I, Larissa Burlij, hereby submit this original work as part of the requirements for the degree of Master of Architecture in Architecture (Master of).

It is entitled:
Infrastructure as Landscape: Imagining an Operative Ecology along the Cuyahoga River

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Infrastructure as Landscape: Imagining an Operative Ecology along the Cuyahoga River

A thesis submitted to the Graduate School of the University of Cincinnati in partial fulfillment of the requirements for the degree of:

Master of Architecture in the Department of Architecture of the School of Architecture and Interior Design

by Larissa Burlij

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The Operation

The 21st century marks a paradigm shift for landscape and architecture projects. Issues of pollution and contaminant control represent not simply a trend in the greater social consciousness, but suggest a residual reordering of landscape and architectural design priorities. The emerging dialogue has manifested from abandoned and de-industrialized urban, airfield, industrial and military sites -- the residues of a Fordian era, and its evolving principles have gained momentum in the works of several contemporary landscape architects. This leads to the proposal of an Operative or Working Ecology. James Corner refers to working landscapes as “Terra Fluxus,” where new design strategies employ operational logic over compositional design, and where urban geographies function across a range of scales, and implicate a host of players. The term bridges the German landschaft, referring to working lands, and landskip, the aesthetic nature. To envision landscape as a working ecology, one might look to de-industrialized cities where ecological infrastructure have corroded over time, yet have the possibility of eliciting a city’s potential as a cultural and historic place. Perhaps no better example exists than in the Great Lakes region of the United States, specifically, along the Flats and Industrial Valley of the infamous Cuyahoga River in Cleveland, Ohio. This thesis provokes an intellectual armature (and less a formally constructed plan) for imagining an operative ecology along the Cuyahoga River.
The Team

Nearly all urban-focused research and design projects require the influence, support, guidance, expertise and critique of a wide range of players. This thesis is no different. I would like to thank the Cuyahoga County Department of Public Works, Christopher Alvarado at the Cuyahoga County Planning Commission, Bill Zawiski at the Ohio Environmental Protection Agency, the Cuyahoga Valley National Park Service, the Greater Cleveland Regional Transit Authority, Dimit Architects, Michael McInturf, Aarati Kanekar, Rebecca Williamson, Alex Mega, Amanda Dempsey, and the influential, professional teachings of Alex Krieger at Chan Krieger NBBJ.

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The Shift

The 21st century marks a paradigm shift for landscape and architecture projects. Issues of pollution and contaminant control represent not simply a trend in the greater social consciousness, but suggest a residual reordering of landscape and architectural design priorities. The emerging dialogue has manifested from abandoned and de-industrialized urban, airfield, industrial and military sites -- the residues of a Fordian era, and its evolving principles have momentum in the works of several contemporary landscape architects. Richard Haag’s Gas Works Park in Seattle, Washington (1975) is one of the first parks in the United States to remediate contaminated industrial grounds for public use. Through means of bio-photo-remediation, Haag’s team “cleaned and greened” the soil and water on the abandoned 20.4-acre coal-and-oil processing plant. Repurposing the contaminated site proved unorthodox at the time, mostly because of Haag’s intention to preserve portions of the gas works plant itself. Initial observers...
**BARRIER**
contaminated region guarded from public use with a gated fence

**REMNANT**
earth mound molded out of rubble from building foundations covered with fresh topsoil

**RELIC**
original gas works plant

PHOTO SOURCE: JOE MABEL
dismissed the remnants as useless fossils; Haag, on the other hand found historic, aesthetic and utilitarian value in them. Although the factories themselves remain gated and non-accessible to the public, the weathered steel artifacts serve as reminders of the city’s industrial past and are integral visual cues in the park’s overall experience.

The Framework

The public’s initial resistance to Haag’s project stems from the traditions of landscape design and a cultural comfort with the landscapes of Frederick Law Olmsted, “the founder of American landscape architecture and the nation’s foremost park-maker.” Olmsted, with Calvert Vaux, designed New York City’s Central Park in the mid-19th century as “the most agreeable contrast to the confinement, bustle and monotonous street-division of the city.” The park thereby promises oasis, a bucolic buffer against the bedlam of urban existence. We anticipate spaciousness and tranquility in our notion of landscape based on Olmsted’s enduring principles, but as critic Arthur Lubow avows, “the contrast no longer lies between greenery and cement.” In this regard, Haag’s Gas Works Park stands as a counter-point to Olmsted’s ethic. The new ethos thereby addresses the difference between aesthetic- and process-frameworks for design. Ania Berrizbeitia elaborates in “Re-Placing Process:

Instead of introducing external forms and transforming the site to accommodate those forms, these are ‘found’ and evolved out of systems already there. This implies a shift from creating compositions based on notions of balance, regularity and hierarchy to working with systems, natural or man-made, and the various ways in which they can be organized and distributed as fields, gradients, matrices, corridors, etc., to facilitate connectivity, ecological functions, program and the perception of phenomena.”

3 Lubow, “Anti-Olmsted.”
4 Lubow, “Anti-Olmsted.”
Manhattan Population = 1,562,723
Irvine Population = 180,000

Manhattan / Central Park Population
(population sources: City of Irvine, US Census Bureau)

Central Park Entrance Diagram

Legend:
- park entrance
- subway line

Source: Vallery Studio
Where the aesthetic-framework is representational and based in form-making and object creation, the process-framework proves evolutionary and his highly adaptable to change.

That is not to say Olmsted omitted infrastructural landscape solutions in his work. On the contrary, his proposals for Boston's Emerald Necklace in the 1880s provide clear examples of threading movement systems, flood and drainage engineering, with the creation of scenic landscape and urban planning. Olmsted strategized the regional park network as a means of structuring the city's impending growth by connecting parks via parkways. In “Landscapes of Infrastructure,” Elizabeth Mossop addresses the Necklace's Back Bay Fens as a “close collaboration between landscape design, urban strategies and engineering,” which produced a “complex project integrating ideas about nature and infrastructure as well as health, recreation and scenery.” However, Olmsted shrouded much of his organizational methods in aesthetic and representational spaces. Pastoral scenery hides the Fens' environmental purpose of remediating the polluted Back Bay waters from the Charles River's overflow.

Unlike Olmsted's refuge in pristine nature, Peter Latz, the designer of Duisburg-Nord Landschaftspark in Ruhr Valley, Germany (1991-2004) created a large-scale recreation zone from the site of an abandoned processing plant "that is unmistakably man-made and that extends into the gritty neighboring communities." And unlike Haag's design that holds industrial relics at bay behind protective gates, Latz embraces the industrial remains, inviting human interaction in the form of climbing walls, performance theaters and playing fields. "Landscape is not the opposite of the town," says Latz; "landscape is culture." Where Olmstead's landscapes provide respite from the industrial city, Latz proposes a landscape that

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8 Lubow, “Anti-Olmsted.”
9 Lubow, “Anti-Olmsted.”
Reprogramming the abandoned and de-industrialized factory into recreational facilities creates a new sense of place amidst the previously abandoned site. Factories remain as relics of the town’s industrial past.
Past abandoned buildings remain and serve as relics of the town's industrial history.

Past Begets Place: Analytical Drawing of Latz's Landschaftspark
Drawing by Author (Using Images from Latz + Partners)
makes connections to the history of a place and the history of an industrial past. At Duisburg-Nord, landscape is active -- neither isolated nor contemplative. Latz makes memory physical.

The Scale

The formation of metropolitan-scale parks from the remains of 20th century urban, industrial and military operations, such as in Duisburg-Nord, are on the rise. In her essay “Big Nature,” Landscape Architect Jane Amidon acknowledges this trend will not only continue but increase exponentially through 2016. Lubow agrees: “The typical site for a large urban park today is a mothballed industrial plant, a polluted brownfield or a decommissioned military base. In metropolitan centers, no other large tracts of land are available.” Projects grounded in remediation, therefore, have gained sizable traction.

Landscape Architect Nina-Marie Lister notes that “largeness” is an important criterion that demands a different approach to design, planning, management and maintenance--one that explicitly provides the capacity for resilience in the face of long-term adaptation to change, and thus for ecological, cultural and economic viability. She goes on to propose that the design of large parks “calls for a long-term, bird’s-eye view of the whole system.” In 2006 the New York City Department of Parks and Recreation began implementing such a project: the master plan developed by James Corner Field Operations to transform Fresh Kills Landfill into Fresh Kills Park. The former landfill, which collected thousands of tons of New York City’s garbage from 1947 to 2001, makes up the largest man-made structure on Earth. The site covers 2,200 acres (8.9 km²) of Staten Island from Arden Heights Woods to Willowbrook Park -- nearly three times the size of Central Park. New York

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12 Lister, “Sustainable Large Parks,” 35.
13 Lister, “Sustainable Large Parks,” 36.
FRESH KILLS PARK: PLAN VIEW OF THE SITE
SOURCE: JAMES CORNER/FIELD OPERATIONS
City awarded the project to Field Operations after a competitive two-stage, international competition including entries from Hargreaves Associates, Tom Leader Studio, John McAslan + Partners, Rios Associates and Sasaki Associates. Corner’s ideological design response offers a long-term strategy based on natural processes and plant life cycles to rehabilitate the severely degenerated land.

Lister affirms that “[t]he ability of ecosystems to recover, reorganize, and adapt in the face of regular change, rather than stability, is critical to their survival. Most design, planning and management in an environmental context is based on the assumption that more knowledge leads to certainty and therefore predictability and the success of the design or plan;” however, this is not the case with complex living systems, as they are inherently unpredictable. Lister warns us not to fall into the trap of a postmodern nihilism and give up trying to design, plan and manage large tracks of abandoned and de-industrialized land. Rather, we must accept and embrace change as a constant, and through our designs, adapt to it in a more flexible and responsive manner. We see evidence of this sensitivity in Corner’s design approach to the Fresh Kills site. The park’s design emphasizes ecological phasing, and cultural, educational and recreational programming as the means to decontaminate and create place. At Fresh Kills, design priorities governing site remediation have less to do with buildings and more to do with large-scale infrastructural landscapes, as the very process of restoring the landscape becomes an inherent part of the visitor’s experience.

We learn from Fresh Kills that micro-managing the aesthetic dimension of ecology must not be our primary goal. Living systems are far too complex, and susceptible to both sudden and gradual changes. Therefore, “we can refocus our energies on those human activities that provide the context for the

15 Lister, “Sustainable Large Parks,” 36.
16 Lister, “Sustainable Large Parks,” 36.
"Growing a new parkland over time"

2005: The existing site is a closed landfill, without public access or amenity.

Within a few years, areas of the site can be reclaimed as useful public landscapes.

Soon thereafter, new park drives can connect Richmond Avenue to the West Shore Expressway and allow access around the park.

Larger areas of the park will be reclaimed as public parkland over time.

Restaurants, cultural facilities, sports amenities and other recreational uses will activate the site.

A mature biomatrix within the next 30 years, Fresh Kills Park may be transformed into a fully sustainable, living park.

FRESH KILLS PARK: SUCCESSIVE SEQUENCE OF STAGES IN OPENING UP AND "GROWING" THE NEW PARKLAND OVER
SOURCE: JAMES CORNER/FIELD OPERATIONS
Corner systemizes phasing techniques to transform Fresh Kills Landfill into Fresh Kills Park. Temporality plays a key role in the visitor’s experience.
FRESH KILLS PARK: PAST-PLACE CONTINUUM
DRAWING BY AUTHOR, COLLAGING IMAGES FROM JAMES CORNER/FIELD OPERATIONS
self-organizing processes in ecosystems. This implies a profound change in environmental decision making and has direct implications for design, planning, and management of ecosystems in general, and large parks in particular.”17 The designer’s new role in the environmental decision making process takes shape in a relatively recent discipline known as Landscape Urbanism, but perhaps more aptly in our understanding of Operative Ecologies.

The Field

In 2006, Landscape Architect and editor of The Landscape Urbanism Reader, Charles Waldheim, compiled a series of essays that presented Landscape Urbanism as a discourse and methodology. Waldheim describes the term as:

a disciplinary realignment currently underway in which the idea of landscape supplants architecture as the basic building block of city-making, especially when contemporary urban conditions are characterized by horizontal sprawls and rapid change. Landscape, under these circumstances, is often able to reproduce urban effects traditionally achieved through the construction of buildings simply through the organization of low and roughly horizontal surfaces.18

Waldheim elaborates on landscape’s shifting priorities in his essay “Landscape as Urbanism.” He notes that “[contemporary] practices recommend the use of infrastructural systems and the public landscapes they engender as the very ordering mechanisms of the urban field itself;” the new priorities, therefore, are layered, non-hierarchical, flexible and strategic.19 Stan Allen, Dean of the School of Architecture at Princeton University supports Waldheim’s position in that “designers can activate space and produce urban effects without the weighty apparatus of traditional space making.”20

For the purposes of this thesis, however, we can further
Eleven natural areas on Staten Island were surveyed to develop a palette of plant communities that support native wildlife. Working from this palette, diverse habitats appropriate to Fresh Kills' topography and hydrology are proposed.
understand the ideological imperative as described by Jane Amidon’s Operative Ecology or working landscape. This term bridges the functions of the German landschaft, or working lands, and landskip, an awareness of the aesthetic nature. Corner calls working landscapes “Terra Fluxus,” where new design strategies employ “operational logic over compositional design.” For millennia, shared and working landscapes stood at the heart of human settlement, often developing along bodies of water. In doing so, cities created an economic, political and recreational relationship with their natural ecosystems. It was during the Industrial Revolution, and into Olmsted’s era that landscape was designed to represent natural and pastoral scenes to impart an experience of health and tranquility. However, as we have seen through several of Corner’s, and others’ examples, the landscape design paradigm is moving away from a controlled and pastoral mirage, and embracing the new process-framework of design. The landscape is no longer a passive scene, but rather an active working system that is connected to and supporting human habitat. Landscape now performs the work where its de-industrialized and abandoned tracks of land no longer do.

The Practice

The role of the landscape architect figures prominently in this emerging dialogue. Not surprising, since the new urban imperative -- ecology -- exists within the discipline's perceived realm of expertise. The motivations of landscape design have also become increasingly clearer in Waldheim’s Reader (2006), and the GSD’s Ecological Urbanism (2010), as well as in the realized projects of James Corner’s and Stan Allen’s Downsview Park in Toronto, and Weiss/Manfredi’s Seattle Olympic Sculpture Park, to name a few. The design disciplines promote the need for interaction among multiple fields. Due

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SEATTLE OLYMPIC SCULPTURE PARK: MOVEMENT SYSTEMS DIAGRAM AND PERSPECTIVE PROPOSAL
SOURCE: WEISS/MANFREDI
to sheer scale and complexity, each project requires more diversification than ever. Corner supports the multi-disciplinary approach believing, “urban geographies function across a range of scales and implicate a host of players.” Architects, urban designers, planners, civil and environmental engineers each maintain a sizable stake in the discourse. However, it is difficult to ignore that these roles prove more tenuous than that of the landscape designer. Landscape is now the primary infrastructure to regenerate a city -- not buildings.

The Proposal

Traditionally, the architect values landscape as a means to implant objects into an aesthetic-framework; however, “there must be a new role for humans as creative agents in the process of unfolding, as interpreters of change, as designers once again.” Lister argues that “as a process of discovery, design implies intentional shaping, manipulation and (re)creation. In the urban ecological context, it also means recovery of something that has been lost--if not the precise forms of ecologies past, then an attachment to landscape, to nature’s rhythms, to place.” We need only look to the post-industrial Midwestern United States to re-engage the ecologies of past, as they are being made painfully evident in ecologies of present. Using existing movement systems of a post-industrial city as the primary framework, this thesis provokes a conceptual armature (and less a formally constructed plan) for imagining an Operative Ecology along the abandoned and de-industrialized zones of the Cuyahoga River in Cleveland, Ohio. The accompanying research, through process-framework design, will reshape existing ground, and construct new topography to create connections where none existed, and amplify linkages and relationships where they tenuously do. “Rather than passively protecting landscape in far off places of

PARC DE LA VILLETTE: COMPETITION SITE DIAGRAMS
SOURCE: OMA/TSCHUMI
wilderness and leisure,” Amidon argues that today, “we actively build an enhanced nature around our daily existence that fuels, filters, feeds and otherwise fosters healthier communities.”

The intention is to understand the architect’s contribution to the emerging methodologies. At the risk of otherwise sacrificing influence (and work) to those in other fields and disciplines, architects must learn to work within the new attachment to landscape, understand the processes of nature, and champion ecology’s role in the making of place as the infrastructure for a reformulated landscape.

AERIAL VIEW OF CLEVELAND, OHIO AT THE MOUTH OF THE CUYAHOGA RIVER AND LAKE ERIE
SOURCE: KEN WINTERS / US ARMY CORPS OF ENGINEERS
PART TWO
The Great Lakes

For millennia, shared and working landscapes stood at the heart of human settlement, often developing along bodies of water.25 In doing so, cities created an economic, political and recreational relationship with their natural ecosystems. During the Industrial Revolution, however, human ecology dramatically altered the water’s ecology throughout the United States and parts of western Europe, transforming rivers and lakes into seemingly expendable machines of the industrial age. The industrial use of these ecosystems had profitable, but disastrous effects. In his essay “Landscape as Infrastructure,” Pierre Belanger points to the Great Lakes region as being burdened with the highest concentration of contaminated sites and waters in North America.26 These statistics prove emblematic, given that so many prosperous Midwestern cities have been methodically positioned along bodies of water to accommodate the city’s and region’s commercial agendas. They also prove problematic, as together, the Great Lakes

A river is more than a ditch with an aquisous solution that runs through it. A river is truly the heart of the land. The quality of the river is a direct reflection on how people view the quality of their life. —ELAINE MARSH

26 Pierre Belanger, “Infrastructure as Landscape,” 79.
contain 95 percent of the United State’s supply of fresh water, and 20 percent of the world’s. Belanger proposes a return of the land to productive re-use, with emphasis on reinvestment in public works, and a reconsideration of the conventional, centralized and technocratic practice of infrastructure as the discipline of civil engineering that have overshadowed the landscape of bio-physical systems. The region is thereby in need of a systems-framework design to encourage the development of a working landscape as the primary ecological infrastructure.

In nearly every Midwestern city, we can point to large tracks of abandoned and de-industrialized land, ripe for an operative ecology to take hold. But for the purposes of this thesis, we zoom in to Cleveland, Ohio, and its notorious Cuyahoga River, whose June 1969 river fire helped make the city the poster-child of bad ecological behavior.

The Cuyahoga Valley

Cleveland, and its Cuyahoga River, sit within the greater regional context of the Cuyahoga Valley as well as the Cuyahoga Valley National Park. The Iroquois who first settled along the river gave the Cuyahoga its name, which literally translate to “Crooked River.” The river begins its winding 100-mile (160 km) journey in Hambden, Ohio, flowing south-eastward to the convergence of the East Branch Cuyahoga River and West Branch Cuyahoga River in Burton. It is here the river officially begins. The river then turns a sharp north making a “V” as it moves through the Cuyahoga Valley National Park, through a stretch of suburbs, then the city’s Industrial Valley, and eventually into Lake Erie.
THE THREE PRIMARY ECOLOGICAL ZONES OF THE CUHYOGA RIVER

DRAWING BY AUTHOR
Residents of Northeastern Ohio typically think of the Cuyahoga and its ecosystems in two parts. The first being the “upper Cuyahoga,” beginning at the river’s source, winding through the bucolic National Park; the second, as the “lower Cuyahoga,” which runs from the outskirts of the National Park, through Cleveland’s Industrial Valley and into Lake Erie. According to Bill Zawiski, biologist at the Ohio EPA, thinking of the river in only two zones is incorrect. Instead, the river should be thought of as three distinct ecosystems.30 The first ecosystem is the marshland-dominated zone near the river’s source, west of the city. Here, the river is barely noticeable, hidden in marsh and grasslands. This region differs greatly from the second zone as it makes its way through the densely wooded National Park. Zawiski notes that between these first two zones, the elevation drops so dramatically (the topography is more severe than that of Niagara Falls), that this accounts for the significant difference in plant and animal life along and in the river. The third and final zone makes up what we know as the “lower Cuyahoga.” During Cleveland’s settling in the late 18th century, the lower Cuyahoga consisted of a rich and varied ecosystem including terraced wetlands, forests, grasslands and meadows -- a far cry from today’s ecological make-up.31 Today, much of the area surrounding the lower Cuyahoga has simply been coined “The Flats.”

The Industrial Valley and “The Flats”

The Flats earned its name from its topography. The grade change between Cleveland’s elevated zone and the lower-leveled Flats measures between 90 and 100 feet. Given its proximity to the river, flanking each side, and its proximity to Lake Erie, the Flats became the epicenter of the region’s industry beginning in the mid 19th century. Over the course of Cleveland’s industrial past, the Flats served as the primary region for the production and distribution of iron ore, salt, paint

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30 Bill Zawiski. Phone Interview. October 11, 2011.
31 Mitsch, Zhang, Nahlik, “Designing a Regeneration Zone for the Cuyahoga River Valley.”
ELEVATED ZONE

WEST BANK OF THE FLATS

DETOUR-SUPERIOR VIADUCT (VETERANS MEMORIAL)

EAST BANK OF THE FLATS (OXBOW)

DRAWING BY AUTHOR
and various other metal and chemical fabrications. Since 1903, businesses located along the river altered and widened its edges, changing the Cuyahoga’s ecology dramatically. The new, steel river walls, and dredged river floor provided means of easier freight travel, docking and loading along the river’s looping oxbows. By the 20th century, the arborous region once known as the “Forest City,” along with any remnants of its terraced wetlands, grasses and lush meadows, were replaced by flattened pavement, and the factories and machinery of heavy industry.
Typical of industrial rivers of the era, factories also used the Cuyahoga River for the elimination of waste and by-products of iron ore, paint, synthetics and other hazardous materials and debris. Over the course of time, this practice lead to the infamous ecological effects of many rivers beginning in the 1910s, and culminating in the 1960s. While river fires were not uncommon for American industrial cities during the first half of the 20th century, occurring in Chicago, St. Louis, Pittsburgh, New York and New Jersey, *Time* Magazine called out Cleveland and the Cuyahoga River in its August 1969 issue as a prime example of industrial progress gone astray. The article describes the Cuyahoga as a river that “oozes rather than flows,” “in which a person does not drown, but decays.” An employee of the Federal Water Pollution Control Administration also noted, “The lower Cuyahoga has no visible signs of life, not even low forms such as leeches and sludge works that usually thrive on wastes.” The city’s historic apparatus for commercial success became an ecological and public relations nightmare.

The *Time* Magazine article documenting Cleveland’s environmental troubles sparked social and political action. In 1972, Congress passed the Clean Water Act, establishing the basic policies for regulating discharges of pollutants into the waters of the United States, and regulating quality standards for surface waters. While the health of the lower Cuyahoga improved dramatically since the CWA and establishment of the EPA, abandoned industries, left-over factories and continued freight travel prolong a full recovery. River dredging occurs on an annual basis, and concrete and steel pile systems remain in place as the dominant river edge construction. These conditions, therefore, make it impossible to support healthy
CUYAHOGA RIVER FIRE, NOVEMBER 3, 1952.
SOURCE: CLEVELAND PRESS COLLECTION AT CLEVELAND STATE UNIVERSITY LIBRARY
plant growth for native macroinvertebrates and aquatic species, without which, the river's integrity cannot be fully restored. In addition to the toll industry has taken on the river and its local ecologies, combined sewage overflow prevents any significant access to the river during rain storms. Because of the health risks that combined sewer water pose to the public, recreational use of the lower Cuyahoga remains prohibited today.

So what now?
Land Use

After years of industrial havoc and post-industrial neglect, the city's resulting landscapes can each be understood in three distinct locations. The Flats comprises the first, whose history has been described in detail, but whose topography and edge conditions will be further emphasized to understand its relationship to the second: the Elevated Zones of the city. The Elevated Zones are the raised regions directly to the east- and west-sides of the Flats. A 2010 land-use map shows how the river and Industrial Valley act as a thick dividing line between the residential neighborhoods to the west and civic and business districts to the east. In many ways, the Cuyahoga creates a tale of two cities. The Lakefront makes up the third disturbed area, which spans the northern edge of the city. All three regions have the potential to transform the Cuyahoga River and its surrounding territories into a working landscape.
The Abandoned Landscape

We perceive much of post-industrial Cleveland and its ecological infrastructure as an abandoned landscape—the resting place of an industrial age. Nearly all of the industries located on the approximately 480-acre Flats region closed in the second half of the 20th century. Some of its relics, including warehouses, smoke stacks and train cars remain, and many of the lift and swing bridges are still used by light vehicular traffic. These former working bridges have the potential to elicit cultural and historical significance, viewed from the elevated areas of the city as artifacts, but also experienced by inhabitants in the form of a recreational zone (as in Landschaftspark). By reprogramming the Flats’ bridges and factories, this zone can transition into a new cultural destination for the city.

The abandoned landscape of the Lakefront exists primarily along the shipping piers east of the river. Dense train tracks divide the Lakefront from both the Flats and the Elevated Zones. Today, some of these tracks serve the city’s Regional Transit Rapid system (metro) and the national Amtrak service (Lakeshore Limited Line). Others, which previously benefitted local industry, have been decommissioned. Given this existing infrastructure, and proximity to Lake Erie, this region has the ability to link regional neighborhoods to the east and west of the Cleveland by means of pedestrian and bike routes, and open up views to Cleveland’s skyline, river and lake.

Finally, holes in the once-dense urban fabric of the city have developed into parking fragments in the Elevated Zone. Here, buildings have been abandoned, torn down and converted into parking lots. These lots have the potential to mitigate the city’s storm water system, filtering the city’s water before it drains into the Cuyahoga River.
The Marginalized Landscape

Cleveland’s marginalized landscapes represent areas that have separated themselves from any formal function of the city or its residents. They consist of porous zones that lack connectivity and a clearly defined agenda, however, they have the potential to support a new logic of organization and new modes of operations as a working landscape.

The marginalized landscape in Cleveland’s West Side neighborhood is scattered and mostly private. The pixilated green represent the lawns of single-family resident housing. In a working landscape, the new neighborhood green might emerge in the form of pocket parks, squares and urban agricultural markets. The urban fabric on the city’s East Side are large and orthogonal tracks of land that can be re-programmed for greater public and civic use, and develop greater connectivity and access to the Cuyahoga River.

Wendy Park, a vacant 40-acre patch of green defines the edge along the Lake Erie. The steeply mounded terrain hides views of the city and the river, however, the existing park has the ability to transform into a terraced amphitheater for public events, as well as a means by which visitors can enjoy views of the lake and its boaters.

The wild buffer zone along the oxbows of the Cuyahoga evolved from the Flats’ abandonment. Many of the existing plant species are non-native and invasive. With a revised planting system, this landscape can actually do much to provide means of water filtration and erosion control.
Cleveland’s Movement Landscape makes up three varied typologies or scales. For the purposes of this project, we look to Cleveland’s movement landscapes that concern human movement through and within the city including metro rail, automotive, bicycle and pedestrian circulation.

The regional transit scale includes a national and mega-regional Amtrak service that supports circulation west from Chicago, and east, from Buffalo. The regional system also supports an elevated highway network that provides automotive transit for the greater Northeastern Ohio region, and the Rapid, which is Cleveland’s metro rail network that serves the city and its nearby suburbs. The existing regional and mega-regional network have the potential to bring visitors to Cleveland from other parts of Ohio and Midwest to experience the new operative ecology as a unique cultural destination place.

Neighborhood vehicular connectors link communities to the east and west sides of the city. Residents typically use these routes to access other districts and amenities, but going forward, the neighborhood connectors can amplify the means by which to access the Flats and the Cuyahoga River. Local arteries serve vehicular (and sometimes bicycle) traffic for movement within the city, but they too can be strengthened so as to add pedestrian promenades, nature/hiking trails and cycling paths over and around the river.

Over the course of Cleveland’s history, these movement systems defined and connected four primary (and distinct) development zones in use today. They are: the Central Business District, which is served by all three typologies, the RTA’s Rapid (metro) system, neighborhood connectors and
local arteries; the Athletic/Event District, served primarily by the regional highway; the Public Market District, that allows access to the popular and historic West Side Market by means of the Rapid, regional and local roads; and the emerging Entertainment District, accommodated by the regional highway and neighborhood connectors.

Each of the four districts of the city occur where at least two movement systems intersect. The junction points allow multiple means of access, provide distinctive view corridors and support mixed-use programming. The existing movement systems are indicators for the potential of the Flats as a regional destination, a neighborhood amenity and a significant place with a rich cultural past.

Conclusion

It is within this context that landscape can find value in urban design. Movement systems acting as framework to a newly imagined working landscape system will mitigate the negative effects of the abandoned tracks of land, impart a purposeful and seasonal porous infrastructure, and provide views and access to the Cuyahoga River and its industrial relics. Landscape thereby functions to create connections where they do not exist, and strengthen them where they tenuously do. In this effort, the pedestrian, the cyclist, the kayaker and motorist will look at movement systems from the perspective of the operative ecology through which they pass, responding to it as an element of the urban fabric and an integral part of the city.
PART FOUR
We remember that Cleveland’s original ecology consisted of terraced wetlands, marshes, riparian buffers, forests, meadows and grasslands. Each of these typologies are evident to the Cuyahoga Valley today, where they support native plant and animal species, which, in turn, support the health of the river. The design intent is to link these native planting systems from the Cuyahoga Valley National Park, through the city and into Lake Erie. Four primary planting systems will be (re)introduced into the urban fabric. They are the Midwestern forest, the riparian buffer, the terraced wetland and the wildflower meadow.
For purposes of this thesis, we will concentrate the site around the Detroit-Superior Viaduct (also known as the Veterans Memorial Bridge). Not only is the bridge used by vehicular, pedestrian and bicycle traffic -- boat, vehicular, pedestrian and bicycle movement systems occur beneath the bridge as well. Therefore, the site provides an excellent example by which to conceptualize the city’s many movement systems in section.
The lower deck was previously used for the city's streetcar, now closed to the public. Photo by author.


Source: Western Reserve Historical Society.
Section cuts were taken through the bridge -- each cut captures a distinct mix of movements systems and their relation to the Cuyahoga River.

Corresponding plan drawings of each section reveal landscape interventions.
BEFORE

Before and After perspective photo-collages demonstrate the spatial implications of the newly imagined landscape.
RIPARIAN BUFFER

RECREATIONAL SIGNAGE

DRAWING BY AUTHOR [IN PROCESS AT TIME OF PRINT]
AFTER

PROMENADE

INDUSTRIAL RELIC

DRAWING BY AUTHOR
BEFORE
AFTER
In his Race Street Pier project, James Corner/Field Operation programs ecology by valuing vista, recreation and leisure. Trees line the Philadelphia pier, to direct views towards the Delaware River or back in to the city.
RECREATION

Here, Corner uses ecology to program recreational activities. He supplies a lawn area supplied for group games and activities. Trees line the entry to direct long strolls. The perimeter is kept open to allow space for fishing. And a dramatic topography of steps and ramps help joggers get a good work-out with city and river views.

LEISURE

Ecology is also used to help visitors enjoy the pier for leisure. The line of trees at the entry have seating areas spaced underneath the canopies. Large steps provide seating; visitors can share the lawn for picnics; and the perimeter is accessible for those who wish to relax and meander near the water’s edge.
To give the thesis site greater context, it would take more than five of Corner’s Race Street Piers to make up the span of the Detroit-Superior Viaduct (Veterans Memorial Bridge).
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