth century, the role of the engineer was widely understood as the harnesser of nature for human ends, as illustrated by a chemical engineer's 1913 proclamation:

What is Engineering? The control of nature by man. Its motto is the primal one—'Replenish the earth and subdue it'....Is there a barren desert—irrigate it; is there a mountain barrier—pierce it; is there a rushing torrent—harness it. Bridge the rivers; sail the seas; apply the force by which all things fall, so that it shall lift things....Nay, be 'more than conqueror' as he is more who does not merely slay or capture, but makes loyal allies of those whom he has overcome! Appropriate, annex, absorb, the powers of physical nature into human nature!⁴

The work of engineers was central to Progressive Era reform efforts where it was understood that improved material conditions of cities would lead to the improved moral and physical health of urban residents. As Kaika (2006: 276) argues, 'The heroes of modernity promised to dominate nature and deliver human emancipation employing imagination, creativity, ingenuity, romantic heroic attitude, and a touch of hubris against the given order of the world.' Engineers positioned themselves as apolitical and efficient problem solvers, a technical elite who would save society through the application of scientific and empirical knowledge (Melosi, 1996). Schultz and McShane (1978: 399, 411) note that 'engineers professed to work above the din of local politics' and describe the importance of engineers to municipal governance as follows:

Engineers stamped their long-range visions of metropolitan planning on the public consciousness over the last half of the nineteenth century. Their successful demands for political autonomy in solving the physical problems of cities contributed to the ultimate insistence for efficient government run by skilled professionals. At the heart of physical and political changes in the administration of American cities, indeed at the very core of city planning, stood the work of the municipal engineers.

The urbanization of the Pacific Northwest was reliant on a technocratic elite who could master and engineer the physical world and invent a form of urban nature that could be controlled for human ends (Swyngedouw, 2004; Kaika, 2005). The initiation of the Promethean Project in Seattle began with the recognition that the region had been blessed with a surplus of natural resources that could and should be exploited to realize widespread societal progress. Subsequent processes of exploitation would require significant human intervention to change the human/nature relationship

⁴ This quote is from a 1913 article in the *Journal of Industrial and Engineering Chemistry* and was reprinted in Wurth, Jr. 1996: 129. The quote highlights not only the hubris of engineering ambition at the turn of the twentieth century but also provides fodder for the eco-feminist critique of masculine labor engaged in the submission of feminine Mother Nature (see Merchant, 1996).

through the application of the latest technological advances, resulting in the creation of the modern municipal government and the economic engine of the city. In this way, urban water (and by extension, nature) was interpreted as a technomanagerial issue to be addressed through scientific and technical practices via a technocratic elite (Kaika, 2005).

Three events in the last decade of the nineteenth century fueled Seattle's transformation from a fledgling settler outpost into an industrial city defined by urbanization, large-scale capital investment, and the bureaucratization of government and business (Bunting, 1997). First, the aforementioned arrival of the Great Northern Railroad in 1893 allowed Seattle to compete economically with its closest urban rival, Tacoma. Second, the discovery of gold in the Klondike territory of Canada in 1897 transformed Seattle into a major trading center, with the 1880 population of 3,500 residents quickly growing to over 240,000 by 1910 (Blackford, 1980). And third, an event of large-scale destruction allowed the city to rebuild from scratch; in June 1889, the entire downtown burned to the ground. The fire consumed fifty blocks, resulting in property damage estimated at \$10 million, although miraculously, no human lives were lost.

The 1889 fire highlighted the need for a consistent water supply that could provide fire protection while also supporting the growing urban population. Thus, the development of water supply infrastructure had multiple implications for residents of the city, not only as a means to protect the past and present city but also to ensure a prosperous future. It would involve the transformation of natural resource flows into capital flows, a common formula for Progressive urban reform across the US (Kling, 2007). From a public works perspective, the fire was a godsend because it created a nearly clean slate to build new infrastructure networks using an emerging rational and systematic planning logic while also fueling a widespread civic spirit directed at rebuilding the decimated downtown (Seney, 1975). Beaton (1914: 10) writes, 'While the ruins were yet smoldering the people of the stricken city met in the Armory to plan the rehabilitation of Seattle.' Rehabilitation would be completed in a few short years as the original wood structures were rebuilt in brick and stone. More importantly, the rebuilding of Seattle would involve several massive engineering projects that would remake the entire landscape and 'invent' nature in the city.

2.4. Water as the city's lifeblood

Before the 1889 fire, residents of Seattle relied on pumps from Lake Washington for their water supply but the pumping capacity was inadequate for fire protection. The first reaction by city officials after the fire was to increase the capacity of the existing system but this strategy was quickly abandoned in 1892 when Reginald H. Thomson was appointed as city engineer (Fig 2.2). Thomson, a self-trained engineer from Indiana, worked as a surveyor before being hired by the City of Seattle to head up its nascent engineering department. He recognized that the Lake Washington water supply would be inadequate for the future growth of the city because of the expense required to pump water to the city's residents. Seattle voters approved a \$1 million bond to create a new, gravity-powered water system and construction began on the water supply system from the Cedar River (Williams, 2005). Thomson oversaw the design and construction of over 22 miles of pipeline to bring Cedar River water to the city and the new water supply was put into operation in January 1901 (Dorpat and McCoy, 1998) (Fig 2.3). The municipality subsequently used the consistent, clean water supply to annex neighboring cities such as West Seattle and Ballard.⁵ Expanding the 'ecological

⁵ Today, Seattle acts as a wholesaler of Cedar River water to several neighboring municipalities, including Bellevue, Kirkland, and Redmond (Dorpat and McCoy, 1998). The Cedar River watershed encompasses

frontier' of the city via the new water supply network also expanded the reach of the municipal government (Gandy, 2002).

Fig 2.2 Seattle city engineer R.H. Thomson, circa 1931 (Source: MOHAI 1986.5.43455)

Fig 2.3 Construction of the Cedar River water supply in 1899 (Source: University of Washington Libraries, Special Collections, UW 27484)

Thomson was undoubtedly one of the most important individuals in the growth of Seattle. He would serve as city engineer under seven mayors from 1892 to 1911 and the Cedar River water supply system would be only the first of many major projects he undertook to transform Seattle into a modern city. Thomson was a proponent of big civic improvement projects and like other Progressive urban reformers, believed that social problems could be solved by more and better engineering (Thomson, 1950; Sale, 1976; Klinge, 2007). In this way, he was the quintessential technocrat, using his engineering vision to conflate technical and social progress while purportedly staying above the fray of partisan municipal politics (Schultz and McShane, 1978; Melosi 1996; Schultz, 1989). His work on Seattle's physical landscape was intended to perfect nature's designs and in doing so, improve society, much like Colonel George Waring, Jr., the vaunted nineteenth century US sewer expert, and William Mulholland, the famed municipal engineer who brought water from the Owens Valley in Eastern California to Los Angeles (Reisner, 1986; Melosi, 1996; Melosi, 2000). Thomson's most pressing engineering problems in the city included water supply, sewerage, and transportation; and he recognized that they were all related by the common element of water.

2.5. Engineering the landscape for economic development

Designing and constructing water and sewer networks was an enormous challenge at the turn of the twentieth century and required massive amounts of funding as well as mastery of engineering techniques that were still emerging and changing rapidly. However, designing and building these infrastructure networks would pale in comparison to Thomson's most famous engineering project. Surveying the landscape of the city, he noted a preponderance of hills and recognized them as an impediment to growth. In his memoirs, he (1950: 14) famously remarked: 'Looking at [the] local surroundings, I felt that Seattle was in a pit, that to get anywhere we would be compelled to climb out if we could.' This perspective mirrored those of other Seattle commentators who felt that Seattle's landscape was an unfinished one. Thomson's proposed solution for bringing Seattle out of its pit involved a series of massive projects to erase the hills of downtown Seattle and flatten the grades of its transportation routes. The regrading projects would correct the impediments to urban growth dictated by the original landscape and create a level platform on which commerce could flourish, a classic example of municipal engineers conflating societal and material progress.

91,000 acres of municipal property and provides water for 70 percent of Seattle's population. Protection of the Cedar River watershed was a gradual process of property acquisition and involved the selling of logging rights on the land to buy the property. This strategy seems strange from a contemporary perspective where mature tree cover is understood as a necessary component to protect water quality. The most intensive clear cutting activities were undertaken between 1900 and 1923, followed by extensive planting. The municipality allowed more clearcutting in subsequent decades and commercial logging was not curtailed until 1997 (Klinge, 2007). Overall, about 83 percent of the total forest cover has been logged (Williams, 2005).

The first regrade project began in 1898 on Denny Hill to the north of the downtown where workers used steam shovels and carts to remove soil. Progress on removing the hill was slow but this would change with the arrival of Cedar River water in 1901, when the regrading strategy was modified to use hydraulic sluicing techniques developed for gold mining operations on the Pacific Coast. Hydraulic nozzles called ‘Giants’ were modified with a ball-and-socket joint to allow for horizontal and vertical movement, and large nozzles 2.5 to 3.5 inches in diameter were used to create water pressures of 75 to 100 pounds per square inch (Fig 2.4). The adoption of water as the medium of excavation greatly sped up the regrading efforts and effectively created an industrial process of landscape alteration (Kling, 2007). Beaton (1914: 68) provides a vivid description of the regrading process:

Day and night great streams of water incessantly ate their way into the yielding hills, steam shovels chewed immense holes and spit their mouthfuls into waiting wagons, houses stood dizzily on freshly created peaks, or moved out of the way of the devouring progress to return later and lower themselves to the new levels that were provided.

Fig 2.4 Hydraulic sluicing activities at Bell Street and Fourth Avenue in downtown Seattle (Source: University of Washington Libraries, Special Collections, Lee 20022)

Massive amounts of water were required to remove the hills and grades in downtown Seattle, the majority coming from the Cedar River water supply and supplemented by a pumping plant on Elliott Bay. For example, on the Jackson Street regrade on the south end of the central business district, the Giants consumed between 9 and 12 million gallons of water per day, almost a third of the total Cedar River water supply. The Cedar River would also supply kinetic energy to power the Giants and hydroelectric power for electric lights so sluicing operations could continue 24 hours a day (Kling, 2007). Had it not been for the forgiving geologic conditions of the hills—composed of sand, gravel, clay, and hardpan instead of bedrock—the regrading efforts would have been impossible (Dimcock, 1928). In short, cutting-edge technology conspired with the geologic conditions in Seattle and the Progressive aspirations of the municipal engineers to create a wholly new relationship between Seattleites and their material surroundings.

The hydraulic sluicing technique greatly accelerated the regrading efforts and was used for the majority of the almost 60 regrading projects over the next three decades (Fig 2.5). The elevations of over 20 downtown streets were altered and several large hills were removed with the financial support of downtown property owners who would benefit from increased property values and business revenues (Kling, 2006b) (Table 2.1). In some cases, the municipal government was forced to use the power of eminent domain to compel uncooperative residents to support the regrade effort. Some of the most indelible photographs of Seattle from the early twentieth century feature ‘spite mounds’ with buildings resting on precariously small patches of land spared from the Giants (Kling, 2007). All of the recalcitrant property owners would eventually give in and the mounds would be erased. Beaton (1914: 64) provides a poetic description of the regrade projects, writing, ‘The hills raised themselves in the paths that commerce wished to take. And then man stepped in, completed the work which Nature left undone, smoothed the burrows and allowed commerce to pour unhampered in its natural channels.’

Fig 2.5 The regrading of Second Avenue in 1906 with the Washington Hotel towering above the surrounding downtown blocks (Source: MOHAI 2002.3.383)

Table 2.1 A sample of statistics from Seattle regrading projects (Source: Dimcock, 1928; Dorpat and McCoy, 1998)

The regrading projects are a vivid example of human activities to perfect nature through technology, and they illustrate the tight connection between urban development, landscape alteration, and technological progress (Nye, 1999; Nye, 2003a; Kaika, 2005). The regrading activities can be understood as part of a long history of reworking the landscape for human ends, a practice that would reach its zenith with experiments in geographical engineering, the moving of vast quantities of earth and rock via nuclear explosions (see Kirsch, 1998). Estimates on the total volume of soil moved during the regrade projects vary, with some figures as high as 50 million cubic yards or about one one-eighth of the Panama Canal excavation, the measuring stick for large engineering projects at the time (Klinge, 2006a). It was through the regrading projects that the municipal government created a *tabula rasa* upon which the city could prosper.

2.6. Rationalizing the boundary between land and water

Thomson sold the regrading projects as a way to unite the city's divided neighborhoods by erasing the vertical relief that constrained the free flow of people and goods, but the regrades also served to rationalize the shifting boundary between water and land. Raban (1993: 30) notes, 'Seattle was built on pilings over the sea, and at high tide the whole city seemed to come afloat like a ship lifting free from a mud berth and swaying in its chains.' The waterfront consisted of a variable amalgam of water and land that resisted the creation of a permanent foundation for economic growth. Not only was Seattle's economic future compromised by a hilly landscape but also by one that was impermanent, with tidal activity continually renegotiating the boundary between land and water. This was particularly evident in the area to the south of downtown, where the Duwamish River emptied into Elliott Bay. The tideflats were a desirable place to expand the central business district due to the ready access to deep water for transportation of goods but this area was comprised of thousands of acres of estuary lands (Fig 2.6).⁶ From the perspective of Promethean actors, the estuary was a disordered landscape that introduced uncertainty and constant change rather than solidity and stability. It was an unfinished landscape in dire need of improvement.

Fig 2.6 The tideflats and waterfront south of downtown Seattle as seen from Beacon Hill circa 1898 (Source: MOHAI 1983.10.6049.4)

Filling of the tidelands began informally in the nineteenth century as municipal solid waste and sawdust from local lumber production was deposited on this unbuildable landscape (Dorpat and McCoy, 1998). However, the regrading efforts produced massive quantities of fill for the low areas of the city and the industrial process of regrading was quickly extended to include the systematic filling of the tidelands. Spoils from the regrading activities were washed into sluicboxes and loaded into carts for transportation to the tidelands and low areas where they were dumped (Dimcock, 1928). The goal was to establish grades two feet above extreme high tide and in some areas, this involved raising the tideflat elevation by as much as 40 feet. Overall, an estimated 1,200 acres of tideflats were filled with spoils from the regrading projects (Dimcock, 1928).

⁶ Puget Sound is the second largest estuary in the United States after Chesapeake Bay (see Jones, 2007).

The tidelflat reclamation project was supplemented in 1914 with dredging activities in the lower Duwamish River to straighten and deepen the channel as well as fill in the estuaries at the mouth of the river. Within eight years, contractors had moved 24 million cubic yards of soil and replaced the river delta with what was at the time the world's largest artificial island, Harbor Island, that would eventually become a platform for industrial activities (Thrush, 2006). And in the mid-1930s, the City of Seattle would receive federal funding from the Works Progress Administration to build the Alaskan Way seawall along the downtown waterfront. The seawall would create a permanent boundary between land and water, ensuring that waterfront buildings in the central business district would not be undermined by water. These activities would create 'a new place for nature in the city subjected to an ever-greater disciplinary control' (Oliver, 2000: 227), formalizing the divide between nature and culture (Gandy, 2006).

The regrading of Seattle's hills and the rationalization of its boundaries with Puget Sound and Duwamish River are two of the most prominent examples of how urban nature was reworked in Seattle in the late nineteenth and early twentieth centuries. These activities followed a Promethean approach that involved the control of nature through large-scale technical intervention while also solidifying the municipality as the principal mediator of human/nature relations in the city. The government was defined by its ability to rationalize an irrational landscape and put it to productive use. Water played a central role in these activities, creating instability in the landscape and also supplying kinetic energy to reorder its topography. In this regard, Gandy (2004: 373) writes, 'Water is not simply a material element in the production of cities but is also a critical dimension in the social production of space.' However, the production of new space did not result in the taming of the unruly landscape but rather created particular configurations of nature, technology, and humans with unanticipated consequences, a few of which are described in the next chapter.

3. Chapter 3

In 1931, the regrade projects came to an unceremonious end due to a gradual erosion of public support as well as the arrival of the Great Depression. Reflecting on this period in Seattle's history, Klinge (2007: 181-2) notes, 'The genius of the engineer was to make the ceaseless destruction and rebirth of the city an exercise in progress, but progress had its limits. Even Thomson could not annihilate all of Seattle's hills at once.' Thomson had been an adept political strategist during his tenure as city engineer but his regrading efforts had turned Seattle into 'one vast reclamation project' for three decades and residents were fed up with living and working in a perennial construction zone (Bagley, 1916: 354). The disenfranchised, those who were physically displaced or whose property values were diminished by the regrading efforts, finally succeeded in fighting off the municipality. Although the regrades ceased, the activities by Thomson and the municipal government in the first three decades of the twentieth century had successfully transformed the landscape to allow for economic growth. Morgan (1951: 3) concludes that 'the engineers made it possible for a modern metropolis to be built on the half-drowned mountain that lies between Puget Sound and Lake Washington.'⁷

3.1. Big engineering and social inequity

7 Thomson remains the unacknowledged 'hero' of Seattle's Progressive era; no major infrastructure project or civic building in Seattle bears his name despite his prominent role in the creation of the city. In the 1950s, the municipal government proposed the R.H. Thomson Freeway to connect Renton to University Village in central Seattle but the plan was defeated in the early 1970s by anti-highway and environmental activists (see Crowley, 1993).

With all of his large engineering projects, Thomson espoused social and economic reform through the modification of material conditions. Klinge (2007: 95) writes that ‘clean water and level land were ethical as well as economical and political goals for Thomson.’ The material reordering of the city would simultaneously fulfill the Promethean goal of controlling nature while ensuring societal progress, the classic formula of Progressive urban reform (Kaika, 2005). However, the grading and filling activities were not nearly as benign as Thomson claimed due to the geographic distribution of Seattle’s population. Middle and upper class Seattleites lived on the ridges and hills, looking down upon the polluted lowlands that were occupied by low-income, minority, and transient populations. The regrading and filling projects raised the lowlands and created more land for economic growth and as a consequence, populations who lived in these lowlands were pushed further afield and concentrated in areas outside of the downtown business district (Berner, 1991; Klinge, 2007). As noted in the previous chapter, the regrading activities resulted in the relocation of some middle- and upper-income residents who lived on the ridges and hills but this paled in comparison to the filling of the tidelands because the latter activities encompassed a larger area and were more comprehensive in nature. As such, the Promethean activities in Seattle are an example of ‘how nature and society combine in the production of socio-spatial fabric that privileges some and excludes many (Swyngedouw, 2004: 184).

During the Great Depression, shantytowns sprung up at the waterfront and on the newly filled tidelands south of downtown. In 1935, an estimated 4,000 to 5,000 residents lived on the tidelands in an informal ‘Hooverville’ community (Fig 3.1). In 1942, municipal officials cited national security issues related to waterfront activities for the war effort as an excuse to burn Hooverville to the ground (Klinge, 2007). Fire would once again reorder the landscape but this time it was an intentional intervention aimed at improving the social order. Progressive idealism espousing the civic virtue of massive engineering efforts hid the removal of unwanted residents, filth, and blight from the city. Meanwhile, those living at the bottom of society, both economically and physically, shouldered the negative consequences of rationalizing the Seattle landscape for economic gain.

Fig 3.1 The informal settlement known as Hooverville on the filled tidelands south of downtown Seattle in March 1933 (Source: MOHAI 1983.10.10788)

3.2. *The land refuses to be tamed*

An irony of the landscape transformation in Seattle was that Thomson and the municipal government marketed these efforts as a means to create a stable foundation but instead, ‘improving’ nature created new conditions of instability. Klinge (2007: 106) notes that ‘the new landscape was hybrid, offered neither fully natural nor fully human control. They had produced landscapes that were often more dangerous and less reliable than those they had altered.’⁸ Prometheans were committed to the impossible goal of complete control over nature while their activities often shifted problems either geographically or temporally rather than resolve them (Swyngedouw, 2004).

8 For example, the new football stadium, Qwest Field, was built in the early twenty-first century on the reclaimed tideflats south of downtown and sits on 1,700 pilings that were driven 50 to 70 feet into the ground (see Magnusson, 2002). Digging crews frequently uncovered bottle troves, garbage dumps, and organic soil deposits that were all unsuitable for creating a solid structural foundation.

From the earliest times, landslides and unstable soil conditions plagued Seattle residents and in many cases, civic improvement projects served to exacerbate rather than minimize these problems. The glacial history of the region resulted in the deposit of unconsolidated or partially consolidated soils, and while most of these sediments are compacted under several thousand feet of glacial ice, they are not solid rock. As noted earlier, this geologic configuration was beneficial for the hydraulic sluicing activities but served as a less than desirable foundation for building, particularly on steep slopes (Tubbs, 1974). Furthermore, the subsurface consists of a lattice of water flows that slowly loosens the layers of sediment and eventually causes landslides. The construction of roads, buildings, and underground utilities beginning at the end of the nineteenth century would change these subsurface drainage patterns, creating landslides in unanticipated areas. Alteration of the landscape for urbanization not only implicated surface features but also the complex amalgam of soil, rock, and water in the subsurface. Landslide mitigation became yet another crucial municipal service to mediate the relationship between Seattleites and the landscape (Table 3.1).

Table 3.1 City of Seattle slide removal activities, total cubic yards of material removed, 1923 to 1935 (Source: City of Seattle Streets and Sewers Dept. Annual Reports, 1924-1936)

To address the unstable geology of the city, the federal Works Progress Administration (WPA) provided funding to the City of Seattle's Engineering Department in the mid-1930s to complete 29 subsurface drainage projects. This extended Thomson's Progressive logic of improving society by improving nature through the Great Depression via federally funded infrastructure projects. The drainage improvements provided by the WPA funding were not as newsworthy as other federal projects in the Pacific Northwest, such as the building of the Grand Coulee Dam, but they would serve to further rework Seattle's landscape. The projects involved the construction of trenches, tunnels, footings, and retaining walls to redirect subsurface water flows and reduce landslide incidents (Evans, 1994). As with other New Deal programs, the drainage projects were a combination of infrastructure improvement and employment for local residents; a stipulation of the WPA funding required the municipality to use unskilled labor and hand tools. Between 1935 and 1941, over 700 laborers dug an estimated 20,000 feet of drainage trenches at a cost of \$1 million (Fig 3.2) (Evans 1994).

Fig 3.2 Cross-section of a WPA slide mitigation project in the Magnolia neighborhood of Seattle with two vertical interceptor tunnels and a horizontal drainage tunnel, all dug by municipal laborers with hand tools (Source: Evans, 1994)

As such, the Promethean Project did not separate the city from nature but rather created new dependencies that required continuous management. As Kaika (2006: 297) notes, 'modernization is an ongoing project in which natures, cities, and people are woven together in an inseparable dialectic of creation and destruction.' In Seattle, the drains continue to function today and Seattle Public Utilities (SPU) staff members check them periodically to ensure they function as designed. A staff member reflecting on the WPA-funded work in the 1930s notes, 'God bless the WPA for putting in those drains. But they didn't map them very well and it's a little unclear who is responsible for them.' In other words, the drains continue to be crucial to maintaining habitable conditions aboveground but their subterranean character makes them difficult to manage. A major storm in 1996 resulted in 300 landslides and caused damage to municipal property in excess of \$30 million as well as an undetermined amount of private property damage. The widespread damage and

disruption to the city prompted the municipal government to create a comprehensive strategy to address landslide issues and today, the municipality continues to struggle with the shifting landscape created by both natural and engineering forces (see SPU, 2005) (Fig 3.3).

Fig 3.3 Potential slide and liquefaction zones in Seattle today (Source: author)

3.3 *The unanticipated consequences of economic growth*

The big engineering projects undertaken since the late nineteenth century in Seattle were intended to improve upon nature and create a city that would prosper while also enjoying the advantages of a beautiful natural setting. Instead, the municipal government created a hybrid landscape that was at once controlled and out of control, predictable and unpredictable. But the invented landscape created by Thomson and the municipal government would lead to unprecedented population growth and urban expansion in subsequent decades and from this perspective, the Promethean approach was a huge success. Seattle's population increased steadily from the turn of the century, starting with fewer than 100,000 residents in 1900 and growing to over 500,000 residents by 1960 (Fig 3.4).

Fig 3.4 Population Growth of Seattle, 1900 to 1960 (Source: City of Seattle, 2008)

The tipping point for population growth in Seattle and the surrounding areas would come in the 1940s as water quality in Lake Washington began to change visibly due to sewage inputs from Seattle and the surrounding suburbs. The lake, the second largest in the state with a length of 22 miles and a width varying from 1 to 4 miles, had also undergone significant changes as Seattle grew (Kruckeberg, 1991). While the Duwamish industrial channel was being created in 1914 to the south of the central business district, similar construction projects were underway to remold the hydrologic flows to the north of the city. In 1916, the municipality completed a ship canal to connect Puget Sound to Lake Union and Lake Washington via a series of locks. The canal had been a long-held dream by the municipal government and business interests to connect the waterbodies and thereby open them to commerce and recreation. The ship canal dropped the elevation of the lake by an average of ten feet, creating new shoreline for residential development, and redirected the lake outflow through the ship canal to the west rather than the Duwamish River to the south.⁹

Thomson made a wise decision in the late nineteenth century to direct major sewage outfalls away from Lake Union and Lake Washington but nonetheless, smaller sewage outfalls from Seattle and other municipalities continued to be directed to these water bodies. By 1922, Lake Washington was receiving 30 raw sewage outfalls from the east side of the city and residents recognized a significant decrease in the water quality of the lake (Brown and Caldwell, 1958). The city built three rudimentary wastewater treatment plants in 1924 at a cost of \$2.5 million but later abandoned these plants in favor of an interceptor sewer, constructed in 1936, to divert all Seattle sewage outfalls from the lake (Dorpat and McCoy, 1998). Despite these efforts, growth of the surrounding suburbs (particularly after World War II) would lead to further deterioration of the lake's water quality. The Mercer Island floating bridge was opened in 1940, providing a convenient automobile connection between Seattle and the eastside. Urban development around the lake resulted in the

⁹ The Hiram M. Chittenden Locks in the Ballard neighborhood of Seattle are a popular attraction for tourists and locals to watch salmon migrating up to Lake Washington and to admire the technical ability of engineers to regulate the hydrologic metabolism of the region.

creation of 21 independent sewer districts by 1955 and these communities were dumping both treated and untreated wastewater into the lake. Where visibility in the lake had been three meters in 1938, it had dropped to less than one meter by the early 1950s (Kling, 2007). Thick mats of algae began to appear and public health officials had to shut down swimming areas due to health risks. The notion of 'eutrophication' entered the public lexicon as scientists at the University of Washington began to characterize how the influx of nutrients to the lake resulted in an artificially enriched ecosystem, due in large part to untreated sewage volumes from neighboring urban areas (Edmondson, 1991).

The deteriorating water quality of Lake Washington became a highly visible symptom of the unintended effects of urban growth in the region. Findlay (1997: 57) writes:

The region's identifications with its natural resources—nurtured for so long by railroads and other boosters—came to have new implications: calls for preservation rather than exploitation of those resources became stronger. Continued growth, especially unmanaged growth, came into question. Overcrowding and pollution threatened the good life that was the trademark of the Pacific Northwest for so long.

It was during this time, a decade before environmentalism would emerge as an issue of national importance, that the Promethean approach would be discredited in Seattle. There was widespread acknowledgement that the dilemma of nature had not been solved by engineering improvements. Kaika (2005: 6) describes this downfall of the Promethean Project as follows: 'From tamed and controlled (the prerequisite for development), nature is now the source of crisis, a potential impediment to further development.' The rationalization of the landscape in the early twentieth century had the unanticipated effect of massive population growth that created undesirable environmental pollution. But unlike the social inequity and land instability issues described above, the deterioration of Lake Washington was a highly visible problem that would spur residents and the government into action to redefine the relationship between Seattleites and nature.

3.4. A regional approach to water quality protection

Beginning in the 1950s, Lake Washington became a large-scale field site for UW scientists to reverse the impacts of pollution and to better understand the causes and effects of adding nutrients to a large water body, in effect a 'pioneer whole lake experiment' (Lehman, 1986: 314). It involved an unprecedented synergy of scientific research and public awareness of an environmental problem at the time. Political activists in Seattle recognized that water pollution was tied to larger problems of urban growth that would require a coordinated, large-scale effort to resolve. Just as there was a concerted effort in the first half of the twentieth century to tame nature, now there was an equally concerted effort to save nature from the unintended consequences of urban growth.

In the early 1950s, urban reformer Jim Ellis initiated a proposal to solve Lake Washington's pollution by forming the Municipality of Metropolitan Seattle, or Metro.¹⁰ Metro would manage growth

¹⁰In Seattle and communities surrounding Lake Washington, efforts to create a regional sewerage authority began as early as 1915 (Melosi, 2000). In the US, regional cooperation between municipalities was proposed as early as the 1870s to optimize municipal service provision, either through cooperative agreements, annexation or consolidation into central cities, or the creation of special governmental districts. However, these were largely unsuccessful because of disagreements over responsibilities and costs, with special districts having the most success (Tarr et al., 1984).

through regional jurisdiction over water supply, sewage, solid waste, transportation, comprehensive planning, and park administration (Lehman, 1986). Inspired by Toronto's example of regional governance, the 'super utility' would have taxation powers to fuse the old faith in engineering with new public interests in ecological protection and environmentalism (Kling, 2007). Proponents of regional governance in the 1950s were attempting to reconcile the economic and environmental networks of the area through the comprehensive provision of public services. At the time, Ellis argued that 'Seattle is a young city with a chance to lick its metropolitan problems before being swallowed up by them' (quoted in Lane, 1995: 4). Thomson had succeeded in creating an urban growth machine for Seattle while failing to account for the consequences of population growth in the areas adjacent to but outside of the municipality's jurisdiction. In effect, the economic gains afforded by the rationalized landscape within Seattle's city limits had extended population growth and land development beyond the regulatory reach of the city.

Not surprisingly, the proposal for a strong regional government was resisted by many residents, particularly those in Seattle's suburbs who feared the consolidation of political power in the city as well as the threat of higher taxes and restrictions on property rights (Edmondson, 1991). The difference in perspective between Seattleites and other regional residents was evident in the first regional vote to authorize the formation of Metro in March 1958. Seattle voters approved the ballot measure but residents in smaller cities and suburbs soundly rejected it. Undeterred, Ellis and his group of regional governance proponents revised the authority's mandate, significantly limiting Metro's jurisdiction to only sewage treatment and excluding those districts (particularly in south King County) that had rejected the first proposal. Their revised strategy was a success; Metro received voter authorization by the majority of Seattle and suburban voters in September 1958.

After forming, Metro moved quickly and in 1961, proposed a ten-year sewage system plan that would comprise 231 square miles at a cost of \$125 million. The plan, funded through a \$2 per household monthly sewer charge, involved the construction of an interceptor sewer around the entire perimeter of Lake Washington as well as facilities to treat waste volumes before discharge into Puget Sound. At the time, this was the most expensive sewage diversion project in the nation (Lehman, 1986). Metro also entered into 50-year contracts with member cities and neighboring sewer agencies and by 1962, had signed contracts with 15 municipal sewage districts representing over 300,000 customers (Dorpat and McCoy, 1998). Diversion of sewage discharges began in 1963 and water quality conditions in the lake improved almost immediately. Visibility in 1967 was less than one meter and this increased to almost three meters the following year and to over six meters by 1977, twice the visibility as measured in 1938. The diversion process was completed in February 1968 and Metro received international recognition for one of the most successful lake cleanup efforts ever undertaken (Dorpat and McCoy, 1998).

The efforts to clean up Lake Washington were similar to the large engineering projects undertaken in the first half of the century to replumb and regrade the city but now the equation was reversed: big engineering was needed to improve nature by controlling the impacts of humans (Kling, 2007). The work supplemented the Promethean project with a new mandate of environmental protection and an amended mission for technical experts who governed the environmental flows of the region. The call for environmental protection did not threaten the technocratic elite but rather strengthened their position while extending their geographical reach as environmental managers. Non-experts were involved in exposing the problems of pollution but it was the experts who were

charged with designing and implementing solutions that could be carried out by local and regional governments.

And despite the claims of Metro and its allies, the replumbing of the region to save Lake Washington was not a 'win-win' solution for all residents in the region. Saving the lake came at the expense of the waterbody receiving the diverted sewage, the battered Duwamish River. Already burdened by dredging, straightening, and filling activities to accommodate industrial development in the early twentieth century, the fishermen and Native Americans who relied on the Duwamish for recreation and sustenance were further impacted by the Metro interceptor sewers and treatment plants that defined the river as the ultimate drain of the region (Kling, 2007). As a result, those who lived closest to Lake Washington received the greatest benefits while those who lived in the bottomlands of the city were again burdened with the detrimental impacts of economic and population growth. Kling (2007: 229) notes, 'Just like the Progressive agenda, Metro's agenda benefited those with power.' The triumph of cleaning up Lake Washington involved shifting environmental risk and aesthetically undesirable conditions to a different locale and was particularly detrimental to low-income populations who lacked political power to protest the diversion strategy. Today, only two percent of the original estuary banks still exist and the Duwamish is home to some of the most altered landscapes in the greater metropolitan area (Ith, 2004).¹¹

Beyond the inequitable conditions created by Metro's sewage diversion projects, the regional agency failed in its original mission to control and direct growth. By limiting its authority to sewage treatment, Metro promoted a technical fix approach to the regional growth problem by creating a mandate for universal sewage treatment and ironically, facilitated more growth in the distant suburbs that could rely on the new interceptor sewers to serve new community development. Once again, technological development would facilitate more population growth and an expanded urban area. Kling (2007: 232) notes that 'Metro's sewers spared the lake but did not rein in unbridled growth. They merely pushed the waste elsewhere and let the building continue.' The implicit message of Metro's approach was that environmental problems could be overcome with a comprehensive regional infrastructure network. Meanwhile, the region's residents continued to be wary of regional planning and governance, as evidenced by voter rejection of several efforts by Jim Ellis and Metro supporters to expand their authority to mass transit, park management, and other duties in the 1960s and 1970s.¹²

3.5. From invention to crisis

The history of Seattle's development from its origins in the mid-nineteenth century to the 1960s demonstrates an ever-evolving relationship between the city's residents and their material surroundings. The ideology of nature that was invented to attract settlers to the region was also used to justify the need for the Promethean project of landscape alteration. Progressive proponents at the turn of the century used big engineering projects as a way to improve society by altering their material surroundings but in the process created an uneven social landscape that favored some while discriminating against others, particularly low-income, transient, and Native American

¹¹ In 2001, portions of the Duwamish industrial corridor were designated as Superfund sites and there are nascent efforts by a variety of governmental agencies, including the Port of Seattle, King County, and the US Army Corps of Engineers, to clean up and restore the river (Sato, 1997; Thrush, 2007).

¹² Metro merged with King County in 1994 to become the King County Department of Metropolitan Services, although it is still referred to as Metro (Lane, 1995). See <http://metro.kingcounty.gov/>.

populations living in the low lying areas of the city. Even the triumph of solving Lake Washington's pollution problems through the creation of a regional governmental body had uneven social impacts and unintended consequences. However, the rise of Metro would signal a turning point for the city and pave the way for new conceptions of human/nature relations that would be furthered in the 1960s and 1970s. These examples demonstrate two phases of the Promethean Project: invention and crisis.

The cleanup of Lake Washington was a defining moment in the relationship between Seattleites and nature, revealing the unintended consequences of the Promethean project while recognizing the need for regional governance to reduce the conflicts between ecological and social flows. Activities from the late 1950s onwards arguably serve as the foundation for the municipality's contemporary reputation as a sustainable city. Today, the municipality's Office of Sustainability and Environment, founded in 2000, addresses a wide range of issues – climate change, air quality, green building, water quality, open space acquisition, green purchasing, and so on – demonstrating how the protection and stewardship of urban nature is embedded in all aspects of governance (see Krueger and Agyeman, 2005; Athens, 2009). In the next three chapters, I examine contemporary activities of environmental management in Seattle with an emphasis on a particular type of urban water, (stormwater runoff) and its relation to a particular form of urban nature (creeks). The activities, undertaken by a variety of state and non-state actors, illustrate the multiple routes for reworking urban nature that have been undertaken since the 1950s and suggest very different forms of expertise, governance, and citizenship.

4. Chapter 4

Almost all of Seattle's waterways, from Lake Washington and the Duwamish River to the smallest creeks and ponds, were significantly modified in the twentieth century to make way for urban development. In the most extreme cases, as with the regrading projects, the waterways were completely filled in or directed into pipes, while in others the banks were regarded and dams and weirs were installed. Today, the creeks of Seattle are a particular form of urban nature that receive a great deal of attention and energy from the municipality, neighborhood organizations, and residents. The creeks are at once natural and technical, loved and despised, beckoning and threatening, beautiful and ugly, and they provide multiple insights on the relations between the city and nature.

4.1. Creeks and urban runoff

The biological and physical condition of the creeks in Seattle is closely related to the development of the city's stormwater networks. The central core of Seattle continues to be served by the nineteenth century combined sewer network and the original watercourses in this area were erased by intensive urban development and regrading activities. Overall, combined sewer networks serve about one-third of the geographic area of the city, carrying a combination of sanitary and stormwater volumes to Metro's regional wastewater treatment plants. A second type of drainage network is informal and consists of ditches and culverts that cover another third of the city's geographic area. These networks are prevalent in the northern areas of the city that were annexed primarily in the 1950s. The municipal government agreed to upgrade these facilities as part of the annexation process but due to funding constraints, significant infrastructure upgrades have only been completed on major arterials. And finally, separated or partially separated networks handle some or all stormwater volumes separately from sanitary wastewater volumes in the remaining

third of the municipality's jurisdiction (Inglis, 2005). With the partially separated networks, roof drains are directed to the sanitary sewer and street drains flow to the storm sewer.

The heterogeneous runoff regime in Seattle is the result of an ad hoc evolution of drainage logics applied by the municipal government over time. The ditch-and-culvert networks and the separated or partially separated networks discharge directly into the city's creeks and waterways; the creeks literally serve as the trunk lines for these networks because they are low-lying features that provide an inexpensive conveyance channel for surface runoff. In combination with land development and weir construction, the creeks have been highly altered from their pre-development conditions, resulting in increased flooding and erosion as well as loss of habitat for aquatic species, notably the local salmon populations. Seattle once had some 40 creeks that sustained healthy salmon populations but today, only four creeks support these populations (Yocom, 2007).

As in most US cities, the municipal government in Seattle has emphasized conveyance and flood protection when designing, constructing, and operating the drainage networks. Seattle Public Utilities (SPU) was formed in 1997 to combine the municipal government's operations of water supply, wastewater conveyance, stormwater management, and solid waste management into one organization (SPU, 2005). SPU's drainage activities are divided into four major programs: stormwater and flood control, landslide mitigation, aquatic resource protection—water quality, and aquatic resource protection—habitat, and has issued three Comprehensive Drainage Plans to date (in 1988, 1995, and 2004). Each of the plans places an increasing emphasis on water quality and habitat protection due to a variety of state and federal laws relating to environmental protection, notably the Clean Water Act and the Endangered Species Act (Chandler, 2002; SPU, 2005). Despite the local importance of environmental protection since the 1950s, it is only since the late 1990s that the municipal government has formally recognized the ecological function of urban creeks and made a concerted effort to improve water quality conditions and restore habitat.

In March 1999, the US National Marine Fisheries Service announced that eight wild salmon and steelhead populations in the Pacific Northwest would be listed as threatened under the Endangered Species Act, and a ninth population would be listed at the highest level of endangered. The listing was the broadest action in the 26-year history of the Endangered Species Act in terms of geography and impact on human populations due to the inclusion of the metropolitan regions of Portland and Seattle. The 1999 ESA listing reminded Seattleites of the enduring crisis of salmon management in the Pacific Northwest that began in the late nineteenth century. Moreover, the announcement reinforced the notion that salmon recovery was not merely a rural issue to be solved by increasing the number of artificial fish hatcheries or preserving more tracts of wilderness but would require urban residents to restore the salmon habitat in their own backyards, particularly with respect to the Puget Sound Chinook, a native to Seattle's waterways. The picturesque landscape that had attracted earlier settlers was now characterized as a human-dominated region, and nature had been crowded out. It was time to bring nature home again.

Paul Schell became mayor of Seattle in 1998, a year before the ESA listing and two years before the millennium. He recognized both of these upcoming events as an opportunity to establish historic municipal government programs as a significant break from the Promethean legacy of the past century. Schell had a unique professional background; in the 1970s, he served as director of community development for the city, and subsequently worked as a real estate developer, a Port of Seattle commissioner, and acting dean of the College of Architecture and Landscape Architecture at

the University of Washington. More striking than his eclectic résumé was his outspoken commitment to urban sustainability. Schell was fond of invoking a bioregionalist idealism when he talked about the future of the Pacific Northwest and was a self-proclaimed visionary who enjoyed philosophizing about big ideas (see Schell and Hamer, 1995). Like his predecessor Norm Rice, Schell recognized the connection between neighborhood activity and environmental conditions and he was determined to leave a legacy that would counter the city's Promethean history, stating, 'The citizens who settled Seattle wanted to conquer nature. We want to celebrate it' (quoted in Enlow, 1999: 10). Anticipating the forthcoming ESA listing, Schell (1999) wrote an op-ed piece in *The Seattle Times* titled 'Saving Salmon May Save Ourselves', a passage of which reads:

The reasons for a declining salmon population can be summed up easily: We humans create too many competing uses for our rivers, streams and oceans. If you're looking for something to blame, it's the growth and development that surrounds us.....In short, millions of people have crowded out millions of fish. It's time to strive for a better balance...Our wild salmon connect us to the land we live on, to the people who were here before us, and to the people who will be here when we are gone. We can save this wonderful creature, and by doing so, we may very well be saving ourselves.

Schell's conflation of salmon health and human health reflected on his belief in the contemporary formula of sustainable development, that environmental protection and economic development could be complementary rather than competing goals (Hajer, 1995). Schell put this formula into action with the inauguration of the Urban Creeks Legacy Program in 1999, designating four creeks—Longfellow, Piper's, Taylor, and Thornton—in the four corners of the city to be targeted for restoration efforts (Fig 4.1). The initiative dedicated \$15 million in funding over a five-year period to improve urban salmon habitat. A former director of SPU (quoted in Dietrich, 2000) notes, 'The idea was to have fish come back to the four corners of the city. We're not going to make a dent in saving salmon, but we're going to make a big dent in the public's understanding of the life of salmon and the life of a creek.' The Urban Creeks Legacy Program was an attempt to reveal the connections between nature and Seattleites, even if the rehabilitation of urban salmon populations was not a realistic outcome. The approach represented a unique environmental program whose end goal was public education and infrastructure improvement in addition to ecological restoration and protection. In effect, Schell redefined the urban nature rhetoric that had evolved from the late nineteenth century to fit with emerging notions of sustainable urban development. He was also tapping into the increasing enthusiasm for urban creek restoration that had begun in the 1960s. Reflecting on the importance of urban creek restoration activities in Seattle, Dietrich (2000) argues that:

It turns the environment from an abstract ideal to a stomping ground city people can see every day. Seattle's creeks are potential refuges not just for salmon but for creatures that range from deer and eagles to algae and aquatic insects. They are places of meditation and retreat. They are outdoor classrooms. They are filters for runoff. They are corridors for both hikers and wildlife. They are where we teach our kids to pick a future.

Fig 4.1 The four waterways of the Urban Creeks Legacy Program (Source: author)

As part of the Urban Creeks Legacy Program, SPU staff members were asked to develop a pilot project that would reduce the impact of urban runoff on receiving creeks (Inglis, 2005). SPU staff

recognized that the land area in the city was almost completely developed and rather than focus on greenfield protection, the most promising opportunity for intervention lay in leveraging the public rights-of-way comprising 25 percent of the city's land area (Johnson and Staeheli, 2007). It was here, in the public corridors of the city, that SPU could apply its technical expertise with municipal funding to rework the relationship between Seattleites and nature. And rather than continue to rely upon the conventional engineering approach of taming and controlling nature, this would be an opportunity to develop a new logic of urban drainage that traced the problems and solutions of urban drainage back to the source. The result was the Natural Drainage Systems (NDS) approach.

4.2. *Ecological function and aesthetics: the Natural Drainage Systems approach*

The NDS approach is similar to Low Impact Development (LID) and Sustainable Urban Drainage strategies that first emerged in the 1980s in North America and Europe (see Andoh, 2002; Coffman, 2002; Ferguson, 2002; NAHB, 2003; Butler and Davies, 2004; Baker, 2007; France, 2008). These strategies recognize that conventional stormwater management as practiced in previous decades has not been effective at addressing pollution impacts due to urban runoff. They call for 'source control' measures that include strategies such as bioswales, pervious paving, green roofs, and rainwater harvesting, to mimic the pre-development hydrologic cycle as closely as possible. LID pioneer Larry Coffman (2002: 97) writes that 'the basic goal of LID is to engineer a site with as many small-scale retention, detention, prevention, and treatment techniques as needed to achieve the hydrologic functional equivalent to predevelopment conditions.' This approach is promoted not only as a way to reduce environmental impacts but also to reduce costs of infrastructure construction and maintenance and can be interpreted as a green governance strategy for urban drainage where the mantra is 'pollution prevention pays' (Dryzek, 1997; Moss, 2000).

The emergence of source control as an alternative drainage strategy suggests that urban water flows should not be directed by *hydraulic calculations* and engineered treatment systems but rather close analysis of *hydrologic function* and the leveraging of ecosystem services. An SPU staff member states, 'NDS signified a shift from the conventional stormwater approach which is all about getting water from point A to point B to saying that SPU does more than just convey water. We do habitat work and water quality work.' Reflecting on the impetus for the NDS approach, another SPU staff member notes:

We already had a lot of interest in the creeks and there was an opportunity because it was the upcoming millennium. We convinced the mayor [Paul Schell] that instead of building some fancy building like in London, we should restore our creeks and trees. So we got this huge influx of money in 1999 to do projects and that's how the idea gelled to try the NDS approach. The money was flowing, the economy was good, so we got the opportunity to try this.

The NDS approach is distinct from the Promethean approach as espoused by Thomson and his contemporaries in the first half of the twentieth century. It builds upon the bureaucratic structure and centrality of scientific and technical experts, supplementing their knowledge with the ecological and biological sciences (just as the Lake Washington cleanup did) but with a greater emphasis on the design disciplines and a more thorough understanding of ecological function. While this is distinct from the Promethean approach to controlling nature, the underlying structure of top-down, technocratic governance remains in place to define the preferred conceptions of nature/culture

relations (Shutkin, 2000). As such, the NDS approach can be understood as the reform of existing environmental governance.

The first project to follow the NDS approach was SEA Street (SEA is an acronym for Street Edge Alternative), a small retrofit project on a single block in the Piper's Creek watershed directly upstream from Carkeek Park. An environmental activist plainly states that 'the high quality of Piper's Creek and the downstream quality of Carkeek Park was a key factor in SPU choosing the location for the SEA Street project.' SPU staff members also targeted the Piper's Creek watershed because it had a ditch-and-culvert network for stormwater runoff and thus, they could justify the project not only as a retrofit but also an upgrade to a street with inferior infrastructure.¹³ SPU staff identified several neighborhood blocks of appropriate slope and length for the pilot project and sought support from these homeowners who would be directly affected. They held a contest and the winning block on Second Avenue NW between NW 117th and NW 120th Streets had 18 out of 19 residents who were enthusiastic about the project. SPU staff members oversaw a collaborative design process with the residents and the design team negotiating various issues such as street and sidewalk width, curb height, and number of parking spaces as well as runoff pathways and locations of swales.

The project was completed in 2001 and included 660 feet of infrastructure upgrades at a cost of \$850,000. Reflecting on the cost, an SPU staff member notes, 'It was a small cost compared to other SPU projects but given the fact that it was a prototype, it was heavily scrutinized.' The existing street width was reduced from 25 feet to 14 feet, some parking spaces were removed, and a series of bioswales along with a four-foot wide sidewalk were constructed on the west side of the street (Fig 4.2). In some cases, the swales were lined with an impermeable barrier to avoid basement flooding issues and a landscape architect worked with homeowners to integrate the street edges with their properties and select from a palette of native and non-native plants (Mills, 2002). The change in the street character was dramatic, transforming a nondescript two-lane residential street with a ditch-and-culvert drainage network into a meandering, narrow road with lush vegetation and a series of swales. The design slowed vehicle traffic, provided a sidewalk for pedestrians, and anecdotal evidence suggests that residents have benefited from higher property values.

Fig 4.2 Details of the SEA Street project, including the winding, lush streetscape (left), the ribbon curb and narrow sidewalk (top right) and a bioswale (bottom right) (Source: author)

In terms of hydrologic performance, the new street design reduced impervious cover by 11 percent and researchers from the University of Washington have monitored the drainage performance, noting that 'the project has the ability to attenuate all or almost all runoff over a fairly wide range of conditions' (Horner, 2003: 8). Except for very heavy and infrequent rainfalls, the swales are able to infiltrate all stormwater runoff. Furthermore, stormwater flow velocities downstream in Piper's Creek have been reduced by 20 percent and the system has withstood a number of significant winter storms since it was completed (Inglis, 2005).

¹³ There is no consensus in Seattle about upgrading streets in neighborhoods with informal drainage networks. While some believe that the municipal government should honor its original commitment to upgrade the infrastructure in annexed areas of the city, others prefer the unfinished, rural feel of the streets (Mills, 2002).

There was initial concern by some SEA Street residents that the prototype design was inferior to the traditional curb-and-gutter design and thus, did not constitute a genuine street improvement, and there were also complaints about the reduced number of parking spaces on the street (Inglis, 2005). However, the negative perceptions of the project have largely dissipated as residents on the street (as well as adjacent streets) have begun to use the right-of-way in new ways. An SPU staff member notes, 'From a social perspective, the use of the street has changed. It has turned into essentially a public walking space. People with kids and their training wheels perceive it as a safe place to go for a walk. It's dramatic.' SEA Street is not merely an upgrade to the city's drainage network; it completely reinvents the aesthetic and functional qualities of public rights-of-way. The project serves the dual purpose of restoring the natural hydrologic function of the urbanized watershed while also increasing residents' understanding of the natural processes in which they live (Hurley and Stromberg, 2008). It is a noteworthy example of what landscape architects call 'eco-revelatory design' where the goal is to highlight the connections between the human and nonhuman through a process of revealing and marking (see Brown et al., 1998; Eisenstein, 2001; Biscoombe, 2002).

More difficult than negotiating with homeowners over the new street design were the battles that erupted between municipal departments over the modification of the right-of-way area. In particular, the transportation and emergency services departments cited concerns about the safety of children with respect to the open drainage swales as well as access for emergency vehicles and adequate provision for parking (Inglis, 2005). One SPU staff member notes, 'For SEA Street, the transportation department only approved the width of the street because it was a demonstration. They did have an emergency response there and they've been down the street, but they don't like it.' SEA Street posed a direct challenge to the conventional understanding of public rights-of-way but had the built-in advantage of being a municipality-initiated project and thus, SPU had more negotiating power with other municipal departments and could successfully push for more radical reinterpretations of street function. The battle between municipal experts was won by the stormwater engineers, largely due to the support of the mayor and the promise that this would be a one-off project, an experiment rather than a new standard for street design.

The SEA Street project has received regional and national acclaim as an innovative approach to sustainable stormwater management. In 2003, the project and the NDS Program received the 'Vision 2020' award from the Puget Sound Regional Council for promoting a livable Pacific Northwest region. And in 2004, the NDS program won the prestigious 'Innovation in American Government' award from Harvard University's Kennedy School of Government as well as \$100,000 in prize money (Inglis, 2005). Riding on this success, SPU would go on to replicate, expand, and revise the SEA Street process on four more projects (Table 4.1). It was not a one-off project by any means but a potentially new approach to mediating the tensions between humans and nature in the city through creative design intervention. The subsequent projects were selected not only for their potential to upgrade existing infrastructure networks but their promise for improving the biological integrity of downstream waterways (Mills, 2002). Furthermore, the NDS approach represented a significant shift in the governance of urban nature with design and public involvement as central components.

Table 4.1 Natural Drainage System projects, 2001 to 2009 (Source: SPU, 2009)

4.3. The grid and the swale: The High Point Redevelopment

Three of the subsequent NDS projects – 110th Cascade, Broadview Green Grid, and Pinehurst Green Grid – are similar to SEA Street in their focus on reorienting public rights-of-way in residential

neighborhoods but each expanded the approach to include larger and larger areas. Two of the projects are in the Piper's Creek watershed and the third is located just east in the Thornton Creek watershed; all of the projects are in areas with ditch-and-culvert drainage networks and are promoted as significant infrastructure upgrades. In each project, the NDS approach was modified to fit the opportunities and constraints presented by the particular context. However, the fourth project, the High Point Redevelopment, would address a much more ambitious scale and signal a departure from the other NDS projects.

The High Point project is a complete redevelopment of a 129-acre site in the Longfellow Creek watershed of West Seattle. High Point was originally built in 1942 as temporary housing for workers in the burgeoning local war economy and in 1952 was converted into a 716-unit public housing development owned and managed by the Seattle Housing Authority (SHA). In the early 2000s, SHA decided to redevelop the community and initiated a master planning process to create a walkable, multi-use, New Urbanist neighborhood with modest green building strategies. As luck would have it, SPU staff members were just coming off their initial success with SEA Street and were looking for an opportunity to scale up their approach to a larger project. They saw the High Point Redevelopment, encompassing almost 10 percent of the Longfellow Creek watershed, as an ideal opportunity and approached SHA about a possible collaboration.

SHA agreed to incorporate the NDS approach at High Point but under three conditions. First, SPU would pay the difference between the cost of a conventional stormwater network and the upgraded NDS network. SPU was willing to pay for this performance upgrade because it would partially fulfill the goals of the Urban Creek Legacy Program for Longfellow Creek and would also serve as another example of the efficacy of the NDS approach. Second, SHA required that SPU take responsibility for obtaining municipal approval for the various building permits for the project, a formidable effort. This was also agreeable to the SPU staff because they were an inside municipal government agency, unlike SHA which is a public corporation affiliated with but separate from the other city departments (SHA is governed by a seven-member board of commissioners appointed by the mayor). And third (and perhaps most importantly), SHA wanted to ensure that the *appearance* of the project would not be affected by the NDS approach, following on the aesthetic philosophy of 'normalcy' as promoted by New Urbanist designers (Duany, et al., 2000; Hurley and Stromberg, 2008). An SHA staff member notes:

The key point to me was that it had to look like a regular neighborhood. I really felt strongly about that. I knew about these Bill McDonough designed communities where you couldn't tell the front door from the backdoor. It was really important to make it look like a regular place so we wouldn't be experimenting with low-income residents.

SPU agreed to these conditions and over the next three years, the design team worked hand in hand to reconcile the various goals of the project to create a high density, walkable, environmentally friendly, and affordable community. The level of collaboration between the various city agencies, particularly in designing the 34 blocks of right-of-way, was unprecedented (Johnson and Staeheli, 2007). Fusing social and environmental goals required the abandonment of compartmentalized governance because every design decision had multiple implications. Reflecting on this process, a staff member in the City of Seattle's Department of Planning and Development notes:

There were endless hours of regulatory meetings within the City of Seattle because we changed every standard. You're not even allowed to have roof downspout disconnects in the city. With new development you're supposed to tie in to the storm drain. Just to have the stormwater go to a splashpad and surface drainage was a big change. Having the curb go from six inches to four inches involved hours of meetings. Every little thing was a variation from the standard. Without incredible commitment from my colleagues at SPU and support from upper management, it would have fallen through easily. SHA also put in tons of effort but we were charged with putting all of the changes through all of the regulations because we were the ones asking for something different.

In some cases, the project goals of creating a dense environment of New Urbanist development were in direct contradiction with NDS goals, reflecting the struggle between ecological and neo-traditional designers over the last three decades (Corbett and Corbett, 2000; Duany and Brain, 2005; Hurley and Stromberg, 2008). For instance, street widths were reduced from the standard 32-foot width to 25 feet, creating a more walkable streetscape while minimizing the opportunities in the right-of-way to implement NDS strategies. The design team had to scrutinize the placement of each driveway, parking space, fire hydrant, and curb cut to balance the competing demands in the minimized right-of way area. And the inclusion of the NDS approach to accommodate rather than convey stormwater runoff would have spillover impacts on all facets of the neighborhood's design. At times, there was an undercurrent of resentment by the design team that the project was being compromised by the NDS approach, but eventually the team members found amenable design solutions to satisfy the numerous and sometimes competing project goals (Johnson and Staeheli, 2007).

Housing density at High Point is about 16 units per acre (about double the surrounding neighborhoods) and includes 1,600 apartments units and houses to serve 4,000 residents in a mix of low-income and market-rate rental units as well as market-rate, for-sale units (Wiland and Bell, 2006). The overall impervious surface coverage of the project is 65 percent which is high for a residential neighborhood and significantly higher than the other NDS projects (Inglis, 2005). The first phase of the project was completed in 2005 and the second phase was completed in 2009, and even before construction began, the project had received numerous local, regional, and national awards for its innovative design, the most prestigious of which was the Urban Land Institute's '2007 Global Award for Excellence'. The project is perceived as one of the most successful attempts to date to combine social and environmental sustainability goals in an urban context (Wiland and Bell, 2006).

With respect to urban water, the design reflects a hybrid of the NDS approach and a conventional curb-and-gutter network. Narrow streets slant to one side rather than from the center to each shoulder, and curb and gutter is used to direct stormwater to 22,000 linear feet of bioswales where it is absorbed and filtered (Fig 4.3). Some of the swales were designed to be shallower than the standard NDS swale to provide more play area for children (Wilson and Roth, 2006). SPU developed a Technical Requirements Manual that spelled out the philosophy and design implications for the site developers. The overall increase in cost for the drainage upgrades was \$3 million and the new network is expected to reduce runoff from a one-inch storm by 80 percent when compared with a conventional network (Vogel, 2006). In other words, the majority of rainfall from a typical storm will be infiltrated rather than discharged to Longfellow Creek.

Fig 4.3 Details at the High Point Redevelopment, including a curb cut and bioswale (top left), porous concrete sidewalk separating turf grass from a bioswale, (right), and an example of the housing stock and interpretive signage (bottom left) (Source: author)

The extended negotiations over urban runoff at High Point reveal the embeddedness of conventional environmental management, not only in the practice of design professionals and municipal experts but also in municipal regulations. The Promethean logic of controlling nature through big engineering had been engrained in the DNA of the city through its land use development codes (Southworth and Ben-Joseph, 2003; Ben-Joseph, 2005; Shutkin, 2005). A larger aim of the intensive design process at High Point was to address and correct the restrictions in the existing municipal code and make changes so the NDS approach would be allowed (but not required) for future projects. What was once a pilot project approach on SEA Street was gaining momentum as the de facto approach to managing urban water in the city through changes to the development code. The size of High Point and the unflagging energy of the design team created this opportunity of regulatory evolution. An SPU staff member notes:

Now, we're working on how to change the regulations on the books so other developers can do this more easily. So if people are willing to do it, it is allowed. We don't want it to take that much time and effort again because we can't expect anyone to go through that. It's too expensive to go through all of those meetings.

The emphasis on changing the development codes again demonstrates how the NDS approach continues to rely on the existing formal mode of governance. However, the emphasis on code building rather than experimenting at High Point came at the expense of the social learning aspects of the NDS approach (Hurley and Stromberg, 2008). Specifically, High Point has the look and feel of a traditional residential development; the eco-revelatory character that is integral to the other NDS projects was marginalized. An SPU staff member notes:

When we did Broadview and SEA Street, it was definitely shock value and people were accepting of it; leery but accepting. At High Point, they didn't want it to look different, they wanted the signs of affluence which includes lawns that are mowed and green, and straight lines and curbs. It's trying to fit in resident perceptions with what we're trying to do from an environmental standpoint.

As such, the NDS approach loses some of its educational benefits in favor of a 'have your cake and eat it too' approach of simultaneously achieving social goals and environmental performance. This was an explicit requirement of SHA to create a neighborhood that had a 'normal' feel rather than experimenting with low-income residents, suggesting that ingrained cultural preferences for a finished streetscape with curb-and-gutter design may be even more difficult to change than conventional engineering practices. When compared with the other community and municipal drainage reform projects in the city, the project tends to be less about revealing the interrelations of humans and nonhumans in favor of a surface aesthetic overlaid on a sustainably functioning subsurface – the modern dichotomy of form and function. The high-performance infrastructure is subservient to the social aspirations of the project; the aesthetics of the traditional neighborhood supersede that of water flows.

4.4. Reforming rational politics

The NDS approach continues the evolution of rational politics of urban nature that was established by Thomson and his colleagues in the late nineteenth century and evolved as the municipality formed into a bureaucratic structure dominated by technical experts, regulations and codes, and enforcement activities. The work on SEA Street, High Point, and the other NDS projects demonstrates that rational politics can embrace issues of sustainability by opening up engineering practices to more nuanced forms of design that focus on hydrology, ecological services, and even aesthetics. However, there is still an explicit understanding that the expert knows best when reworking the relationship between urban residents and their material surroundings (Dryzek, 1997; Bäckstrand, 2003; Bäckstrand and Lövbrand, 2006). The political negotiations of the NDS approach were for the most part internal, fighting between the various municipal agencies over different conceptions of the public good. Reworking of urban nature occurred as the experts identified mutually beneficial ways of reinterpreting their bureaucratic missions. As such, it serves as a reform of technocratic governance.

For critics of technocratic governance, the emphasis on knowledge production from above marginalizes alternative understandings of the relations between people and nature (Fischer, 2000; Bäckstrand and Lövbrand, 2006). Nature is a 'terrestrial infrastructure subject to state protection, management and domination' (Bäckstrand and Lövbrand, 2006: 55) and non-experts are the receivers of government services. The smaller NDS projects open up conventional rational politics to some participation by non-experts, both in design activities as well as long-term management, although the extent of their involvement is defined and controlled by the NDS engineers. It suggests that reform of technocratic environmental management can lead to evolutionary changes to governance, citizenship, and the role of residents in urban nature relations.

The efforts by the municipal government to reorient urban water flows in Seattle provide a positive corollary to the negative aspects of the Promethean approach of Thomson and his contemporaries in the first half of the twentieth century. They also demonstrate that the municipal government can be central to negotiating new relations between nature and the built environment while contributing to the city's reputation as a leader in sustainable urban development using the simple formula that 'good governance is green governance' (see Dryzek, 1997; Bäckstrand, 2003; Bäckstrand and Lövbrand, 2006). However, the municipality is not the only actor reworking urban nature in Seattle; residents have been collectively engaged in reorienting the creeks of the city since at least the 1960s. The creeks serve to define the identity of many neighborhoods and because of their proximity to residents, they are an obvious focus of grassroots community activity. In the next chapter, I describe an example of how residents are reworking urban nature.

5. Chapter 5

Seattle's economy boomed in the World War II era due to military contracts for Boeing, the local airplane manufacturer, and would adopt the nickname 'Jet City' in the post-war decades as Cold War military spending and the new commercial airline business buoyed local employment (Sale, 1976). However, the economic boom was short-lived as the national aerospace industry floundered in the 1960s and Boeing laid off almost two-thirds of its 100,000 employees between 1968 and 1971. The unemployment rate in Seattle skyrocketed from 3 percent at the beginning of this period – well below the national average – to 15 percent or double the national average, and the Seattle metropolitan region spiraled into a deep economic recession (Brambilla and Longo, 1979). It was

during this low point in Seattle's history – the so-called 'Boeing Bust' years – that the laissez-faire business character of Seattle's municipal government would be abandoned.

5.1. Urban environmentalism in the 1960s and 1970s

Labor strikes and protests were common in Seattle in the 1910s and 1920s, and in 1919, the city was the first in the US to be shut down completely by a strike. However, the radical politics of Seattle largely gave way to technocratic, rational form of governance from the 1930s to the late 1960s in the form of a weak mayor/council configuration of governance. The politics of urban development were defined by a bureaucratic structure with the council focused on legislation while the mayor served as chief administrator of the city. This changed in the municipal election of 1967 as voters adopted a new strong mayor form of municipal governance, reflecting the influence of national social movements and anti-establishment politics while also drawing on Seattle's history as a labor-friendly town (Sale, 1976). This shift would address the power vacuum of the weak mayor format where no single member of the City Council could stand up to the corrupting force of the political machine, where true municipal power was located (Herson and Bolland, 1998).

The result was a participatory form of urban governance emphasizing citizen advocacy and control of municipal politics with the mayor championing the citizens' desire for self-governance (O'Donnell, 2004). The new municipal governance structure would also serve as a counterpoint to the anti-tax, anti-Seattle sentiment that emerged in the adjacent suburbs in the 1950s and 1960s over the fight with Metro for regional governance (Sanders, 2005). Ultimate control of urban politics would be directed not by the regional government nor by municipally-elected officials but by an active citizenry supported by a strong mayor. Related to this turn towards participatory governance, many Seattleites found inspiration in the environmental movements of back-to-the-land, bioregionalism, and appropriate technology. The emphasis on nature's abundance and the quest for a balance between humans and the landscape resonated with many residents of the Pacific Northwest who revered and wanted to live in harmony with their natural surroundings. Self-governance would allow residents to supplement the rational environmental management approach of the municipality with values and ideas of concern to the community.

Ernest Callenbach's 1975 novel *Ecotopia* was particularly influential in weaving these ideas into a coherent whole.¹⁴ In Callenbach's fictitious account, Northern California, Oregon, and Washington seceded from the rest of the US to form a new self-sufficient nation called Ecotopia. Ecotopians rejected the US emphasis on economic growth and progress, reorienting their economy toward biological survival, quality of life, and a balance between humans and nature. Ecotopians championed a mandatory 20-hour workweek with an economy based on organic agriculture, sustainable forestry, recycling, and renewable energy strategies. Similar to Appropriate Technology enthusiasts, Ecotopians put technology to the service of humans, rather than the other way around (see Pursell, 1993). As Callenbach (1975: 38) writes, 'Ecotopians claim to have sifted through modern technology and rejected huge tracts of it, because of its ecological harmfulness.' Environmentally detrimental products such as the internal combustion engine and plastics were outlawed, and public funds for scientific research were directed towards benign forms of consumption. Ecotopians also practiced a form of ecological democracy that involved participatory governance based on the

¹⁴ Ernest Callenbach continues to publish both fiction and non-fiction related to his Ecotopian ideals, including ecology, low-consumption lifestyles, ecological restoration, and environmental economics. See www.ernestcallenbach.com.

protection of the environment; all residents were eager to engage in heated but civil debates about political matters and government policies on a daily basis.

For a small but active group of Pacific Northwest residents, Callenbach's novel captured the essence of the region both culturally and politically (Findlay, 1997). They already shared an appreciation for the region as a place where nature and humans could live in harmony and Callenbach provided them with a blueprint for transforming their beliefs about environmental protection and self-governance into reality. A City Hall insider and long-term resident of Seattle notes, 'Once Ernest Callenbach did *Ecotopia*, people realized they could do something different.' Reflecting on the synergy between participatory governance and urban environmentalism, Sanders (2005: 8) writes:

Like Chicago at the turn of the last century, Seattle in the 1970s became a laboratory where diverse actors linked social and environmental change, and where they tested ideas of sustainability on a local scale and in immediate spatial terms. Between 1960 and 1990, Seattleites set about to radically remake the idea and physical form of the city and in the process, they invented a persuasive version of postindustrial *Ecotopia*, and a model of postmodern urbanism. As a result, as early as the 1980s, Seattle, the largest city in the Northwest, was uniquely poised as the leader of the sustainability movement and a symbol of urban revival.

In other words, Seattle's reputation as a sustainable city is not only the result of a forward-thinking municipal government but also draws on an active and engaged community of residents. The 1970s was a formative period for community-based politics, with residents engaged in activities to combat water pollution, freeway expansion, unsightly billboards, and so on, resulting in the general empowerment of local residents to make decisions about how they wanted to live and grow as residents of the city. There was increasing recognition among urban professionals, counter-culturalists, and environmentalists that the contemporary city form was more malleable than previously thought (Hayden, 1984). There were alternatives to the path of economic and societal progress as initiated by Thomson and other civic reformers in the late nineteenth century as well as the regional governance strategy embodied by Jim Ellis and Metro beginning in the late 1950s. Governance did not only need to come from above but could also emerge from below.

Local environmental activities were inspired by self-sufficiency, do-it-yourself activism, sustainable agriculture, and organic gardening through groups like Seattle Tilth and the Puget Consumer's Cooperative as well as the work of local writers and artists (Sanders, 2005). One individual who embodied the community spirit was Victor Steinbrueck, a University of Washington architecture professor who gained local notoriety for galvanizing Seattleites to preserve historic parts of the city in the early 1970s, including the now-cherished downtown destinations of Pioneer Square and Pike Place Market. Steinbrueck was also influential in reinterpreting the Seattle landscape as a place of both humans and nature. He published two popular books in the 1960s and 1970s with sketches of Seattle's cityscapes that included buildings, hills, streets, vegetation, and water, forwarding a vision of a green city where people and nature existed in harmony (Fig 5.1) (Steinbrueck, 1962; Steinbrueck, 1973).¹⁵ Similarly, writer Janice Krenmayr published a column in the *Seattle Times Sunday Magazine* called 'Foot-loose in Seattle' that focused on experiencing the city through urban

¹⁵ The Steinbrueck name is still familiar to many Seattleites because Victor's son, Peter, served as an influential member of the Seattle City Council from 1997 to 2007.

hikes. She built upon Steinbrueck's vision of metropolitan nature to include activities that would allow urban residents to experience their hybrid surroundings (Krenmayr, 1973). Their work, along with many other writers and artists, reframed Seattle not as a city *in* nature but as a city *of* nature, and envisioned a new relationship between humans and their material surroundings that would be less focused on control and more on partnership (Schauman, 1997; Schauman and Salisbury, 1998).

Fig 5.1 A sketch from Victor Steinbrueck's *Seattle Cityscape* represents an idealized relationship between the built and natural environments in Seattle (Steinbrueck, 1962: 14)

5.2. *The rise of populist politics*

The participatory planning model that began as a grassroots effort in the 1970s would become the de facto approach to urban development in subsequent decades. The so-called 'Seattle Way' emphasized process, collaboration, and consensus, and was supported by a string of mayors including Charles Royer (1978-1989), Norm Rice (1990-97) and Paul Schell (1998-2001). From the late 1970s to the early 2000s, these mayors championed a form of municipal politics that allowed citizens to determine how their particular neighborhoods would grow. They institutionalized neighborhood power and self-actualization by encouraging the creation of 'Little City Halls' and directed significant amounts of municipal funding to neighborhood groups to undertake their own civic improvement projects (Young, 2003). This bottom-up form of urban development is exemplified by the City of Seattle's Neighborhood Matching Fund Program, a successful program that has doled out more than \$45 million for over 3,800 community-executed projects since it began in 1988 (City of Seattle, 2010).

Populist politics serves as the corollary to the top-down, regulatory approach of rational politics. This model, as its name implies, is bottom-up and is practiced by non-government organizations and individuals who focus on discrete local issues. While populist politics differs significantly from rational politics, it is not an 'irrational' form of politics per se but rather an alternative to the expert-dominated, bureaucratic form of conventional environmental management. Shutkin (2000) traces the roots of populist politics to Alice Hamilton, a pioneering urban environmentalist who studied industrial disease and occupational hazards, and Jane Addams, founder of Chicago's Hull House Settlement in 1888. Hamilton and Addams initiated various grassroots activities to promote sanitary and public health reform on behalf of urban immigrant and low-income populations. Today, some of the most vibrant forms of populist politics are embodied in struggles for environmental justice.

Populists critique the technocratic character of rational politics by highlighting the suppressed voices of non-experts, namely community residents, who are adversely affected by rational governmental policies (Brulle, 2000). They call for more democratic forms of policy-making to shift knowledge generation from the realms of science, engineering, and economics to specific temporal and material contexts. As such, the universal, general, and timeless approach of rational environmental governance is replaced with a political program that is particular, local, and timely (Fischer, 2000). Canovan (1999: 2) writes:

Populists see themselves as true democrats, voicing popular grievances and opinions systematically ignored by governments, mainstream parties and the media. Many of them favour 'direct democracy' – political decision making by referendum and popular initiative. Their professed aim is to cash in on democracy's promise of power to the people.

Not surprisingly, urban environmental restoration has been a significant focus of populist politics. Residents singled out creeks, parks, and open spaces as places where nonhuman elements of the city resided and as important locales to restore and protect. Creek restoration has been a particularly highlight of urban resident activity since the 1960s, with projects such as Piper's Creek in Carkeek Park (just downstream of the SEA Street project) and Ravenna Creek in Ravenna Park led by neighborhood volunteers whose work is supplemented with government expertise and funding to restore nature in the city. Reflecting on this time period, an SPU staff member notes, 'There was a tremendous amount of mobilization around particular creeks because they were local, they were literally their backyards.'

It is tempting to argue that the combination of top-down and bottom-up environmental management approaches represented by rational and populist politics creates an ideal model for realizing new forms of urban nature and pursuing more sustainable cities. The municipality can engage in large-scale, far-reaching reform measures while grassroots activists can address those issues that fall between the cracks of rational governance while also developing cutting edge projects to serve as testbeds for future development. However, the perspectives and goals of rational and populist political actors do not always dovetail quite as nicely as we might wish. In such cases, populist politics reveal the tensions at the heart of democracy (Canovan, 1999). The daylighting of Thornton Creek at Northgate Mall serves as a contemporary example of the friction between rational and populist approaches to urban nature that can lead to extended controversy.

5.4. Populist and rational politics collide at Northgate Mall

Northgate Mall opened in 1950 just outside the Seattle city limits and in the heart of the then-burgeoning North End (Clausen, 1984). With 80 stores on 66 acres, it was one of the first regional shopping centers in the US and a daring experiment in retail development at the time. The mall developers aspired to create a one-stop shopping experience to transplant retail from downtown to the suburbs with the lure of free parking. The mall and surrounding area were annexed by the City of Seattle in 1952 and Interstate 5 was completed in 1965, completing the auto-centric retail model envisioned by the mall owners. Construction of the expansive south parking lot of the mall involved the burial of about 1,200 feet of Thornton Creek, the largest waterway in the Urban Creeks Legacy Program. There is some debate about the condition of this section of the creek before the mall was built but evidence suggests it was not a free flowing channel but rather a boggy wetland that conveyed the creek from west of Interstate 5 to the east of Fifth Avenue NE and eventually to its outlet at Lake Washington (Fig 5.2).

Fig 5.2 Aerial photo of Northgate Mall showing key features of the redevelopment controversy (the dotted line represents the approximate location of the buried pipe that conveyed Thornton Creek from Interstate 5 to east of Fifth Avenue NE)
(Source: author)

The Thornton Creek watershed is the largest in Seattle, covering over 11 square miles and including numerous tributaries that flow past some 700 backyards and more than 15 parks and natural areas (TCWMC, 2000; City of Seattle, 2007; SvR, 2009). It is an extensive corridor of urban nature in the city, one that traverses a wide variety of conditions. Beginning in the late 1960s, homeowners downstream of the mall began to note the deteriorating conditions of the creek and a marked increase in flooding incidents. These concerns eventually led to the formation of the Thornton Creek

Alliance in 1992, an organization that continues to be active in monitoring, restoring, and educating area residents about the creek. Today, Thornton Creek has a reputation as the one of the most abused creeks in the city due to the intensive development of the watershed.

The controversy over Northgate Mall's south parking lot began in the late 1980s, as then mall owner DeBartolo Corporation proposed to double the size of the mall by adding a million square feet of new retail space. Neighborhood groups were adamantly opposed to the expansion, anticipating a glut of automobile traffic that would clog local streets, and gathered over 1,000 signatures to petition the City Council to block the proposed expansion. The Council passed a moratorium on development until the Northgate General Development Plan was completed in 1993. The plan identified the area as an urban center where development was expected, but specified that future development should involve the creation of a *walkable* urban center, a significant departure from the existing auto-dominated character of the mall and its satellite businesses (Mulady, 2000b; Mulady, 2000a).

Mall redevelopment plans were put on hold for several years until 1998, when the new mall owner, Simon Properties, again proposed a plan to double the size of the mall, with 1.1 million square feet of mixed-use development including a hotel, a 30-screen cinema, and additional retail stores (Nabbefeld, 1999). The redevelopment plans targeted the south parking lot – a space occasionally used for RV shows, tent sales, and overflow parking – as the primary site for new development. The City Council approved the development plan and again, neighborhood residents protested that the redevelopment would increase automobile traffic in the area. They also argued that the project would conflict with the goals of the 1993 Northgate General Development Plan as well as forego any opportunity to restore the buried portion of Thornton Creek that ran beneath the south parking lot. The residents cited the impending listing of Pacific Northwest salmon populations under the US Environmental Species Act as justification for daylighting the creek (Seattle Times, 1999). Like Schell, they recognized that they could save salmon while also saving themselves.

To resolve the dispute, Mayor Schell and the City Council hired a mediator in 1999 to find common ground between the battling stakeholders, namely the mall owner, the municipal government, and environmental and community activists. After hearing arguments from all parties, the mediator determined that the parties were so entrenched in their positions that a compromise was unattainable. Meanwhile, the fight over the development plans continued, with a new arm of the Thornton Creek Alliance, the Thornton Creek Legal Defense Fund, and a neighborhood group called Citizens for a Livable Northgate adopting a litigation strategy based on the new ESA listings of salmon populations as justification for daylighting Thornton Creek (Nabbefeld, 1999). For their part, the neighborhood and environmental activists were not opposed to growth and mall redevelopment but wanted any changes to reflect the neighborhood development plan's primary goal of creating a walkable, vibrant urban center. More importantly, they saw the daylight creek as a central amenity to a new urban center. One creek activist (quoted in Mulady, 2000c) stated, 'We are not sure why there is such obstinance about looking at designs that will protect the creek. We strongly believe this is a win-win solution, that we can integrate this development with a restored Thornton Creek'. They were advocating for Schell's philosophy of sustainable development that saw economic development and environmental protection as complementary goals and they were willing to stand up to the municipality using litigation to realize their preferred future vision for the city.

Despite the success of the NDS approach and other millennium projects, Mayor Schell would go on to lose his 2001 reelection bid in the aftermath of the notorious 1999 World Trade Organization meeting in Seattle. Greg Nickels would sweep into office and quickly make a number of significant changes to the municipal planning and governance approach championed by his predecessors. One of his earliest and most contentious decisions was to fire Jim Diers, the popular head of the Neighborhoods Department and a key player for 14 years in fostering neighborhood governance and power (Harrell, 2007). Nickels attributed the decision to a desire to diversify the Neighborhoods Department leadership but many interpreted the move as a way to shift local political power away from the neighborhoods and back to City Hall. A neighborhood activist bluntly states, 'Nickels hates neighborhood groups.' Nickels' governing approach was often described as autocratic and in the mold of his hometown mayor, Chicago's Richard M. Daley. Nickels exerted his power to centralize environmental governance within the mayor's office, replacing the neighborhood approach of his predecessors with an authoritarian form of municipal politics. Nickels' actions in the Northgate Mall controversy exacerbated the tensions between the municipal government and neighborhood activists based on entrenched conceptions of how the city should grow in the future. The mayor demonstrated that the participatory style of governance as nurtured by his predecessors was fragile and vulnerable; he quickly shifted governance back to the pre-1970s mode of top-down, technocratic management.

Despite his divergent approach to governance, Nickels shared with his predecessors a strong emphasis on sustainability issues and quickly developed an international reputation as a 'green mayor' for founding the US Conference of Mayors Climate Protection Agreement. He was also a strong supporter of a variety of sustainability programs focused on green building, urban forests, creek restoration, parks development, and improved mass transit. And like many astute politicians, he developed a reputation for rebranding existing programs and taking credit for them as his own. A City Hall insider notes that this sometimes causes problems: 'Because Nickels wants ownership, he makes it very hard to do anything that adds value. It limits the ways that we can effectively address these issues because they are attached to the mayor.' In the Nickels administration, the Urban Creeks Legacy Program was transformed into the Restore Our Waters Strategy, and his new approach to municipal governance would raise the ire of neighborhood and environmental activists.

Not surprisingly, the Northgate redevelopment controversy escalated when Nickels became mayor in 2001. Nickels had campaigned as a champion of neighborhoods and one of his campaign promises was to daylight Thornton Creek at Northgate Mall. However, he changed his mind upon reaching office, recognizing the property and sales tax benefits to the municipality from a redeveloped Northgate Mall, and in May 2002, he announced his intention to modify the Northgate General Development Plan. A City Hall insider states, 'Nickels made a lot of promises to the environmental community in his campaign and this was one of the first major breaches of that trust. Neighborhood environmental activists really felt sold out.' In response to Nickels' proposal, creek and neighborhood activists formed a new organization, Yes for Seattle, and gathered signatures for a ballot initiative to require developers to daylight urban creeks and restore salmon habitat on major development projects throughout the city (Seattle Times, 2002). The immediate goal of the initiative was to require Simon Properties to daylight Thornton Creek if they redeveloped Northgate Mall but the long-term goal was more ambitious: to daylight *all* of Seattle's urban creeks. Daylighting is an explicit strategy of ecorevelatory design to make nature visible in cities; by revealing nature, it is assumed that urban residents will work to protect and cherish it.

Nickels chafed at the proposed creek daylighting initiative, arguing that it would cost too much money – anywhere from \$504 million to \$21.6 billion, according to one study by the municipality – and potentially hamper ongoing creek restoration efforts (Mulady, 2003b). The conflict pitted economics development versus environmental protection, mirroring the battles over old growth logging that occurred in the Pacific Northwest in the 1980s (Cannavò, 2007). The initiative was eventually thrown out by a judge who sided with the city attorney and added that daylighting Seattle's creeks would have widespread negative impacts on economic development in Seattle while doing little to improve salmon habitat in the urban creeks (Young, 2003).

In March 2003, Nickels announced that he had entered into a development agreement with Simon Properties that would supersede the existing land use regulations at Northgate and pave the way for new development. In the agreement, expansion would occur on the mall's west side, further orienting the mall toward automobile traffic from Interstate 5. In return, Simon Properties would donate 2.7 acres of land on the south parking lot to the city to build a conventional stormwater detention pond over the buried creek. Neighborhood and environmental activists were up in arms, arguing that the mayor was colluding with the mall owner in a closed-door deal and the new agreement went against his promise to daylight the creek as well as the goals of the neighborhood plan to create a walkable urban center. Seattle voters had reinforced this walkable vision in 1999 and 2000 when they approved over \$13 million in bonds for a community center, library, and park on Fifth Avenue on the eastern border of the mall.

The mayor's opponents were in luck; his new agreement with Simon Properties would require approval of the City Council, the majority of which saw the agreement as a giveaway to economic interests at the expense of local residents (Young and Batesell, 2003). Eight months later, the City Council countered the mayor's redevelopment plan with its own plan for redeveloping the site, calling for increased open space and additional community input through the formation of a citizen advisory board. The mayor stated that the Council's plan would just lead to 'more process' and he threatened to wait out the terms of two council members that were set to expire in January 2004 (Mulady, 2003a; 2003c). Clearly, the 'Seattle Way' of participatory planning that had been nurtured over the previous three decades was not the 'Nickels Way.'

The mayor eventually capitulated in December 2003 after the potential property developer, Lorig & Associates, withdrew from the redevelopment project under the threat of even more delays. The mayor agreed to a compromise plan with the City Council that would involve the creation of a stakeholder group to shape the redevelopment design and also left open the possibility that the City might purchase a 2.7-acre parcel for an NDS type of stormwater facility. The compromise did not guarantee daylighting of the creek but put the option on the table, and Lorig & Associates was reinstated as the property developer. In typical fashion, Nickels took credit for the compromise solution in a widely publicized news conference, stating: 'The logjam is finally cleared. With today's council actions, we are about to begin a vibrant rebirth at Northgate' (quoted in Mulady, 2003d). The stakeholder group was tasked with identifying common ground between the economic development goals of the mayor and the mall owner, and the community-oriented goals of the residents and City Council. Meanwhile, the buried creek would serve as a testbed for integrating environmental restoration and economic development.

In early 2004, SPU was tasked with assessing three different development plans for the south parking lot proposed by the stakeholder group: a full daylighting scheme that would remove the

existing pipe and create an open channel, an NDS approach that would handle surface flows and leave the existing underground pipe in place, and a hybrid approach that would include an open channel while retaining the existing underground pipe. SPU examined the water quality benefits and costs of each option and determined that the hybrid plan would provide the lowest cost and the highest water quality benefits (Bush, 2004; Mulady, 2004). The Thornton Creek Legal Defense Fund and Lorig & Associates had paid for the development of the hybrid daylighting design, relying on the design expertise of a local landscape architect, Peggy Gaynor, to negotiate the criteria of the various stakeholder groups. In June 2004, the hybrid plan received unanimous approval from the stakeholder group and the mayor; the municipality would be able to pursue its water quality and flood protection goals, the community would realize its daylit waterway and walkable development, and the developer would benefit from a public amenity that would help to define the character of the new development. Most importantly, the development would now move forward after a stalemate lasting almost two decades.

The library, community center, and park were opened in July 2006 to much fanfare, jumpstarting a renaissance of the Fifth Avenue corridor on the east side of the mall. And in May 2007, Lorig & Associates began construction of Thornton Place that will eventually include a 16-screen movie theater, nearly 400 apartments and condominiums, 52,000 square feet of retail space, and a retirement community (Langston, 2006). The complex is scheduled for completion in 2010. The Northgate Channel became fully operational in September 2009 and includes trails, bridges, interpretive signage, and a concrete channel with vegetation 40 feet below the existing grade (Fig 5.3). The majority of water flows through the underground pipe but a small amount is routed through the channel to provide a constant flow of water.

Fig 5.3 Details of the Northgate Channel, including interpretive signage (left), the waterway situated between the new buildings (top right), and plantings in the concrete channel (Source: Cory Crocker)

5.5. Resolving difference through design

Much of the success in creating the project has been credited to Lorig & Associates, the developer who agreed to develop the 5.9-acre site when others would not. The firm has a significant amount of experience in public-private partnerships and negotiating among diverse stakeholders to find amenable redevelopment solutions (Boyer, 2005). A local landscape architect notes, 'Lorig was the only developer that gave the creek a chance and saw it as an opportunity rather than a barrier to development.' The final agreement also has much to do with Peggy Gaynor, the landscape architect who developed the hybrid plan with input from the stakeholder group. Gaynor has been involved in many other urban drainage and creek daylighting projects in the city (see Schauman and Salisbury, 1998). A City Hall insider notes:

Peggy provided a kind of sense of neutrality, she brought an activist as well as a designer/technical role...She brought an ability to find ways to compromise. When we started, it was all or nothing, an actual daylit creek or an underground pipe...Peggy was able to bring in her expertise to align the community goals with the realities of the project. She brokered a lot of that. Without her, it would have been harder because activists have the vision but they don't have the knowledge to know when to compromise.

Gaynor can be understood as a 'citizen expert', an individual who leverages her design skills as a landscape architect as well as her interest in community empowerment to broker a solution among competing parties (Fischer, 2000; Brand and Karvonen, 2007; Karvonen and Brand, 2009). She was able to navigate the complexities of commercial redevelopment as well the desires of the citizens to recreate a natural amenity in their neighborhood. While some stakeholders felt that Gaynor advocated too strongly for the neighborhood insistence on daylighting as opposed to other drainage options, there is general agreement that her hybrid design was a primary reason for the successful compromise. As such, Gaynor used the design process to open up environmental management to multiple competing voices by championing the opinions of local experts, those residents with intimate knowledge of the problems and potential for the creek that are sometimes overlooked by rational political actors. At the same time, she understood the economic and technical aspects of integrating water flows in the built environment and could interpret this understanding to all parties.

Despite the success of the compromise solution, many question the wisdom of spending SPU ratepayer money for a project that has modest water quality benefits. In 2002, SPU adopted an approach called Asset Management on all of its water quality projects to account for the social, economic, and environmental benefits and costs of its projects (commonly referred to as the 'Triple Bottom Line' in sustainable business circles) (see SPU, 2005). With respect to the original cost-benefit analysis for the Northgate Channel, an SPU staff member notes:

It was close to being a wash. It wasn't just so obvious that we should do this project, unlike others where the benefits are so clear. So it came out ahead but just by a hair, and that was at \$10 million. When we go back to do the analysis again, it may be that this time the numbers show it to be a no-go, but we're already committed.

The cost of the Northgate Channel was initially estimated at \$7.2 million, the SPU cost assessment was done when it was \$10 million, and final cost estimate completed in October 2009 was \$14.7 million, more than double the original estimate (SvR, 2009). Another SPU staff member has a more jaded perspective on the compromised solution:

The whole project isn't about stormwater, it was a political solution to get a development to happen. What's unfortunate is that for the cost of this project, \$13 million, you know what you could have bought? That little stretch of channel is not going to help salmon get into that creek. They [neighborhood activists] got so focused on daylighting the creek and getting the money out of the city to do it. They just wanted to win and they did. But so did the mayor. The loser was the rate payers. They're paying for a project with marginal value that will benefit the new development.

And despite the environmental aims of the neighborhood activists, it is not clear that the Northgate Channel (or any of the urban creek restoration activities, for that matter) will have an appreciable effect on the salmon populations in Seattle. Salmon are frequently the measuring stick for success in these projects but one SPU staff member predicts that the city's urban drainage projects will be lost in the 'statistical noise of water quality and hydrology.' But as stated in Chapter 4, the intent of the Urban Creeks Legacy Program and creek restoration more generally is not ecological restoration but public education and awareness. The biological and ecological goals of the Northgate Channel are secondary to larger, more elusive aims of creating new types of integrated social and environmental

flows that cannot be measured with traditional development or restoration metrics. This does not negate the importance of these activities nor does it suggest that the salmon is a false indicator of environmental health. Rather, it understands the ideology of salmon as a means to promote urban environmental activities and in effect, raise consciousness of residents about their hybrid surroundings. A local consulting engineer notes, 'Daylighting Northgate is totally ridiculous from a fish point of view or a water quality point of view. But if it creates an access that makes the network more visible to people because they see that creek and affects how they view the rest of the system, then it is going to be worth a lot of money.' Echoing this sentiment, a local creek activist (quoted in Williams, 2005: 67) states, 'Without urban salmon, we will have no connection to fish in rural and wilder streams. Fish will become an out-of-sight, out-of-mind situation. It is much better that 10,000 people see 10 salmon than 10 people see 10,000'. As such, the Northgate Channel is not so much about environmental restoration and salmon protection as it is about fostering an ecological imagination and an environmental ethic among Seattleites.

The Northgate Channel serves an educational purpose by exposing water flows to urban residents. But to accomplish this goal, the Northgate Channel is a highly engineered structure, something very different from the original waterway that flowed through the area and also a significant divergence from the NDS approach practiced by SPU. Daylighting the waterway at Northgate meant that the municipality had to revive the Promethean approach of controlling nature rather than taking a more nuanced approach of integrating nature into the urban fabric. Make no mistake, the project is referred to as a 'channel' and is not by anyone's imagination a creek or even a significantly altered natural waterway. It is a treatment facility that succeeded in unearthing Thornton Creek from its asphalt tomb but is informed by hydraulic calculations rather than the hydrology of the creek (see SvR, 2009).

Populist politics question rational political actors by forwarding alternative understandings of nature/culture conflicts that do not fit into a technocratic management regime. The approach places a specific emphasis on the embeddedness of urban residents in their physical surroundings and recognizes that these individuals need to be considered in environmental management decisions. The inclusion of alternative perspectives is ultimately a call for more democratic decision-making and serves as a challenge to the supposed apolitical application of technocratic expertise. At its best, populist politics creates a feedback loop to critique and hopefully improve rational politics (John, 1994). But as Taggart (1996: 32) notes, populism is 'of the people but not of the system.' Unlike the NDS projects that were initiated and managed by the municipality, the daylighting of Thornton Creek was initiated and driven by community and environmental activists. Because of the back and forth that occurred between these activists and the municipality, there was a strong anti-government sentiment by the neighborhood and environmental activists. This critique of the government was due to the neighborhood and environmental activists seeing their vision of a daylit creek being discarded by the mayor and the mall owner in favor of economic development. The resulting negotiations were tainted by ill will and nasty political infighting due in large part to all stakeholders beginning the process with a preconceived goal of daylighting the creek whatever the cost. Today, the project is promoted as a highly successful compromise between business and community interests (Grygiel, 2009; Ma, 2009; SvR, 2009). But the actors involved in the negotiations reflect on the project with disdain due to the overall lack of trust and mutual understanding.

At Northgate Mall, the channel created a solution to a particular conflict between the battling parties but also exposed the significant gap between the people and the municipality. The resulting

compromise will arguably benefit the neighboring residents and mall owner but it does nothing to resolve future problems that will eventually arise both upstream and downstream of the channel on Thornton Creek, not to mention other waterways in the city. Swyngedouw (2009: 213) sums up the problem with populist politics, writing, 'Populist tactics do not solve problems, they are [simply] moved around.' It calls on those in power to change a particular injustice but does not challenge the underlying structure that caused the injustice in the first place (Agyeman, 2005; Swyngedouw, 2009). In short, populist politics disrupts rather than reforms rational governance.

6. Chapter 6

The municipality's NDS approach and the community-led activities to restore Seattle's creeks exemplify two very different avenues for reworking urban nature, each with their own distinct political implications. The NDS approach is founded on governmental reform to reflect contemporary understandings of environmental protection as well as the desire to upgrade municipal services while continuing to be dominated by the top-down activities of experts. Community-based environmental restoration activities have been very successful in forwarding populist activity that bolsters community cohesion while improving local conditions. However, as the Northgate Mall controversy demonstrates how this can devolve into conflict between residents and the municipal government over the proper role of nature in the city. In the best of circumstances, these approaches operate in a positive feedback loop, with populist protest leading to changes in rational governance that enhance both ecological and social environments (John, 1994).

While rational and populist approaches entail very different modes of politics (top-down vs. bottom-up), both continue to rely on the existing technocratic mode of environmental governance, with the state as the central arbiter of urban nature and residents as receivers (and sometimes critics) of the resulting human/nature configurations. Two urban water projects in Seattle diverge from this top-down/bottom-up feedback loop of rationalist and populist politics. The Growing Vine Street project in Belltown and the Longfellow Creek Trail in West Seattle exhibit characteristics of rational governance and populist protest but are distinct from both, suggesting a third approach to environmental politics with a significantly different interpretation of urban nature. I characterize these projects as examples of civic environmentalism, where reworking urban nature involves the transformation rather than reform or disruption of technocratic governance. The emphasis here is not on the creation of an idealized end product nor the fostering of a shared ecological ethic but rather on the processes of reworking urban nature through deliberation, collaboration, and action.

6.1. Surfacing waterflows: Growing Vine Street

Thomson's regrading projects in the early twentieth century created a rationalized landscape upon which Seattle's downtown could flourish. Today, there are no remnants of pre-human landscape downtown; it has all been replaced with a built-up landscape of asphalt, concrete, and glass. It is here, in the Belltown neighborhood just north of Seattle's central business district, where the Growing Vine Street project was realized. Belltown includes a vibrant mix of low-rise and high-rise office and residential buildings but is interrupted by a curious lot on the southeast corner of Elliott Avenue and Vine Street, where a community garden called the Belltown P-Patch and a series of historic cottages suggest a very different form of urban life. Seattle's P-Patch or community gardening program started in the early 1970s as part of the back-to-the-land movement (Diers,

2004).¹⁶ In the intervening decades, the program has grown to include over 50 gardens serving 70 neighborhoods and 6,000 urban gardeners on 23 acres of land and today it is the largest municipally-run community gardening program in the US (Diers, 2004; City of Seattle, 2009). The Belltown P-Patch is a reminder of 1970s grassroots environmentalism while also serving as a contrast to the surrounding downtown urban development.

Environmental artist Buster Simpson has used the Belltown neighborhood as his muse and canvas since the mid-1970s, creating projects that challenge urban residents to take responsibility for their surroundings. He is described as an 'agent provocateur' or 'trickster' because he opens up the city to environmental flows that its residents often fail to acknowledge (France and Fletcher, 2005). Simpson's political outlook is heavily influenced by Seattle's participatory turn in local governance during the 1970s and this spirit is embodied in his projects. Reflecting on the underlying motivation for his work, Simpson (2004: 58) writes, 'Interventions and temporary prototypes provide a visible and engaging presence for ideas. This helps keep the community engaged for a time when collective consensus is needed to support more ambitious projects.' In the 1980s, Simpson began to collaborate with community activists to preserve and enhance the Belltown P-Patch and cottages. In 1996, Simpson partnered with Carolyn Geise, a local architect who owns a historic building next to the P-Patch and together, they championed the Growing Vine Street project. The project extends the community garden out onto Vine Street, a sloping downtown street that overlooks Puget Sound. Simpson (2004: 55) describes the approach to the project as:

Defining the word 'green' in relation to environmental sustainability rather than to traditional landscaping. This part of the city was plumbed to dispose of rain from roofs and hard surfaces through an antiquated combined sanitary and storm system. We proposed to redirect this urban watershed and keep it at the surface as an asset rather than a liability to be flushed out of sight. We have put the city on notice that we see gray water and brown water as the next opportunity.

Simpson and Geise viewed Growing Vine Street as an urban laboratory where greening of infrastructure could be accomplished in conjunction with fostering local community cohesion. Reflecting on their design philosophy, Geise (2004: 33) writes, 'Our motto was, store the water, enjoy and play with the water, irrigate with the water; do not just send it down a black hole to get rid of it.' Likewise, Simpson writes of creating a 'crack' or 'fissure' in the impervious Belltown landscape to bring stormwater flows back to the surface. He (2004: 55) writes, 'Rather than fighting the infrastructure, we let it reveal itself by working with the existing conditions and taking the path of least resistance.' The revealing of water is similar to the ecorevelatory aims of the NDS approach and the Northgate channel but the means by which urban nature is exposed are radically different in this project.

Growing Vine Street is heavily influenced by artistic focus, one that opens up the built environment to different interpretations. The most visible element of Growing Vine Street is the Beckoning Cistern, a blue, 10-foot tall, six-foot diameter, steel tank that tilts towards Geise's historic building. The cistern is a hybrid of sculpture and infrastructure, with 'fingers' that reach out from the top to a downspout on the building, mimicking the hand of Adam reaching out to God on the ceiling of the

¹⁶ The 'P' in P-Patch stands for Picardo, the name of the property owner of the first community garden in Seattle.

Sistine Chapel (Enlow, 2003). Rainwater collected in the cistern is used by building residents for their rooftop gardens. The beckoning cistern follows upon a smaller project that Simpson installed on the same building in 1978. The Downspout-Plant Life Monitoring System inverts the existing downspouts from the building to create planters for native ferns, resulting in a vertical green landscape where none existed. And one block closer to Puget Sound, a more traditional stormwater project called Cistern Steps was constructed in 2003, extending the P-Patch into the street with a set of marshy steps (Fig 6.1).¹⁷

Fig 6.1 Details of the Growing Vine Street project, including the Beckoning Cistern (top left), Downspout-Plant Life Monitoring System (top right), and Cistern Steps (bottom) (Source: author)

As a whole, the project is a mix of engineered and artistic interventions that tie the community garden to the streetscape and the adjacent building. Not surprisingly, there were difficulties in navigating the complex layers of municipal codes and regulations to build these experiments in urban nature. However, the team had an ally in Mayor Schell, who felt the neighborhood should receive amenities because it was accepting increased urban density to comply with the state's Growth Management Act requirements. The municipal government contributed \$800,000 to the Growing Vine Street project and was assisted by a volunteer team composed of artists, design professionals, developers, and community businesses (Geise, 2004).

The Growing Vine Street projects uses water flows to bring community members together and to reveal the presence of nature in the city. However, the highly urban context of Growing Vine Street was devoid of pre-development conditions and thus, the design team was given a clean slate on which to create a new (albeit artificial) imprint of nature. They understood that there would be no possibility of salmon populations ever repopulating the Belltown landscape and their project would have only minor impacts on the urban runoff patterns in the city. Thus, the design was aimed at social learning and heightened awareness of nature in a part of the city that is almost entirely paved over. The Beckoning Cistern and Cistern Steps also reinterpreted the public right-of-way to be more than driving lanes, parking spaces, and sidewalks; it was a place for public interaction and exploration rather than automobiles. Like the earlier NDS projects, it opens up the street to multiple interpretations, reimagining the public realm as a place of complex interaction. The central focus of Growing Vine Street is not rehabilitated nature nor an improved public realm but an explicit recognition of the embeddedness of urban residents in their material surroundings. The key mediator between humans and non-humans here is the active resident, who collaborated with municipal officials to experiment with water and create a playful, wonder-filled playground in the heart of an intensely developed neighborhood.

6.2. *Water as a socio-ecological connector: The Longfellow Creek Trail*

Longfellow Creek drains a long, narrow urban watershed of 2.7 square miles with gentle slopes and only a few minor tributaries (City of Seattle, 2007). Since the early twentieth century, Longfellow Creek has served as the primary spine for urban drainage in the Delridge neighborhood of West Seattle. After World War II, the waterway was straightened and armored to make way for single-family residential development and today, about half of the watershed is served by a combined

¹⁷ The Cistern Steps were designed by Peggy Gaynor, the landscape architect who devised the hybrid option for the Northgate Channel.

sewer network and the other half consists of separated or partially separated sewer networks and informal ditch-and-culvert networks (the latter two networks discharge directly into the creek). Significant portions of the creek have been routed through underground pipes to make way for a shopping center in the 1950s and to accommodate industrial and transportation development in the 1960s and 1970s.

In the late 1980s, the Delridge Community Association began a formal process with the municipality to prepare an action plan that would identify and prioritize development issues in the community, and stormwater runoff issues emerged as the highest priority. The City of Seattle partnered with King County and the State of Washington to purchase and preserve 30 acres of property adjacent to the creek to reduce flooding problems (Yocom, 2007). In many cases, this involved buying houses and demolishing them to make room for the creek, an expensive practice that is firmly rooted in rational governance. However, the activities would take a turn in 2000, when neighborhood activists devised a plan to create a trail along the creek to simultaneously restore habitat and encourage resident interaction with the waterway. The trail would fulfill the first strategy of the Delridge Neighborhood Plan, to 'integrate the community with nature' (quoted in Biscombe, 2002: 9). The residents received grant funding from the City of Seattle to build the Longfellow Creek Trail, a 4.2-mile trail along the creek that would serve as a 'ribbon of connection' for the community (True, 2005). The trail was completed in 2005, with related volunteer and municipal government activities resulting in the restoration of nearly 40 percent of the open creek channel (Yocom, 2007). The goals of these activities were to improve water quality and drainage conditions, prevent erosion and flooding, restore habitat, and expand community open space and trails.

Longfellow Creek Trail begins at a 10,000-year-old restored peat bog and follows the creek until it goes into an underground pipe to traverse the aforementioned shopping center. The trail continues on the surface following a virtual creek marked by signage and a water feature in the shopping center that reminds shoppers of the waterway flowing some 20 feet below the surface. Downstream from the shopping center, the creek surfaces again and the trail follows along, sometimes adjacent to the open channel and other times diverted along residential streets where access to the creek is prevented. In extreme cases, the trail jogs two blocks from the creek and runs parallel down city sidewalks before meeting up again downstream. Wayfinding signs and gateways are a crucial element to demarcate the trail through its varied landscapes. True (2005) writes, 'The Legacy Trail is an exercise in contrasts. From lush, shady areas that quietly conjure a mountain stream, to sections that border convenience stores and the rush of traffic.' The trail ends unceremoniously about two-thirds of a mile before reaching the Duwamish River, when the creek again goes into a pipe to traverse a steel plant and a knotty mess of transportation infrastructure.

Unlike the neighboring residents at Northgate, the Delridge community did not have an idealized notion of Longfellow creek as degraded nature in need of rescuing and thus, ecological restoration was but one of many goals for the project. Likewise, they recognized that while it would be desirable to daylight the buried portions of the creek, it was more realistic to address smaller, less disruptive forms of intervention that had a greater chance of being realized. The trail would serve as an opportunity to integrate nature and humans in this seam of the urban fabric.

One of the most striking aspects of the trail is the wayfinding signs and gateways that lead the user along the trail, educating and informing about past and present conditions. The trail is also peppered with creative art pieces, such as the Salmon Bone Bridge and the Dragonfly Pavilion that serve as

educational tools and visual metaphors for the creek (see Fig 6.2). Reflecting on environmental art as it relates to place, Lippard (1997: 286) notes, 'Artists can be very good at exposing the layers of emotional and aesthetic resonance in our relationships to place....A place-specific art offers tantalizing glimpses of new ways to enter everyday life.' Similar to Growing Vine Street, this process of exposure embraces the hybrid relations that comprise the city, resulting in a trail that is not intended as a traditional nature walk but as a way to experience the messiness of the city by following the path of water from its headwaters to the Duwamish River. In many ways, it is the material realization of Janice Krenmayr's experiential urban hikes in the 1970s (as described in Chapter 5) and forwards human experience as central to the rehabilitation of landscape.

Fig 6.2 Details of the Longfellow Creek Trail, including the water feature in the Westwood Shopping Center (left), a wayfinding sign (top right), and the Salmon Bone Bridge (bottom right) (Source: author)

However, this focus on experience has consequences; exposing the messy relations between human and nonhumans has had detrimental impacts on the biological and physical health of the creek. An SPU staff member notes:

In some places, the trail is right beside the creek and the stormwater runoff from the trail goes right into the water. In other places, riparian zones that are crucial for salmon habitat have been removed to make way for the trail. And there are great opportunities to daylight the creek and link it to the existing floodplain but the trail goes right between them.

There is a shared understanding by the neighborhood activists that they are not trying to return the creek to pre-development conditions but rather to use the creek as a cognitive and physical connection between residents and their surroundings. There is clearly an interest in restoring biological habitat to the greatest extent possible but this is tempered by an emphasis on the experiential aspects of the trail. A Seattle Parks and Recreation Department employee sums up this position, stating that 'common sense guides restoration [projects]. In an urban area, restoration is going to be a balance between the built environment and what you can achieve to create connection and bring back the [pre-existing] processes' (quoted in Yocom, 2007: 128). The reworking of urban nature here can be described as revealing, experiential, and community building. Furthermore, the focus is largely on process rather than product, the result of negotiation, consultation, and a great deal of hands-on work by community members. A community member active in the trail planning deliberations (quoted in Yocom, 2007: 124) notes:

I was impressed when we held...community meetings that there were at least 50 people at each meeting. That was a good indication [that the community was interested in the project]. Two or three people at each meeting would be really upset, but 99% of the people there were really excited and wanted to see it happen.

6.3. *The civics of urban nature*

Both Growing Vine Street and Longfellow Creek Trail are founded on the community's attachment to a particular place and a belief in their abilities to act collectively to diagnose their situation and make changes. Like populist politics, they are defined by the deep involvement of community actors to change existing conditions into more desirable ones that reflect the community as a whole. However, the projects also resemble rational politics because they recognize the various constraints

and opportunities presented by existing conditions. The focus is on modest, incremental changes that are part of a process of transforming the underlying structure of local governance by exploring the possibilities that lie in collaborative intervention. Such an approach offers a very different avenue to rework urban nature, one that is experiential, playful, artistic, and community-building and can be understood as a form of civic environmentalism, an alternative to top-down rational politics and bottom-up populist politics.

The term 'civic environmentalism' was coined by political scientist DeWitt John and refers to innovative approaches to environmental management and governance that are characterized by flexible, collaborative problem solving activities at the local and regional scale (see John, 1994; US EPA, 1997; John and Mlay, 1999; Landy et al., 1999; Sirianni and Friedland, 2001; John, 2004). It is a direct response to the compartmentalized, single-media focus of bureaucratic environmental management that was introduced in the late 1960s with Federal environmental legislation such as the National Environmental Policy Act, the Clean Air Act, and the Clean Water Act. John (2004: 219) writes:

Civic environmentalism is the process of custom designing answers to local environmental problems. It takes place when a critical mass of community leaders, local activists, and businesspersons work with frontline staff of federal and state agencies and perhaps with others to address local issues that they care about deeply. Civic environmentalism cannot succeed without some participation and support by government agencies, but it is essentially a bottom-up process that epitomizes reformers' aims to build a results-based sense of common purpose in environmental governance.

For John, the novelty of civic environmentalism is in its emphasis on local and regional governments rather than national governments as the center of environmental policymaking and action. He calls for a continued emphasis on ecological science but at a smaller scale where more nuanced regulatory and non-regulatory strategies can be enacted, particularly through inter-state public/private partnerships. He sees projects such as the Chesapeake Bay Program and the Florida Everglades restoration as a way to tackle confounding environmental issues at a more appropriate scale (John, 1994). John characterizes these approaches as customized, local approaches to environmental governance that are akin to the 'Third Way' or 'radical center' political program promoted in the 1990s by centrist political leaders such as Bill Clinton and Tony Blair (John, 1994). Using a carrot-and-stick approach that mixes market and interventionist governance, proponents of Third Way politics call for the development of savvy strategies to overcome the liberal/conservative dichotomy of contemporary politics in North America and Northern Europe (see Giddens, 1999).

Others have also taken up this notion of civic environmentalism but depart significantly from John's reform-oriented approach (see Hempel, 1999; Shutkin, 2000; Agyeman and Angus, 2003; Agyeman, 2005; Roseland, 2005). Taking inspiration from the contemporary movements of environmental justice and community empowerment, sustainable community development scholars interpret civic environmentalism as a radical strategy to transform urban environmental politics. Agyeman refers to John's approach as 'narrow-focus civic environmentalism' due to the emphasis on policy reform and championing of state governments as the new locus of environmental politics (Agyeman and Angus, 2003; Agyeman, 2005). In contrast, he advocates for 'broad-focus civic environmentalism' as reflected in various sustainable community development activities that recognize the overlaps between issues of public health, growth management, urban planning and development,

gentrification, environmental justice, urban environmental quality, and local government control (Corburn, 2009). It is by tackling these difficult issues simultaneously that a radical reinvention of both urban governance and urban nature can be realized. Both the Growing Vine Street project and the Longfellow Creek trail serve as examples of how the top-down/bottom-up dichotomy of rational and populist politics can be discarded in favor of new visions of integrating people and nature in cities through place-based collaborative interventions.

Like populist politics, civic environmentalism is rooted in place; it is a grounded activity that recognizes the deep connections between local residents and their material surroundings, taking to heart the 1970s environmental mantra of 'think globally, act locally' (Hempel, 1999). Shutkin (2000: 31) states simply, 'In a civic democracy, place and community are mutually constitutive and reinforcing.' John (2004: 238) shares Shutkin's emphasis on the groundedness of civic environmentalism, stating that 'the spirit of civic environmentalism is not a concern about local insults to the environment or national outrages, but a deep, shared commitment to a physical place and to the community of people who live there.' And the local scale is not just a material place where relations between humans and nonhumans are readily apparent but also the place where these relations can be deliberated and acted upon (Light, 2003). The physical world is not simply a platform for practicing environmental politics, it is co-constitutive in the practice of understanding and reorienting ecological flows (Reid and Taylor, 2003). It is at the local level where environmental problems tend to be more comprehensible, accessible, and tractable, the operational level of environmental problem-solving (Hempel, 1999; John, 2004). Hempel (1999: 48) notes:

Partly in response to dissatisfaction with the sustainable development concept and partly in response to growing concerns about urban quality of life, a splinter movement of sorts has arisen in an effort to focus sustainability strategies on the social, economic, and ecological well-being of communities. Participants in this movement define community sustainability in ways that highlight the relationships between local quality of life and local or regional levels of population, consumption, political participation, and commitment to intertemporal equity.

Civic environmentalism often starts with a local or regional problem, similar to populist politics, and then develops a comprehensive, far-reaching solution, similar to rational politics. However, the emphasis is not on the problem definition nor on the ultimate solution but rather on the *process* of developing the problem definition and solution. As such, it involves an emphasis on problem-solving rather than developing ultimate regulations or a desirable end state (Dryzek, 1997). The activity of democratic deliberation in civic environmentalism is not intended as idle talk or just another planning exercise nor is it intended to reform rational politics. Rather, it is a means to develop and fundamentally change existing forms of local politics. Shutkin (2000: 243) writes, 'Civic environmental projects are tapping into the public's pent-up demand for effective, hands-on community-building strategies' and King (2006: 180) adds, 'Civic environmentalism intentionally incorporates the notion of praxis: the conjoining of social and political ideas with new social practices and technologies.'

Here, the idea of civic environmentalism is to create a transformative form of local politics steeped in deliberative democracy and community activity, a distinct break from the rational approach to urban nature. As Prugh et al. (2000: 5) write, 'sustainability will be achieved, if [at] all, not by engineers, agronomists, economists and biotechnicians but by citizens.' The emphasis on

deliberation in democratic process rejects aggregative or representative models of democracy and instead, recognizes the link between collaborative problem-solving and community building (Dryzek, 2000; Shutkin, 2000). The importance of democracy is not in its prescribed models but in the processes of deliberation, reasoned argument, and public reflection (Meadowcroft, 2004). Dryzek (1997: 86) argues that 'the main reason for the democratization of environmental administration has been a felt need to secure legitimacy for decisions by involving a broader public.' This echoes the calls of various political science scholars for strong democracy, deliberative democracy, and ecological democracy that emerged in the mid-1980s (see Beck, 1992; Barber, 2003; Dryzek, 1990; Dryzek, 2000). Dryzek notes that while there is no guarantee that deliberative democratic procedures will result in more ecologically-oriented communities, it has great potential to resolve environmental problems by providing a means for integrating a variety of perspectives on complex human/nature relations. He (2000: 140) writes, 'Discursive democracy is better-placed than any alternative political model to enter into fruitful engagement with natural systems and so able to cope more effectively with the challenge presented by ecological crisis.' In other words, deliberative forms of politics have the most promise for recognizing and managing the complexities of urban nature. In both the Longfellow Creek Trail and the Growing Vine Street projects, there is a pluralist embrace of urban nature and of the messy human/nonhuman interactions in the urban landscape.

Civic environmentalism can be understood as a systems approach that emphasizes local organization, mutual self-help, community development, and social services with the governance of human/nature relations dominated not by a unitary state administration composed of experts but rather a multiplicity of active citizens who are deeply engaged in decision-making processes. Dryzek (1997: 95, emphasis in original) notes, '*Homo civicus* figures large, *homo bureaucrat* hardly at all.' This is not to suggest that municipal and regional governments should not be involved in the politics of urban nature whatsoever. Rather, they should play the role of supporter, facilitator, partner, and consultant rather than dominator of these projects. In both the Growing Vine Street project and the Longfellow Creek Trail, the local and regional governments provided funding as well as design expertise and permitting assistance to help the community volunteers achieve their project goals. At the same time, the government entities were tasked with taking a larger view and recognizing the positive and negative implications of these projects on surrounding neighborhoods and the city as a whole.

Civic environmentalism places an enormous amount of faith in democratic process and calls for a political program that involves collaboration, compromise, and a shared goal of problem-solving. Clearly there is an idealistic tendency in discussions of deliberative democracy to treat politics as merely a process of negotiation (Graham and Healey, 1999). Furthermore, it is often the case that existing political structures are simply too entrenched to allow for radical transformation. Democratic deliberation does not automatically change the ground rules for debate; existing power geometries and power plays are still present (Dryzek, 1997; Bäckstrand, 2003). Commenting on the challenges of deliberative democracy, Meadowcroft (2004: 212) writes, 'The adversarial political culture, legalistic regulatory approach, litigious proclivity, and deep suspicion of government found in the United States may represent insuperable barriers to the growth of this mode of environmental governance.' Furthermore, John (2004) notes that conservative political actors might actually be attracted to civic environmentalist politics because of its potential to dilute environmental regulation or dispense with it altogether. There is a danger that the deliberative process can be used to steer a community away from prescribed goals by replacing unsatisfactory regulations with no regulation whatsoever. As such, civic environmentalism carries great risks while

also promising significant rewards.

More optimistically, civic environmentalism projects suggest that politics can be rescued from adversarial positions and intractable differences. It proposes political processes where participants take one another's positions and claims seriously; politics is not a contest between interests but an inquiry into solving problems through deliberation, education, and participation (Landy et al., 1994; Barber, 2003). In Seattle, civic environmentalism was fostered by the mayor's office from the late 1970s to the early 2000s by emphasizing community empowerment while also reflecting on the larger goals of the city as a whole. Mayors such as Royce, Rice, and Schell attempted to strike a balance between the top-down approach of municipal governance and the bottom-up community activities of residents. The arrival of Nickels as mayor changed this balance significantly but the struggle between top-down and bottom-up is one that continues to be practiced in Seattle today. Civic environmentalism serves as a way to bring the polity together by reducing or even obliterating the idea of top-down and bottom-up politics of urban nature. It is here where a new politics of urban nature has the potential to emerge.

7. Chapter 7

Urbanizing nature though generally portrayed as a technological-engineering problem is in fact as much part of the politics of life as any other social process. The recognition of this political meaning of nature is essential if sustainability is to be combined with a just and empowering urban development; an urban development that returns the city and the city's environment to its citizens.

Swyngedouw (2006: 107)

In 2003, municipal officials inaugurated the new City Hall in downtown Seattle, a building that includes a number of green features including a vegetated roof, energy efficiency strategies, and rainwater harvesting as well as a constructed creek that connects the building to the neighboring Seattle Justice Center and a civic plaza. The water feature wends its way through the buildings and serves as a figurative celebration of water flowing from the Cascade Mountains to the Puget Sound (Cronenweth, 2004). It has no ecological function per se but reminds visitors that water flows are an indelible part of the city's political culture, symbolizing the past, present, and future struggles of the municipal government and residents of Seattle to integrate the city with its material surroundings.

7.1. *Three forms of urban environmental politics*

Perspectives on urban nature in Seattle today are far different from the city's humble beginnings as well as the hubristic period of Promethean activity undertaken by Thomson and his colleagues. The invention of nature in the city involved both cognitive and material activities that framed the region as a promised land but one that was in dire need of perfection through human intervention. The deterioration of water quality in Lake Washington and the subsequent shift to regional environmental governance in the late 1950s signaled a new era of urban development that supplemented technocratic governance with ecological considerations. The emphasis on environmental protection was supported by social activism in the 1960s and 1970s when residents developed their abilities to self-govern and define the urban landscape to reflect their emerging values and preferences. At the same time, the rational form of politics developed at the beginning of the twentieth century underwent significant transformation to incorporate notions of ecological

health and sustainability while continuing continued to champion technical expertise and the centrality of the municipal and regional governments in mediating human/nature relations.

Whereas the ‘invention era’ of Seattle was dominated by the top-down, technocratic management of nature, the ‘reworking era’ is defined by a multiplicity of activities that form different facets of the city’s current reputation and material conditions. The contemporary projects described in the previous three chapters suggest three forms of urban environmental politics (Table 7.1). This not an all-encompassing political framework nor does it imply that these approaches are independent of one another; instead, they overlap, combine and conflict in various ways based on the particular problem being addressed. The framework summarizes a range of options to rework urban nature, suggesting that there are multiple routes to pursue more sustainable urban futures (see Guy and Marvin, 1999; Guy and Marvin, 2001; Guy and Moore, 2005; and Moore, 2007), each with its own strengths and weaknesses.

Table 7.1 Three forms of urban environmental politics

The rational form of environmental politics, as exemplified by the municipality’s NDS approach, is interpreted here as the latest step in the evolution of the technocratic management of urban nature. It continues to rely on top-down, bureaucratic activities dominated by experts who are charged with integrating urban residents in their material surroundings through rulemaking, comprehensive management, and regulatory enforcement. It channels the power of the existing governance structure where experts and the state remain the ultimate arbiters of human/nature relations. However, the smaller NDS projects suggest the potential for increased collaboration and experimentation between experts and non-experts, a characteristic than is typically not attributed to rational politics. As a whole, the approach entails incremental reform of technocratic governance to reflect the latest understandings of ecological science, technical practice, and culture.

Populist politics provides a counter to the rational politics of the municipal government by championing the bottom-up reworking of urban nature. Feeding on the grassroots activities of community and environmental activists that emerged in the 1960s and 1970s, populism brings the dilemma of urban nature to the people. At its most radical, populist politics involves protest and disruption of the ‘business as usual’ approach of rational politics by highlighting the unique attributes of particular locales within the city. It is frequently anti-governmental in tenor and serves as a critique to the unintended consequences of technocratic governance. One could argue that the completion of the Northgate Channel was a satisfactory and constructive resolution to over two decades of conflict between neighboring landowners, but the compromise came about through acrimonious battles over entrenched positions rather than focusing on the common aims of all stakeholders. Furthermore, it highlights a significant gap between the residents and the municipality with respect to collaborative problem solving. And ironically, the completed channel reverts back to the Promethean approach to controlling nature through big engineering to resolve the differences between economic development and environmental protection. This is not to argue that all populist political activities are failures; indeed, there are many examples of noted projects in Seattle that are deemed to be very successful. However, there is a danger of populist politics merely serving to disrupt conventional activities while leaving the existing structure of technocratic governance intact.

The civic environmentalism approach, as exemplified by the Longfellow Creek Trail and Growing Vine Street project, serves as an alternative to the top-down/bottom-up dichotomy of rational and

populist politics. Here, politics is defined first and foremost by deliberation aimed at finding common ground among different conceptions of urban nature and then developing and enacting generative solutions to reorient the relationships between residents and their material surroundings.

Deliberative democratic processes place a great deal of faith in an engaged citizenry willing to deliberate, develop amenable solutions, and contribute time and sweat equity to the reworking of their local surroundings. And the approach is idealistic because it offers no guarantee of desirable outcomes; reworking urban nature is understood to be a highly contingent, open-ended activity. However, with its emphasis on transformation rather than the reform or disruption of environmental governance, civic environmentalism offers a new politics of urban nature that recasts the role of citizens, experts, and government while embracing the hybridity of the urban landscape. The examples suggest that this political transformation occurs incrementally through local projects that are continual, experimental, emergent, and always in process.

7.2. The politics of urban nature

The Metronatural™ tagline of the Seattle Convention and Visitors Bureau was conceived as a marketing slogan but it also reflects the cultural attachment to place that many Seattleites embrace. It is a recognition that the city is not separate from its natural surroundings but connected to it. In 1992, Mayor Rice summarized this perspective in his introduction to the two-year Environmental Priorities Program (City of Seattle 1992: 4, emphasis in original):

Some people think that the words ‘urban environment’ are a contradiction in terms. I disagree. While our city is widely—and justifiably—recognized as a leader in urban environmental management, there are opportunities for improvement and actions we can take that would make Seattle even more of a model for other cities....I consider environmental protection and enhancement to be an integral piece of the overall urban agenda. It is not separate from our efforts to improve our schools, our neighborhoods, our economy, our transportation system, and our public safety—it is *part* of them.

The politics of urban nature in Seattle today are intimately involved with interpreting and forging these connections between Seattleites and their material surroundings, and water provides one lens for understanding the implications of these various activities. Furthermore, the struggles over urban nature in Seattle suggests that the pursuit of urban sustainability is ‘provisional; it is the subject of multiple conceptions and continuous revisions, the very stuff of politics’ (Prugh et al., 2000: 7). This interpretation of politics is not about the triumph of one position over another nor is it a romantic vision of agreement and consensus. Instead, it emphasizes the interplay of multiple notions of the good and just city while offering different ways that governance, citizenship, and life can be undertaken to realize improved urban futures. Exposing and deliberating on the proper relationship between urban residents and their material surroundings often results in conflict, disagreement, and dissent, but it can also be a generative activity that can have positive influence on the pursuit of more sustainable conditions. As Swyngedouw (2007: 38) writes, ‘recapturing the political means foregrounding the political arena as the decisive material and symbolic space, as the space from which different socioenvironmental futures can be imagined, fought over, and constructed.’ The reworking of urban nature is an inherently political problem and it is through deliberation, negotiation, planning, and action that the tensions between nature and society can be addressed more effectively and in the process, help us find our place in the world.

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Figures

Fig 2.1 Seattle is situated between the Puget Sound to the west and Lake Washington to the east
(Source: author)

Fig 2.2 Seattle city engineer R.H. Thomson, circa 1931 (Source: MOHAI 1986.5.43455)

Fig 2.3 Construction of the Cedar River water supply in 1899 (Source: University of Washington Libraries, Special Collections, UW 27484)

Fig 2.4 Hydraulic sluicing activities at Bell Street and Fourth Avenue in downtown Seattle (Source: University of Washington Libraries, Special Collections, Lee 20022)

Fig 2.5 The regrading of Second Avenue in 1906 with the Washington Hotel towering above the surrounding downtown blocks (Source: MOHAI 2002.3.383)

Fig 2.6 The tideflats and waterfront south of downtown Seattle as seen from Beacon Hill circa 1898
(Source: MOHAI 1983.10.6049.4)

Fig 3.1 The informal settlement known as Hooverville on the filled tidelands south of downtown Seattle, March 1933 (Source: MOHAI 1983.10.10788)

Fig 3.2 Cross-section of a WPA slide mitigation project in the Magnolia neighborhood of Seattle with two vertical interceptor tunnels and a horizontal drainage tunnel, all dug by municipal laborers with hand tools (Source: Evans, 1994)

Fig 3.3 Potential slide and liquefaction zones in Seattle today (Source: author)

Fig 3.4 Population Growth of Seattle, 1900 to 1960 (Source: City of Seattle, 2008)

Fig 4.1 The four waterways of the Urban Creeks Legacy Program (Source: author)

Fig 4.2 Details of the SEA Street project, including the winding, lush streetscape (left), the ribbon curb and narrow sidewalk (top right) and a bioswale (bottom right) (Source: author)

Fig 4.3 Details at the High Point Redevelopment, including a curb cut and bioswale (top left), porous concrete sidewalk separating turf grass from a bioswale, (right), and an example of the housing stock and interpretive signage (bottom left) (Source: author)

Fig 5.1 A sketch from Victor Steinbrueck's *Seattle Cityscape* represents an idealized relationship between the built and natural environments in Seattle (Steinbrueck, 1962: 14)

Fig 5.2 Aerial photo of Northgate Mall showing key features of the redevelopment controversy (the dotted line represents the approximate location of the buried pipe that conveyed Thornton Creek from Interstate 5 to east of Fifth Avenue NE) (Source: author)

Fig 5.3 Details of the Northgate Channel, including interpretive signage (left), the waterway situated between the new buildings (top right), and plantings in the concrete channel (Source: Cory Crocker)

Fig 6.1 Details of the Growing Vine Street project, including the Beckoning Cistern (top left), Downspout-Plant Life Monitoring System (top right), and Cistern Steps (bottom) (Source: author)

Fig 6.2 Details of the Longfellow Creek Trail, including the water feature in the Westwood Shopping Center (left), a wayfinding sign (top right), and the Salmon Bone Bridge (bottom right) (Source: author)

Tables

Table 1.1 Definition of Metronatural™ (Source: SCVB, 2006)

Metronatural™

- Adj.*
1. Having the characteristics of a world-class metropolis within wild, beautiful natural surroundings
 2. A blending of clear skies and expansive water with a fast-paced city life
- n.*
1. One who respects the environment and lives a balanced lifestyle of urban and natural experiences
 2. Seattle

Table 2.1 A sample of statistics from Seattle regrading projects (Source: Dimcock, 1928; Dorpat and McCoy, 1998)

Location	Maximum Cut Depth [feet]	Soil Removed [million cu. yd.]
Denny Hill	110	5.4
Jackson Street	84	3.4
Dearborn Street	108	1.6

Table 3.1 City of Seattle slide removal activities, total cubic yards of material removed, 1923 to 1935
(Source: City of Seattle Streets and Sewers Dept. Annual Reports, 1924-1936)

Year	Hand removal	Gas shovel	Year	Hand removal	Gas shovel
1923	5,316	18,360	1930	1,222	2,724
1924	1,684	20,584	1931	2,614	*
1925	2,094	31,365	1932	2,523	*
1926	832	6,496	1933	5,754	*
1927	3,365	5,972	1934	41,763	*
1928	2,317	32,886	1935	19,250	*
1929	1,032	12,258			

(* No data reported)

Table 4.1 Natural Drainage System projects, 2001 to 2009 (Source: SPU, 2009)

Year	Project	Watershed	Size [blocks]	Drainage Area [acres]
2001	SEA Street	Piper's	1	2.3
2003	110 th Cascade	Piper's	4	21
2005	Broadview Green Grid	Piper's	15	32
2007	Pinehurst Green Grid	Thornton	12	49
2009	High Point Redevelopment	Longfellow	34	129

Table 7.1 Three forms of urban environmental politics

	Rational	Populist	Civic
<i>Examples</i>	Natural Drainage Systems Approach, High Point Redevelopment	Northgate Mall Redevelopment	Longfellow Creek Trail, Growing Vine Street
<i>Perspective on nature</i>	Unfinished, in need of improvement	Under threat, in need of protection and nurturing	Intertwined with humans, an opportunity for intervention
<i>Problem-solving approach</i>	Technocratic	Grassroots	Deliberative
<i>Primary activity</i>	Rule-making and enforcement	Community awareness and protest	Deliberation and action
<i>Type of change</i>	Reformist	Disruptive	Transformative
<i>Key actor</i>	Technical expert	Local activist	Engaged citizen