Hybrid Landscapes: Toward an Inclusive Ecological Urbanism on Seattle's Central Waterfront

JEFFREY HOU
University of Washington

Urban Ecologies

Ecological design in the urban context faces a dual challenge of meeting ecological imperatives and negotiating meaningful expressions for the coexistence of urban infrastructure, human activities, and ecological processes. In recent years, a growing body of literature and examples of urban sustainable design has addressed issues such as habitats restoration, stormwater management, and energy and resource conservation. While such work have been important in building the necessary knowledge and experiences toward resolving problems of ecological importance, there have not been adequate discussions on strategies of conceptual and tectonic expressions of sustainability that embody the ecological and social complexity in the urban environment. The inadequacy is exemplified in the tendency to reproduce naturalistic environment in which the appearance often disguises the complex processes and conflicts on the site. These design projects often fail to engage multiple understandings and forces in an urban context. Parallel to the discourse of sustainable design, a growing body of literature under the rubric of landscape urbanism has stressed the blurring boundaries between architecture and landscape, forms and processes, ecological and cultural (e.g., Angelil and Klingmann, 1999; Corner, 1997; Mostafavi and Najle, eds. 2003; Pollack, 1999; Waldheim, 2002). The recent discourses and design projects offer advances in theoretical thinking and design expressions. However, actual outcomes in terms of improved ecological functions in the urban environment remain to be seen.

How would an inclusive approach of ecological urbanism address the imperatives of restoring and enhancing the urban ecosystems while offering expressions of ecological and social multiplicity in the urban environment? This paper examines a series of recent design proposals for the Central Waterfront in Seattle that acknowledges the multiple constructions of social, ecological and economic processes in this evolving urban edge. Specifically, the analysis looks at how these hybrid design proposals respond to the ecological, economic, and social demands on the City's waterfront edge. The paper first describes the historical and developmental contexts for the recent explorations by various stakeholders in the City, followed by a discussion of selected works. It then examines the theoretical implications as well as practical challenges and opportunities for a vision of inclusive ecological urbanism.

Seattle's Evolving Waterfront

Since Seattle's founding in 1852, the transformation of its downtown Central Waterfront has been closely linked to the city's development and evolving identity. Formerly the site of a Duwamish tribal village, the waterfront has served as the city's manufacturing and industrial core. Over the span of decades, rail lines, mill waste, ship ballast and earth from numerous regrade projects have transformed the waterfront from a naturalistic shoreline to a concrete urban edge. In the mid-1930s, a seawall was built, creating the Alaskan Way. After World War II, the waterfront experienced another *major* change as the Alaskan Way Viaduct, was completed in 1953. Following the 1962

World's Fair in Seattle, the prospect of tourism and commercial development led to a series of new projects (DPD 2003). Several parks and open space have since been created. In 1982, a streetcar service began operating on the Alaskan Way, linking tourist attractions and public amenities along the waterfront and parts of downtown. In the 1990's, a series of development projects including new offices, a hotel, and condominiums were built on waterfront parcels formerly owned by the Port of Seattle. In a haphazard way, the Central Waterfront has become a diverse urban corridor with tourism activities, industries, public recreation and commerce, coalesced with layers of history and the overshadowing presence of the Alaskan Way Viaduct.

The current redevelopment planning for the Central Waterfront was triggered by the 2001 Nisqually Quake, which resulted in significant damage to the Viaduct and the aging seawall. The planning for reconstruction and repair of the waterfront infrastructure opens a new and rare window of opportunity for redesigning a new waterfront edge for the City, which has been disconnected from its downtown business and lacks significant public amenities. A number of new development projects on the waterfront also create a desire for greater coordination and collective visions. These projects include additions to the Seattle Aquarium, expansion of the Washington State Ferry Terminal, and a large sculptural park being developed by the Seattle Art Museum. Additionally, Terminal 46, a 90-acre cargo container facility owned by the Port of Seattle, has been a subject of contentious debate between developers and Port workers who envision different futures for this largest waterfront property in the city. Among the multiple projects and uncertainties, the central debate concerning the redevelopment of Central Waterfront has been the replacement of the Alaskan Way Viaduct. Different replacement alternatives for the Viaduct and seawall have been evaluated by local and state agencies, ranging from reconstruction of the Viaduct to different subsurface and subsurface solutions.

Given the significance of the waterfront redevelopment, various local organizations in the city have attempted to influence the planning process and outcome. The Allied Arts of Seattle, a civic organization concerned mainly with design and planning issues in the city, held a month-long design collaborative in September 2003, involving seven teams of local design and planning professionals to formulate proposals based on three specific criteria: removal of the Alaskan Way Viaduct, subsurface through-traffic, and prioritization of pedestrian activities (Allied Arts of Seattle 2003). In summer 2005, Allied Arts organized a second design collaborative specifically to advocate its preference of the tunnel alternative for Viaduct replacement. In the meantime, other civic organizations have been supporting different alternatives. Particularly, a grassroots group called 'People's Waterfront Coalition' has been advocating for no replacement of the Alaskan Viaduct, arguing that the replacement would be too costly and that the transportation needs could be addressed through other improvements elsewhere in the city. Currently, the City is in favor of the expensive tunnel alternative. However, the project remains uncertain because of the lack of adequate funding to implement the tunnel alternative. To address the multiple interests and need for public input, the City's Department of Planning and Development (DPD) initiated a planning and public involvement process to create a long-term vision and strategy in early 2003 (SDC & SPC, 2004). The process culminated in a large design charrette held in February 2004, with involvement of more than 300 designers, planners, artists, and concerned citizens from the region and abroad. Altogether, 22 schemes were proposed.

Design Visions and Proposals

From the city-sponsored charrette, the Allied Arts' design collaborative, and design studios at University of Washington, a variety of design and planning proposals have emerged. Aside from addressing the multiple needs and challenges, one of the most consistent themes across the different proposals has been the articulation of the waterfront's dual identity as both an ecosystem and an urban space. Specifically, the various combinations of habitat functions and urban infrastructure became a key feature shared by many of the proposals. In a proposal entitled *Split Decision*, a floating ferry terminal was proposed that would combine habitat functions and transportation infrastructure. Similarly, a *'habitat barge'* was proposed by another charrette team *Econnection*, which would provide additional habitats near the

shore. Several schemes have sought to create softened shoreline edges that would include islands and floating piers in the Elliott Bay, as well as integrating canals into new waterfront developments. In restoring near-shore habitats, many schemes have included coves, ledges and shelves along the seawalls. In a proposal entitled *Reversed Evolution*, Terminal 46 was converted into a Duwamish Basin Park, featuring naturalistic shoreline, mixed with housing and recreational facilities. To provide a more in-depth discussion of the proposals, the following discussion focuses on three of the proposals that explicitly respond to the waterfront's hybrid conditions.

Edge Habitat(s)

From the City-sponsored charrette, the group Edge Habitat(s), formed by graduate students and a faculty member from University of Washington, created a series of designs that highlighted the mixing of ecological processes and urban activities on the waterfront. The design elements included Salmon Spirals that would create false bathymetry by retrofitting existing pier columns. The design features a spiral ramp that would slope down into the water to provide habitats for salmons and other juvenile fish. The spiral can also be combined with other design features such as an underwater observatory and aboveground play structure for children (see Figure 1). In another design by the Edge Habitat(s) group, a series of armatures projecting into the Bay would create 'Habitat Hooks' that allow sediments to accumulate over time to create shallow conditions and beaches suitable for habitat functions. In mixing ecological and public functions, another design featured the use of debris from future demolition of the Viaduct to create Kelp Bombs in enhancing near-shore habitats and a Rubble Walk for greater public access along the waterfront. In addition to wildlife habitats, several other design ideas have focused on different 'habitats' along the waterfronts including those of pedestrians, workers, tourists, and other social groups that inhabit the shared urban corridor. Examples included an Elevated Greenway that would create both sheltered spaces for various waterfront events and activities, as well as a continuous, elevated green corridor along the waterfront for bikers, joggers, pedestrians and other urban animal species. Another design entitled Park/Docks would create a series of floating community

Figure 1. Salmon Spiral - Stephanie Hurley with Edge Habitat(s)

gardens to serve as community and public space for residents and tourists. With multiple interventions instead of an overarching scheme, the Edge Habitat(s) project embraces the existing diversity of the waterfront and multiple expressions of local activities, identities and processes. By activating the individual sites without dictating a formal relationship, the project also allows for dynamic interactions among the multiple elements, actors and processes on the waterfront.

Structure for Resilience

The design concepts of the Edge Habitat(s) project echoed those of Team HyBrid from the earlier Allied Arts' collaborative in a project titled 'Structure for Resilience'. Similar to the strategy of individual interventions, the project featured four key elements along the Central Waterfront that address the multiplicity of needs and characteristics of the waterfront. The four elements include:

Figure 2. Structure for Resilience (Team HyBrid)

Cargo/town at Terminal 46, *Modular Edgespace* at the footprint of the Viaduct, *Armored Habitats* at two shallow nearshore locations, and finally a linear park/greenway, linking together the four distinct elements (see Figure 2). The Cargo/town represents a new housing prototype using cargo containers that respond to the political and socio-economic dynamics at the Terminal 46 site. With the ability to evolve and adapt, the design allows for temporary inhabitation, continued operation of the port, and future reconfiguration. The Modular Edgespace supports a string of new programmed and unprogrammed spaces along the footprint of existing Viaduct to instigate new activities along the waterfront while allowing for continued changes and renewal. The Armored Habitats include a set of perpendicular structures protruding out from the shoreline to create and protect nearshore habitats along the waterfront. These three components are linked by a linear park/greenway that includes a series of spatial and programmatic markers (Egan, et al. 2003). Each of these elements presents a hybrid combination of multiple activities and processes, and responds to the specific conditions of respective segment of the waterfront.

Waterfront Studio

In spring 2005, the Department of Landscape Architecture at University of Washington was contracted by the Seattle City Council to examine possibilities of creating nearshore habitats in the Central Waterfront while providing public access and amenities. The project was carried out through a design studio in which students were asked to design for two specific sites on the waterfront—the Waterfront Park and the Piers 62/63, where the depth of water is most suitable for habitat functions. With an emphasis on enhancing habitat value using built structures and strategic interventions, the studio produced a range of design strategies and devices that recognize the physical constraints and possibilities of the urban sites. In terms of creating nearshore habitats, the strategies included accretion and erosion of materials to allow for gradual building of shallow water conditions along the concrete edge. Another set of strategies included design of floating structures to simulate conditions of different tidal zones for different habitat environments. The structures that support the accretion of materials and functions of the floating platforms in turn also allow for public use of the water's edge. They provide not only access to the waterfront but also opportunities to learn and observe the dynamic changes at this urban edge.

In a project titled 'City Falls into the Bay,' a series of finger-like gabion structures would protrude into the bay, containing debris from the demolished Viaduct. Tidal and wave actions would over-time allow the debris to disperse, deposit and stabilize, and thus create shallow conditions and nearshore habitats around the structures (see Figure 3). The gabion structures would allow people to walk on and accelerate the process of erosion and deposition. In another project, a series of perpendicular walkways would trap sediments circulating in the bay to form nearshore habitats as well as beach areas for public use (see Figure 4). Both ocean currents and human activities would cause the process of erosion and accretion. Finally, in one project that made use of floating platforms, a system of movable panels installed at different depths would provide a field for continuous experiments and adaptation for investigating

how such system provides habitat functions (see Figure 5).

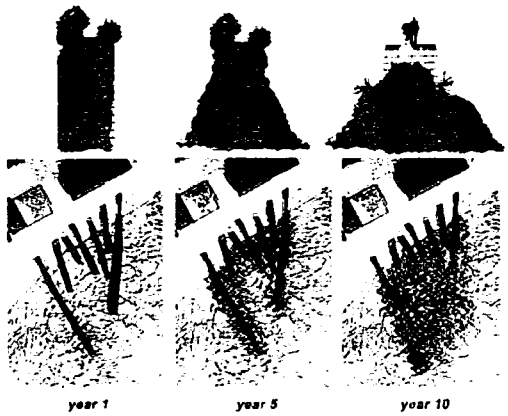

Figure 3. City Falls into the Bay: Natural and human induced erosion and deposition (Virginia Coffman)

Figure 4. Waterfront Scaffolds (Nathan Brightbill)

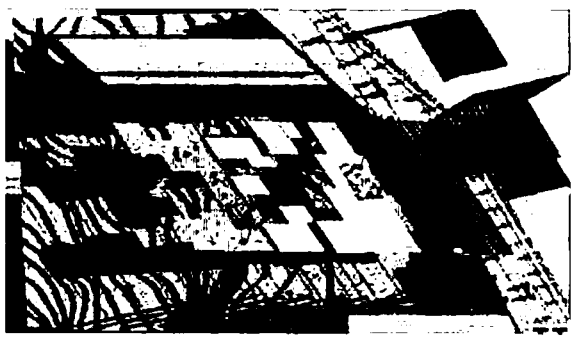

Figure 5. Floating Platforms as Urban Habitats (Kent Straub-Jones)

Challenges and Opportunities

The three sets of design proposals described above present a vision of hybrid landscapes distinct from other more conventionally conceived design proposals that still echo the pastoral park design tradition of a bygone era. At a theoretical level, the strategy of hybrid interventions creates an intermediate ground for the coexistence of ecological processes, infrastructure and urban activities. The designs exhibit different ways of bridging the multiple dimensions of urban activities, structures, and processes. However, as an emergent approach, there are still several significant and practical challenges facing these strategies. First, at a more general level, the experimental nature of these projects requires a different kind of planning, design and implementation process. It also requires the public and users to accept a different kind of design outcomes that are likely to shift and evolve. Secondly, specific to the Seattle's case, the debate over transportation and Viaduct replacement alternatives have continued to dominate the current planning and public discussion on the future of the Central Waterfront. There has been less public attention toward the different design proposals following the charrette and collaborative. The dominant institutional and political interests in the decision-making concerning the replacement of the Viaduct have sidestepped other equally significant issues concerning one of the most important open space and infrastructural opportunities in the city.

Another challenge for realizing the proposal comes from the institutionalized planning process. The results of the charrette, for example, have been transformed into a series of generalized design principles and matrices of shared characteristics that fail to express the scope and significance of the different design proposals. The generalized principles and the matrices fail to capture the distinctiveness and complexity of the different proposals and the ways in which they depart from the conventional approach of waterfront design. In the midst of these challenges, one hopeful sign was present recently when the Waterfront Studio projects received positive responses from the City Council and environmental advocates in the city. The hybrid solutions as presented by the studio provide a space for negotiating ecological restoration and rebuilding of the waterfront for public use. It opens a possibility for a critical co-existence and co-evolution of urban and ecological processes. By addressing the need for environmental restoration while

providing opportunities for public access, recreation and other socio-economic activities, the proposal has potential to garner political support from a broader range of actors and stakeholders.

Toward an Inclusive Ecological Urbanism

The emerging vision of a hybrid landscape in the waterfront design proposals in Seattle addresses the unique context and functions of urban waterfront in contemporary cities. In treating the waterfront as a hybrid matrix of urban infrastructure and ecological processes and recognizing the dynamic interactions of social and ecological processes at the waterfront edge, the proposals provide a glimpse of new expressions and meanings of ecological design in post-industrial cities. While still conceptual, the collection of proposals offers an alternative to the prevalent model of waterfront redevelopment, or restoration that often overlooks the multiple layers of ecologies and socio-economic forces on this ever-changing urban edge. The recognition of hybridity allows the designers to move away from essentialist and binary notions of architecture vs. landscape, infrastructure vs. ecology, and city vs. nature. Specifically, it allows for negotiations between different processes in the urban landscapes and encourages critical and nuanced expressions of the social, ecological and structural complexity of contemporary metropolis. As a pluralistic and inclusive framework, the hybrid approach for urban ecological design provides a fertile ground for further interdisciplinary exploration and experimentation, as well as involvement of multiple actors and stakeholders.

Bibliography

Allied Arts of Seattle. (2003). Waterfront Design Collaborative Brief.

Angelil, Marc and Anna Klingmann. 1999. Hybrid Morphologies: Infrastructure, Architecture, Landscape. Daidalos: Architecture, Art, Culture 73. October 1999, pp. 16-25.

Corner, James. 1997. Ecology and Landscape as Agents of Creativity. In Thompson, G. and Steiner, F. (eds.), Ecological Design and Planning. Pp. 80-108. New York: John Wiley & Sons, Inc.

Department of Planning and Development (DPD). (2003). Seattle's Central Waterfront Plan: Summary Background Report.

Egan, Joel, Robert Humble, Benjamin Dalton, Jeffrey Hou, Iole Alessandrini, Scott Melbourne, Raldi Formantes, Marina Alberti, Buster Simpson, Karen Janosky, Paul Dorpat and Nate Jenkins. 2003. Structure for Resilience. Arcade: Architecture / Design in the Northwest. 22(2): 14.

Hill, Kristina and Jeffrey Hou. 2005. Waterfront Studio. Presentation to the Seattle City Council. Department of Landscape Architecture, University of Washington.

Mostafavi, Mohsen and Ciro Najle. Eds. 2003. Landscape Urbanism: A Manual for the Machinic Landscape. London: Architectural Association.

Pollack, Linda. 1999. City-Architecture-Landscape: Strategies for Building City Landscape—Petrosino Park, Manhattan. Daidalos: Architecture, Art, Culture 73. October 1999, pp. 48-59.

Seattle Design Commission and Seattle Planning Commission. 2004. The City of Seattle Central Waterfront Planning for the Future: 2003 Public Forum Summary.

Waldheim, Charles. 2002. Landscape Urbanism: A Genealogy. Praxis: Journal of Writing + Building 4.

Washing State Department of Transportation (WSDOT). 2003. Alaskan Way Viaduct and Seawall Replacement Project. Fall 2003.