

Paradise in the Parking Lot

a design thesis



Paradise in the Parking Lot

by

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Thesis submitted to the faculty of the Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of

Master of Landscape Architecture

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All photos by author unless otherwise noted.

“Don’t it always seem to go
That you don’t know what you’ve got
Till it’s gone
They paved PARADISE
And put up a parking lot”

BIG YELLOW TAXI

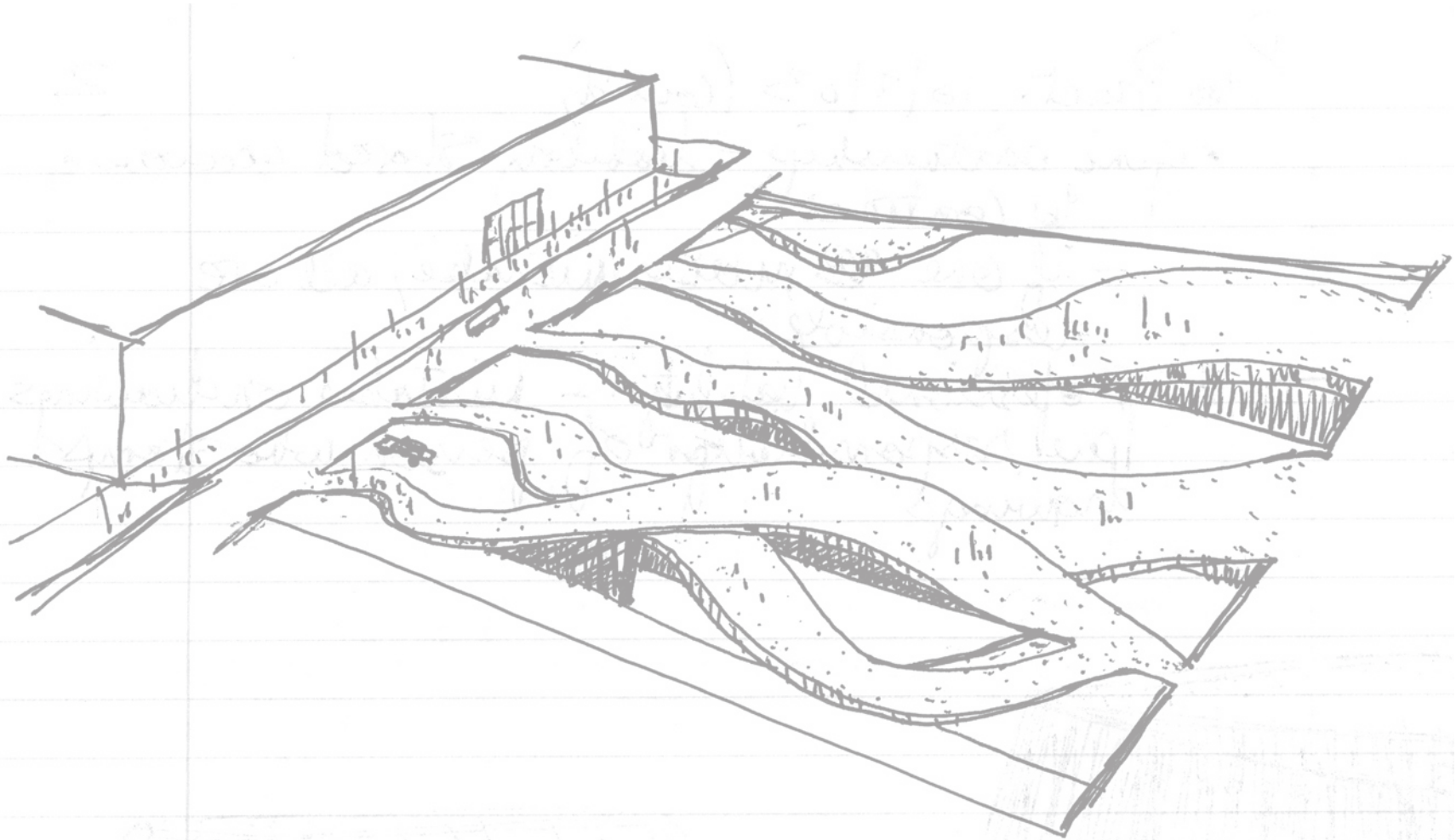
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I received guidance and support from many people on this project. My many thanks to a number of fellow students for their input and encouragement. I also thank my committee: Dean Bork, who allowed a project to develop and morph into a thesis; Paul Emmons, who asked me to care about myself as much as I cared about design and get as excited as he was about my project; and Caren Yglesias, who encouraged me to push on, and on, and on – thank you.

Abstract

Paul Francis Killmer
Paradise in the Parking Lot

Parking lots can no longer be the inhospitable, pedestrian-minimalizing, environmentally-degrading uses of valuable open space that are accepted and tolerated as the “norm”. The open space that makes way for parking lots is too precious to be wasted on places that provide little or no comfort to the user while also contributing to the degradation of the environment.

By inserting a fantastical landscape – one which engages the senses through color, texture, and smell – into the mind-dulling landscape of a large surface parking lot, the resulting comparison is a waking call about the missed opportunities of celebrating beauty and the environment. This gives value to the landscape in today’s mobile society where the natural world appears to be losing ground to the automobile.

This thesis proposes a series of landscape structures over a vast surface parking lot – Potomac Yard Shopping Center in Alexandria, Virginia – that provide open space, the ecological benefits of absorbing storm water runoff and preventing UV bounce back, while ultimately repositioning and rejoining the pedestrian with the landscape. The project does not set out to eradicate parking. Rather, the project recognizes the need for parking in today’s mobile society but prioritizes the important connection that must exist between people and nature within that context.

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Introduction

It is widely agreed that typical surface parking lots are dismal places. Milwaukee Journal Sentinel critic Whitney Gould ably expresses this sentiment. Gould's Spaces article for the August 9, 2004 edition of the paper focused on several of the Milwaukee area's parking lots, though the same assessment could easily apply to just about anywhere in the country. She sums up the perception of parking lots:

"Developers and building owners treat these spaces as leftovers: essential to have but not worth investing any money to design them. Architecture schools don't spend much time on the subject. And the rest of us, who just want a place to park, take what we can get, preferably close to destination. The results ... are basically paved deserts."

Paved deserts, indeed, and, sadly, essential to our lifestyles. We need cars in today's auto-centric world, and we need places to leave them when we are not using them. So why be concerned about the design of parking lots, if we only interface with/encounter them periodically as we leave our cars and head to the grocery store, for example? Gould provides part of the answer:

"Why care? Because a bad parking lot can blight an entire neighborhood, wasting valuable real estate (while) creating a sense of placelessness..."

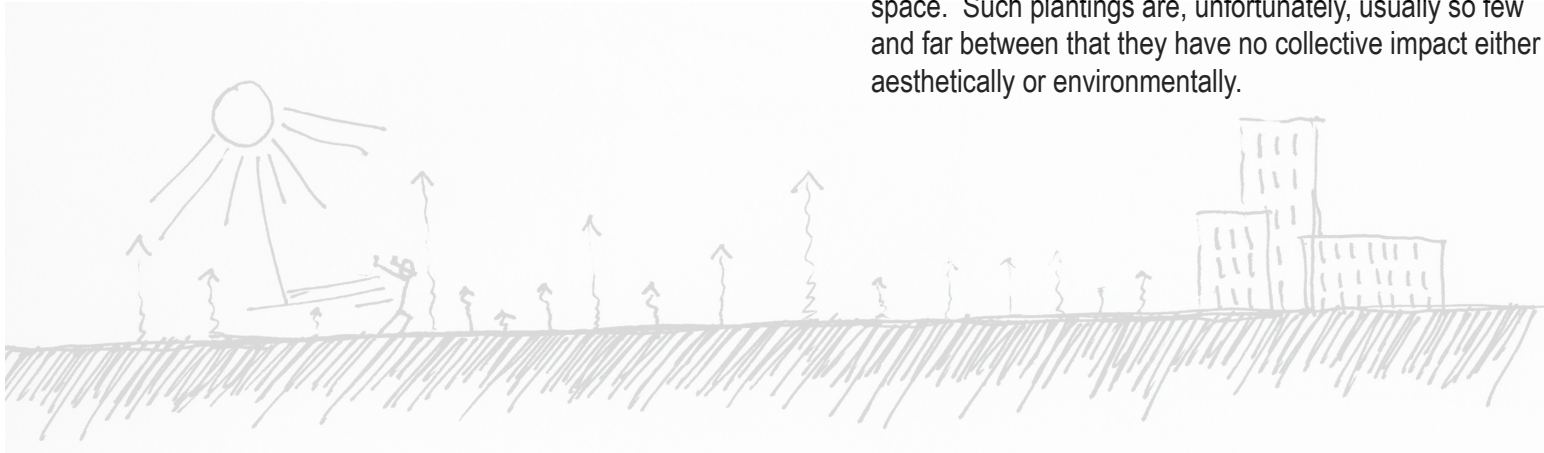
Blight and placelessness – and to that add conditions that degrade the environment through unchecked storm water runoff and elevated atmospheric temperatures.



Introduction

Problem

Parking lots are not only ugly, they are environmentally detrimental by producing massive volumes of stormwater runoff that contribute to stream bed erosion. And, there is solid proof that parking lots add to the heat island effect by reflecting harmful ultraviolet radiation back into the atmosphere. Many parking lots have tree boxes scattered throughout in a well-meaning but feeble attempt to insert something green and alive into an otherwise dead space. Such plantings are, unfortunately, usually so few and far between that they have no collective impact either aesthetically or environmentally.

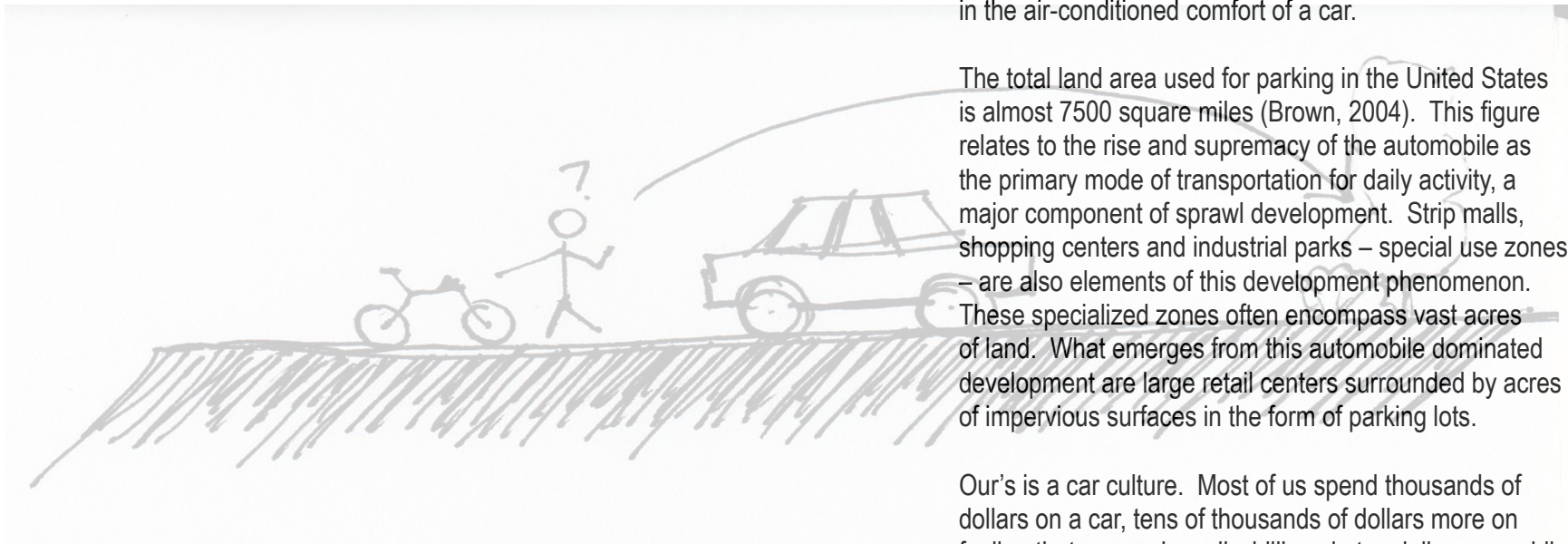


Introduction

There are approximately 214 million cars in the United States (Brown, 2004). Each car requires about .18 acre of paved surface in the form of road and parking space. For every five cars, a football field of asphalt is needed. In all, there are over 6 million miles of paved roads in the United States. Environmentalist Robert Cutler laments “asphalt is the land’s last crop.” Americans are unfortunately all too familiar with navigating vast parking lots. It has become so ingrained in our culture most think nothing of it. However, it’s quite a different experience to walk through these wastelands instead of driving around them in the air-conditioned comfort of a car.

The total land area used for parking in the United States is almost 7500 square miles (Brown, 2004). This figure relates to the rise and supremacy of the automobile as the primary mode of transportation for daily activity, a major component of sprawl development. Strip malls, shopping centers and industrial parks – special use zones – are also elements of this development phenomenon. These specialized zones often encompass vast acres of land. What emerges from this automobile dominated development are large retail centers surrounded by acres of impervious surfaces in the form of parking lots.

Our’s is a car culture. Most of us spend thousands of dollars on a car, tens of thousands of dollars more on fueling that car, and, easily, billions in tax dollars on public roads and private dollars on parking lots for those cars, a hidden cost to the consumer. Cars provide the means to live our lives in a faster paced society by making the time spent traveling between our work and home quicker. But there is a heavy price to pay for this convenience and luxury, and we’re not seeing that price tag clearly anymore.

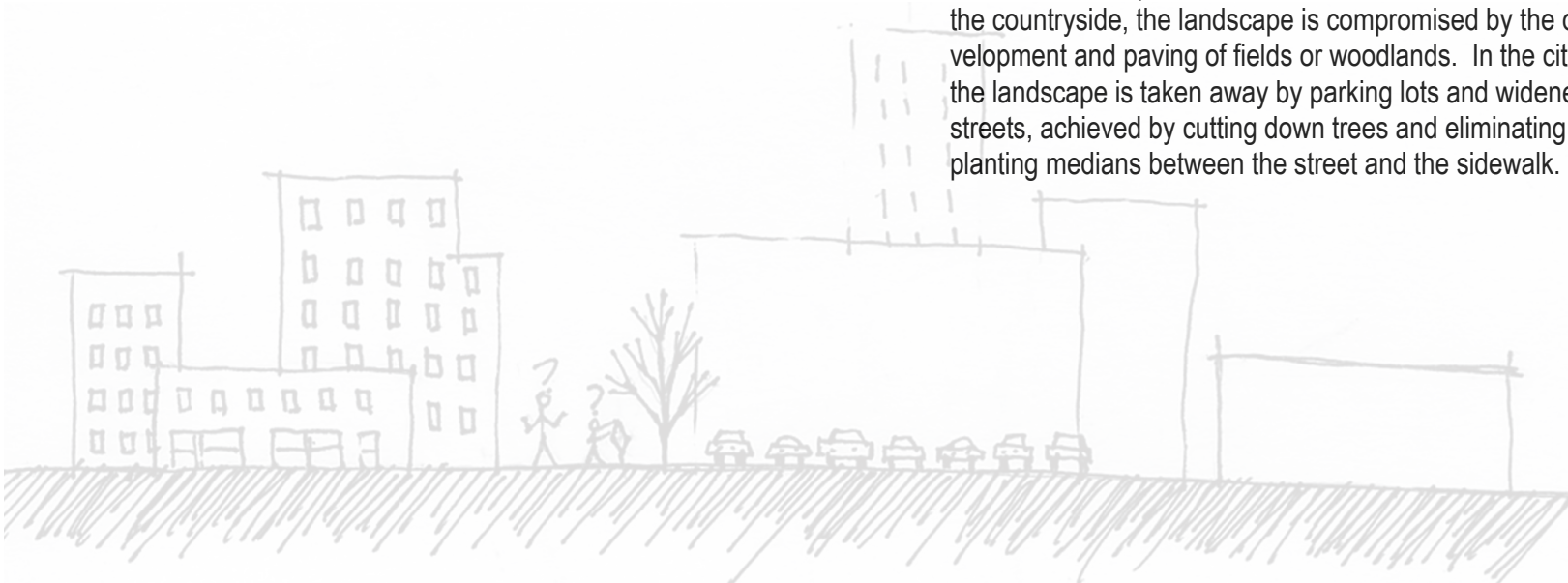


Introduction

Impact

When the United States Constitution was ratified in 1787, just three percent of the country's population lived in cities. As of 2000, that number has climbed to over 80%. Consequently, cities have reached massive proportions and encompass, in some cases, hundreds of square miles. Once mostly comprised of neighborhoods for living, working, and entertainment surrounded by fields and forests, most cities of 21st century America have morphed into a hybrid of all three, gobbling up those surrounding fields and forests and leaving few places to connect to nature in meaningful ways. Thus, new generations of Americans may begin to believe that nature is often little more than the street tree, the flower pot, or the planted median strip of a parking lot.

The open landscape, whether defined by rolling hills, woodlands, farm fields, or mountain ranges is in constant jeopardy of falling prey to destruction. Modern development patterns consume vast amounts of land, replacing it with seas of asphalt to accommodate automobiles. In the countryside, the landscape is compromised by the development and paving of fields or woodlands. In the city, the landscape is taken away by parking lots and widened streets, achieved by cutting down trees and eliminating planting medians between the street and the sidewalk.



Introduction

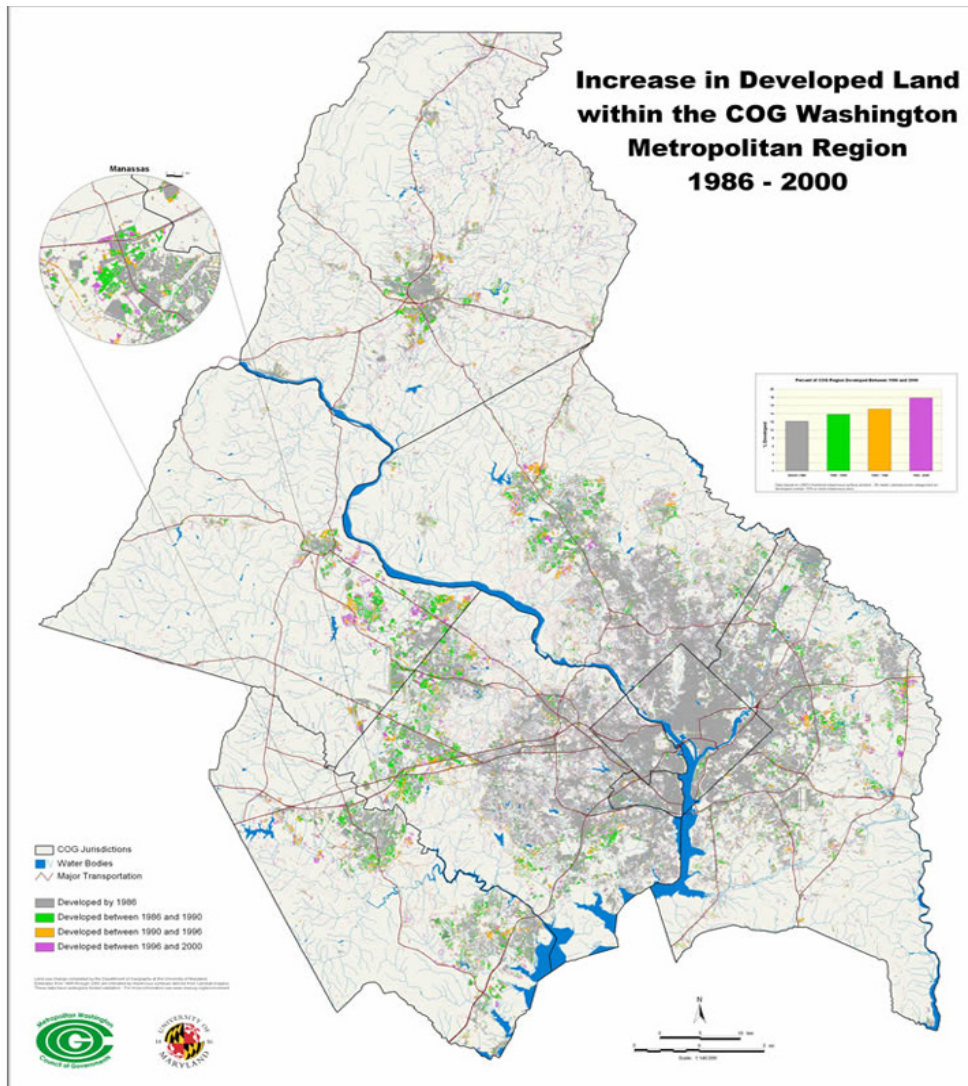
Impact

How important is the landscape today? How important is it for us to have places of beauty, peacefulness or opportunities to reconnect to the earth? If we live in suburban communities, perhaps one can more easily access nature by gazing out onto the horizon and seeing the hillsides or mountain ranges in the accessible distance. But if we choose to live in urban areas, parks are meant to serve this purpose. As our dependence on the automobile is growing, it seems we automatically begin to cede ground on the aesthetics of our surroundings in order to more efficiently accommodate this mobility. Are the vast seas of asphalt, with all of their alienating, sinister properties acceptable? If automobiles are here to stay, then are the places we keep them the landscapes of our future? Surely not, or at least one would hope not. Open space is disappearing and the loss of such space, particularly in the urban environment, is all the more devastating because the landscape is lost for a far greater number of people.

Losing Ground

In 2004, the Washington Metropolitan Council of Governments (MWCOCG) released a study on land use practices in the Washington metropolitan region. Analysts utilized satellite data from 1986 to 2000 to study land use patterns within the 3000-square-mile region. The study shows that the region loses 28 to 43 square miles of green space every day in land development. Prior to 1986, the percentage of developed land in relation to undeveloped land was 12.2 percent. Between 1986 and 2000, the amount of developed land rose to nearly 18 percent. Over 300,000 acres of open space will be developed between 1990 and 2020, according to the National Park Service. Is there a comprehensive plan to manage this development, while providing opportunities for reconnecting to the natural world?

The heat island effect is a direct byproduct of the increasing acreage of impervious surfaces in our modern world. This documented phenomenon results when the sun's radiation is trapped within the mostly impervious conditions of an urban setting. That containment is caused by a number of factors. Chief among them are the number of reflective surfaces in our downtowns. The composition and color of the surface determines the rate of reflectivity. Darker surfaces (black asphalt parking lots, for example) have low reflectivity (five to ten percent) and higher absorption. Lighter surfaces (grass, tree canopies) have high reflectivity (25 percent and higher) and lower absorption. Consequently, rooftops of black tar, asphalt roads and surface parking lots trap this radiation, causing abnormal air temperatures in the surrounding atmosphere, which leads to unhealthy air conditions, particularly in the warmer months of the year.

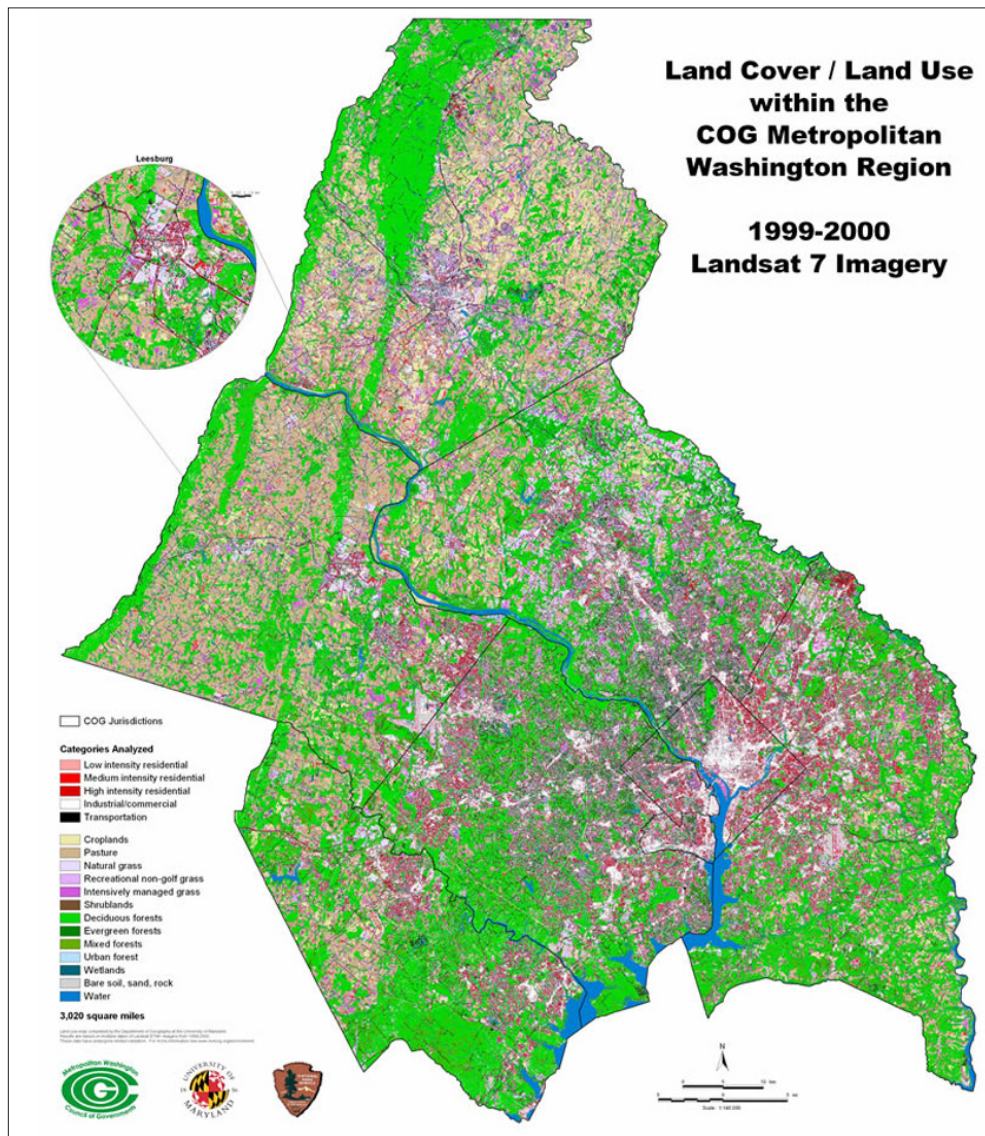


The increase in developed land, shown in grey, is directly tied to the increase in impervious surfaces. Map courtesy the Metropolitan Washington Council of Governments, Department of Environmental Programs and the National Park Service, National Capital Region

Losing Touch

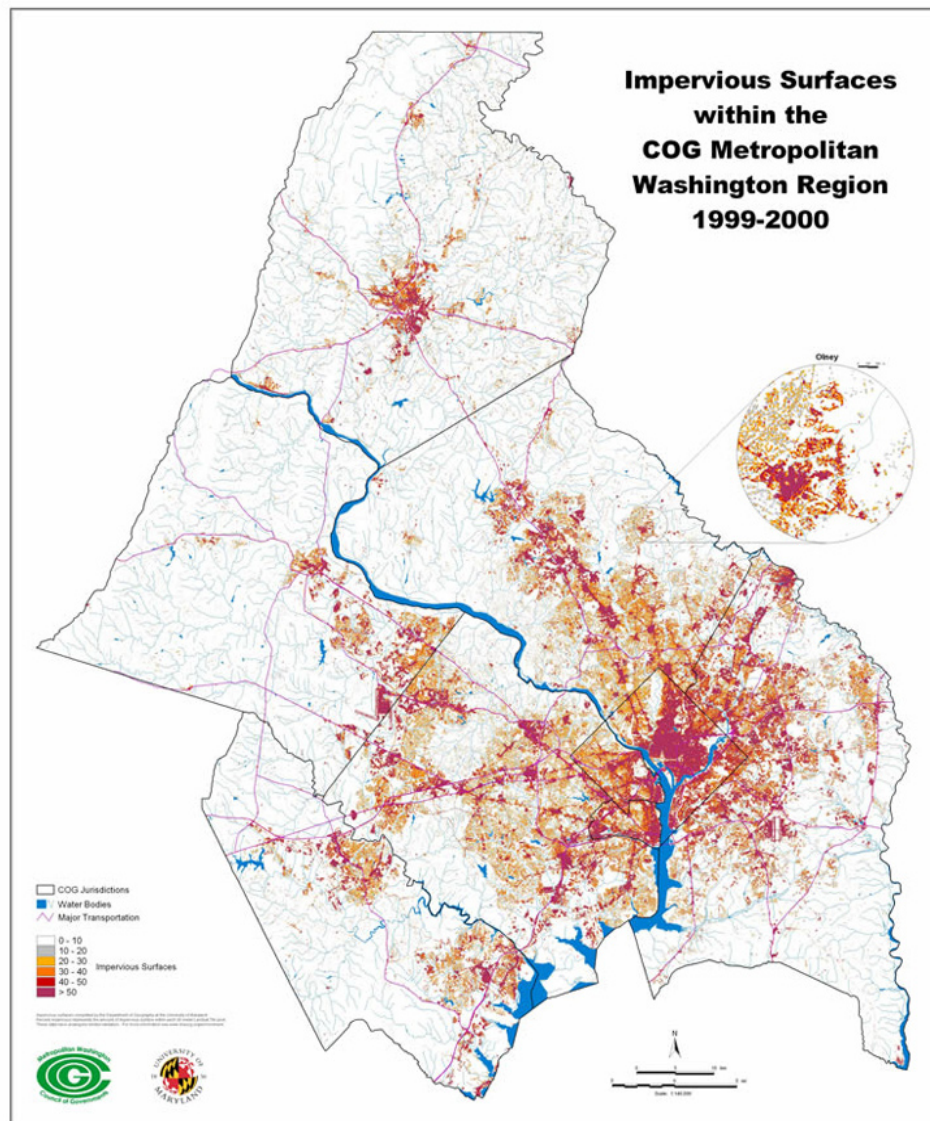
Land use attitudes in the United States have little changed since the first Europeans arrived in North America. With the new country covered in old-growth forests, rolling prairies, and criss-crossed by navigable rivers – all teeming with wildlife, the country was seen as Paradise on Earth. Nowhere else in the then-known world held so much promise. The promise of untold wealth sparked the earliest arrivals of colonists seeking a get-rich-quick visit to a land “paved in gold.” Rather, what these early arrivals found was a virginal landscape stretching to the other side of the world. Less than half a century later, the lure of gold was soon replaced by the lure of the land. In this vast new country, ownership of land was a much more distinct possibility for those with the means to make the dangerous Atlantic crossing. But the reward for such a risk was land of one’s own use, something not possible for a vast majority of Europe’s population. And with a seemingly endless amount of land stretching into “infinity”, the new Americans embarked on an aggressive land use pattern that continues into the 21st century.

Today, it seems that we are still claiming land as though there was an endless supply of it – and at an accelerating rate.



The green in this map represents forests, cropland, park land, water features, and urban and countryside development in metropolitan region. It is largely missing in any significant form in the highly developed urban centers. Map courtesy the Metropolitan Washington Council of Governments, Department of Environmental Programs and the National Park Service, National Capital Region

Paving Over



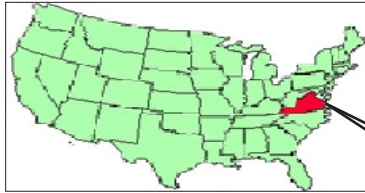
A portion of the impervious surface shown at left takes the form of large, surface parking lots that surround the major shopping centers throughout Northern Virginia.

The parking lots surrounding Tyson's Corner, Fair Oaks Mall, Springfield Mall, and other shopping centers are all designed by code to accommodate the number of consumers arriving via automobile. The single use nature of most surface parking lots is, perhaps, the most troubling aspect of the automobile landscape. Typical surface parking lots serve as temporary car storage.

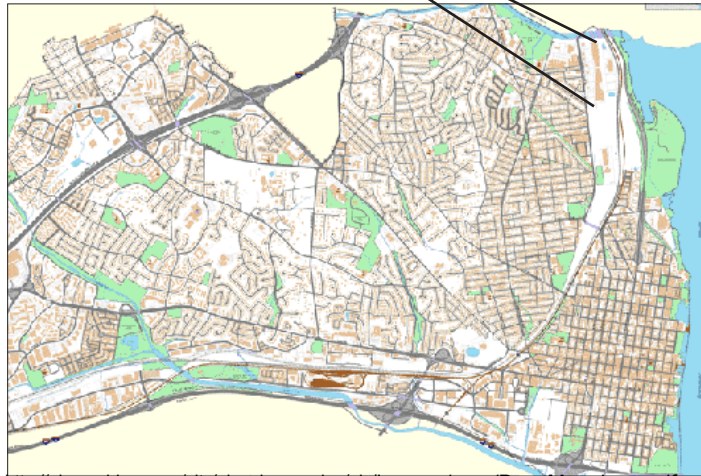
In some cases, these same lots remain nearly empty on the weekends. Adding trees and shrubs to these lots indeed provides much needed cooling shade while reducing surface reflectivity. The vegetation also provides visual relief in an otherwise open sea of cars and asphalt. But these reactions don't fully address the fact that the parking lot serves just one purpose, a holding place for the automobile. Open space is disappearing and is too valuable to be used for this purpose. In the city of Alexandria, the largest parking lot is found at Potomac Yard Shopping Center (PYSC).

The amount of impervious surface in the Washington metropolitan region increased from 12% in 1986 to nearly 20% in 2000. The red shown is the most impervious of surfaces, which includes roofs, sidewalks, roads, and parking lots. Map courtesy the Metropolitan Washington Council of Governments, Department of Environmental Programs and the National Park Service, National Capital Region

Project Site



<http://www.dea.gov/pubs/states/virginia.html>, accessed March 2004



http://alexandriava.gov/city/planning_zoning/gis/images/map/BaseMap_large.gif, accessed March 2004

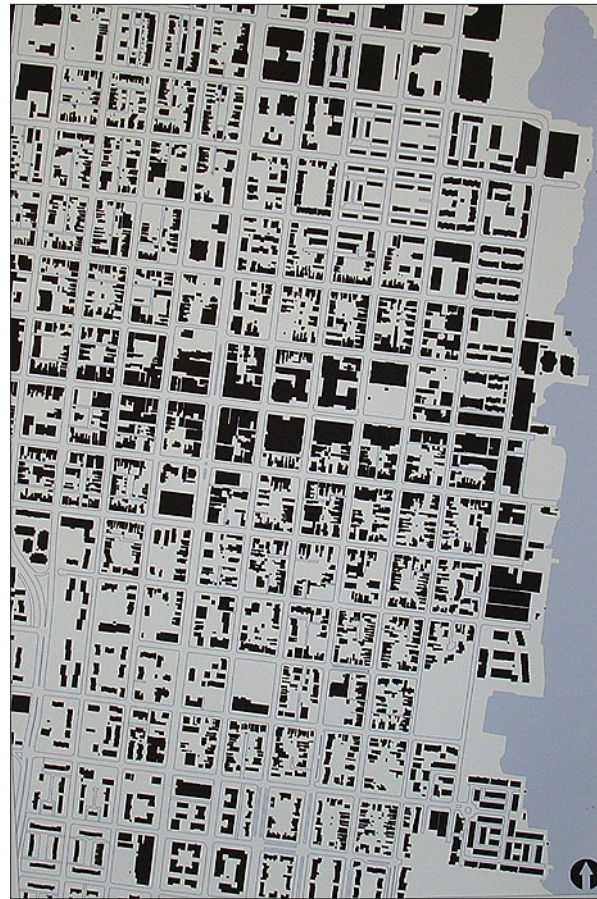
The land that is now Potomac Yard Shopping Center was, itself, the marshy mouth of Four Mile Run, an important fishing and navigational tributary of the Potomac River. Over time, the tidal portion of the creek has undergone dredging and filling as the area's populations and industries developed and increased. Following a series of devastating floods in the 1950's and 1960's that caused millions of dollars of damage, the portion of Four Mile Run from the Potomac River to present day Shirley Highway (Highway 395) was channelized by the Army Corps of Engineers to protect the communities nearby and to allow for the quick discharge of storm water into the river. Potomac Yard is bounded to the north by Crystal City in Arlington County, to the east by the George Washington Memorial Parkway, to the west by Jefferson Davis Highway (U.S. Route One), and to the south by the Monroe Avenue Bridge in the Del Ray section of Alexandria, Virginia.



Google Earth image, accessed November 2006

Project Site

Figure ground studies showing Old Town Alexandria on the left, Potomac Yard Shopping Center on the right. These images, shown at the same scale, demonstrate the striking size of the site when compared with the heart of Alexandria's Old Town. Note the extensive surface parking lot surrounding PYSC's retail.



Potomac Yard Shopping Center (PYSC) is part of the much larger Potomac Yard site, formerly the major switching yard for the Richmond, Fredericksburg and Potomac (RF&P) Railroad. When the railroad sold the yard to Crescent Resources, the 400-acre Potomac Yard became the largest parcel of undeveloped land within the Capitol Beltway. Some of the development of Potomac Yard is now complete, with new housing and retail. Currently, major construction is underway on high-rise condominiums, office buildings, and public parks.

Project Site



In 1998, major work was completed on Potomac Yard Retail Center (PYRC). The shopping center, essentially a strip mall with major, big-box retailers, is the 70-acre retail heart of the larger Potomac Yard development and includes a 24-screen movie theater, and three stand-alone restaurants. PYSC provides over 3600 parking spots.



The 70-acre Potomac Yard Retail Center provides over 3600 parking spaces. (clockwise from top) aerial view from west; view towards north from inside site; view south from inside site; one of three main entrances from U.S. Route One.

Precedent

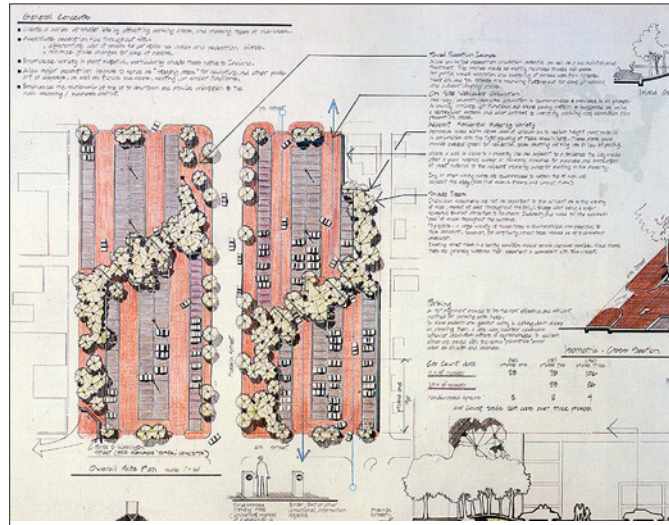
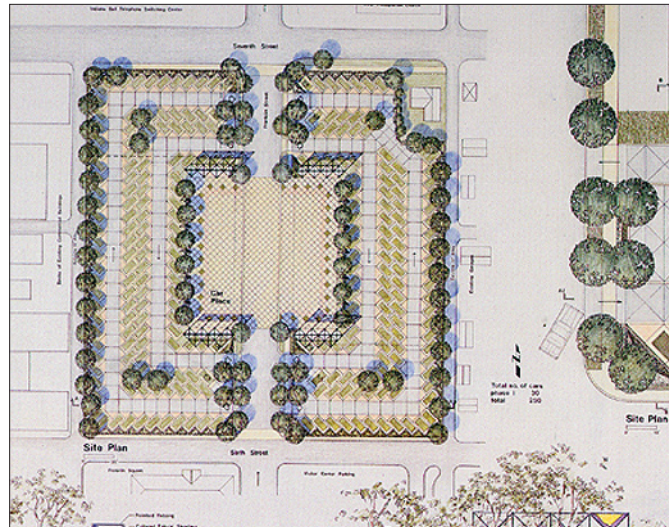
“We stand upon the shoulders of giants”. This phrase is sometimes invoked to illustrate that no idea is a new one. In other words, the foundations of ideas are already in place, established by preceding generations that, in turn, owed much to the ideas established before them. But interpreting these established ideas using one’s own beliefs as a creative guide allows for a fresh idea to emerge that has a new context and new meaning. Within this new interpretation lies a continuing thread of thought, but one that is understood and developed in a new way.

With one exception, the following projects ostensibly represent variations on a theme - addressing problems inherent to standard parking lot design. The projects selected represent various approaches to parking lot design that incorporate unconventional methods to enliven these too-often bleak components of our modern world. The results are sometimes witty but always functional landscapes.

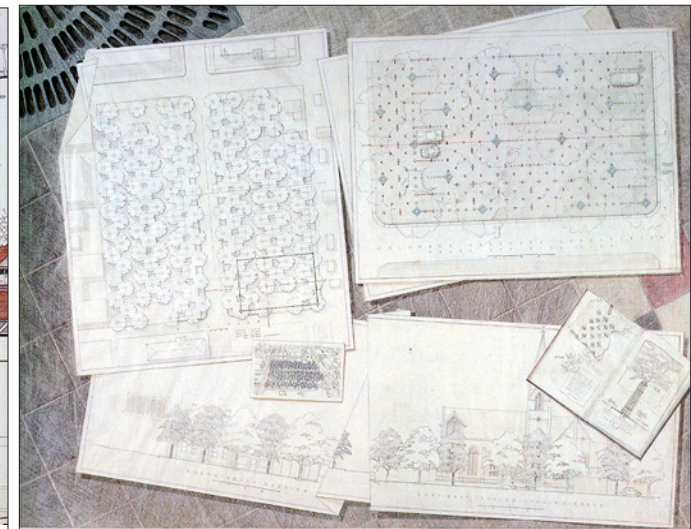
Common to all of the following precedents is an understanding of the human scale. The designs strike a balance between the need for aesthetically pleasing and sustainable environments that are not alienating spaces AND the need for parking lots. The High Line in New York City, demonstrates the many creative possibilities that exist in our modern cities to re-connect to the natural world, and so serves as a complementary precedent to this project.

In all cases, the following precedents serve as points of departure for this project’s reinterpretation, re-evaluation, and repositioning of the landscape in our modern world.

The town of Columbus, Indiana, is long-known for its support of the arts and its remarkable concentration of modern architecture. Eliel Saarinen's First Christian Church in 1942 was the first of many public building projects in the then-vogue International style. Following World War II, Columbus embarked on an ambitious building policy that gave many famous architects their first major commissions. Today, the town can claim important buildings by I.M. Pei, Eliel and Eero Saarinen, Richard Meier, and James Stewart Polshek, among others. These modern public, cultural, and religious buildings make Columbus unique among American cities for the number of modern buildings by now-famous architects.



(top): Secundo Fernandez with Helmut Kern and Stanley Suski. The parking lot is designed for multiple functions, including fairs, markets.



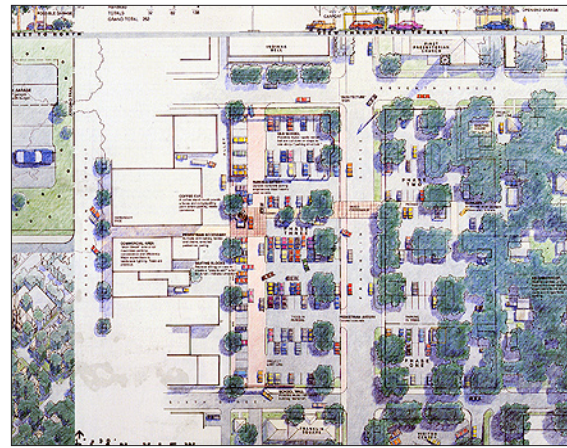
(above): Eric R. Kuhne & Associates. A heavy tree canopy turns the parking lot into a densely planted park.

(bottom): David Ferguson/Michael Sommer. An irregular tree placement reduces the large surface lot to smaller lots. Images used with permission from the Irwin T. Miller Company.

Carscape, competition
Columbus, Indiana
1982

Precedent

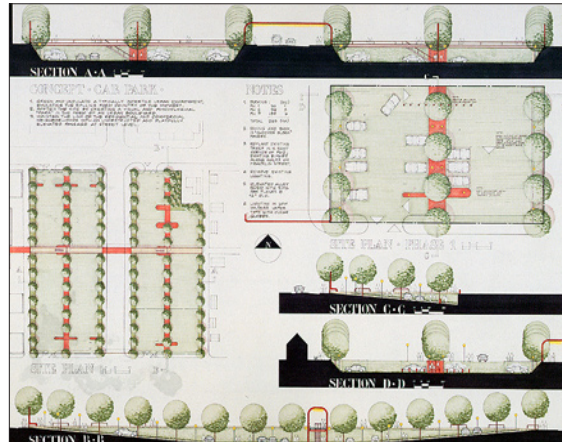
Land Studio and Martin Poirier. The successive dominance of the tree planting in the parking lot reflect the contrasting uses of the business and residential neighborhoods.



Carscape was a continuation of this effort to promote better design in the everyday world. In 1982, the town of Columbus sponsored a competition to redesign several downtown public parking lots for up to 300 cars. The parking lot design was to serve as a worthy complement to the town's growing number of acclaimed, modern buildings, exhibiting the same approach to design as the town's civic and religious buildings by elevating daily life through the careful design of the built environment. The lots were unmetered, open 24 hours a day, and served the businesses and churches in the neighborhood. The competition design objectives included :

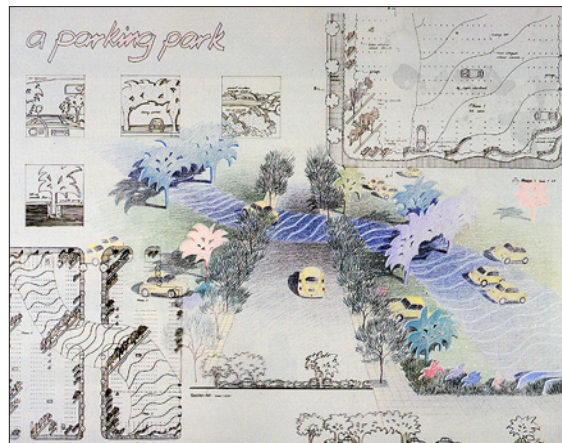
“(designing) a surface parking that builds upon the tradition in Columbus of design excellence and innovation; find a solution intrinsic to the parking function but a step beyond the typical embellishments, e.g., berms, walls, trees, etc., (Miller, p.28)

James C. Snyder & Thomas D. Kurlmel. Cars parked below grade allows for a park above.



The resulting entries, over 130 in all, demonstrated inventive solutions for one of the most ubiquitous blights in our modern environments. Multiple uses, landscaped lots, and creative paving patterns were some of the more creative entries. For this project, Carscape Competition serves as a point of departure in exploring the power of design to enhance the dreadful conditions that characterize most surface parking lots. But for all the possible competition results, the Carscape Competition could not successfully reconcile the inherent problems of parking lots – the single use nature of space in an urban setting lacking useful open space. Additionally, the entries generally fail to address the devastating impacts that parking lots can have on the environment.

Widom Wein Cohen. Three different surface materials are used to create an interesting landscape. Images used with permission from the Irwin T. Miller Company.





Located in Alexandria, Virginia, the Charles E. Beatley Central Library quietly employs sustainable storm water practices within a new parking lot design. The result is a parking lot that responsibly treats the site's storm water and exposes the library's visitors to low impact development. The design for this parking lot serves as a subtle and aesthetic demonstration on how sustainable storm-water management and design can coexist in an unlikely place.

The square-shaped parking lot consists of rows of parking stalls arranged in a 90-degree configuration. A central walkway bisects the lot and connects the library to the furthest parking lane. This walkway is set apart from, and designated within, the parking lot by a change in paving material, large shade trees, lighting, benches, and vegetated edges. The walkway serves as a wayfinding system, collecting and conveying pedestrians within the parking lot to the library's front door. An arrangement of grass strips and swales alternately separates the double parking stalls to handle the surface runoff of the parking lot during storm events. Water from the impervious parking surface is allowed to flow between the open stall parking curbs and is slowed over the grass strips. The grass strips allow the storm water to gradually filter back into the soil. In heavy storm events, excess water is captured in larger, deeper retention ponds, also located between the long parking aisles. These ponds contain native plants that are adapted for wet conditions and are able to draw up pollutants from surface runoff. During dry weather, the strips resemble heavily vegetated swales.



(top): Charles E. Beatley Central Public Library, aerial, showing parking configuration, central walkway, and wide, vegetated grass medians. Google Earth image, accessed November 2006

(bottom): View of library entrance from central walkway.

Precedent



In this parking lot, the combination of responsible storm-water management and design create opportunities to educate the visitor. The otherwise unappealing environment of a surface parking lot now offers the chance to become aware of and more engaged the natural forces that we often fail to notice in meaningful ways.

The Beatley parking lot marks a significant step towards acknowledging the harmful effects of large surface parking lots and mitigating that damage through an environmentally sensitive design. In the long run, though, this forward-looking design must still accommodate the automobile.



(counter clockwise from top): Best management practices (BMPs) in the parking lot include vegetated swales and retention ponds. Wide grass filter strips form medians between rows of parking.



Precedent

Longwood Gardens in Kennett Square, Pennsylvania, is a world – renowned horticultural display garden. The gardens cover more than 1000 acres and are complemented by education programs and performance festivals. The visitor parking lot at Longwood consists of a main lot and an overflow lot. The main visitor parking lot is designed to handle average daily attendance. A field adjacent to this lot serves as an overflow parking lot for Longwood's many festivals and events.

The main visitor parking lot is an asphalt surface, rectangular in shape, with aisles and parking stalls in a 90-degree arrangement. But what sets this parking lot apart from typical large-scale surface parking lots is the concern for the pedestrian's safety and education in the form of a pedestrian collection and way finding system. This parking lot design addresses the difficult task of collecting pedestrians and safely conveying them to their destination - the Garden.



Google Earth image, accessed November 2006



Along the way, pedestrians are introduced to plants for the home garden. Similar in function to the Beatley Central Public Library pedestrian walk, this pedestrian walkway curves down the center of the lot, providing a human-scaled path from the visitor's center to the furthest parking lane. Visitors can easily locate the tree lined walkway in the center of the asphalt lot. Where the walkway cuts across the travel lanes in the parking lot, stop signs provide a pedestrian right-of-way.



The pedestrian "spine" shown in these images provides a dedicated right of way to collect and safely transfer pedestrians from Longwood's large surface parking lot to the Visitor Center. Along the way, landscape beds display a variety of annuals, perennials, groundcovers, shrubs, and trees that are hardy and appropriate for home gardens in the mid-Atlantic states.



This pedestrian access serves multiple purposes. In addition to serving as a way finding system and safe way of conveying pedestrians through a busy parking lot, the walkway has a vital educational component. Through a series of horticultural display beds, Longwood offers examples of annuals, perennials, trees, and shrubs that have varied interest and uses in the home garden. These display beds further the mission of the Garden in “promoting the art and enjoyment of horticulture for the public.” Longwood Gardens and Beatley Central Public Library elevate the user experience by establishing the pedestrian higher in the hierarchy of functions.



But for all of the good intention to accommodate both car and pedestrian in a safe and educational way, the Longwood parking lot remains a landscape for the automobile. There is an uneasy existence between the worlds of the parking lot and the pedestrian. One simply has to look beyond the demonstration beds and be reminded of just how close and looming the surrounding lot really is. The pedestrian right of way is a safe place for people, to be sure, but one wonders how to keep the too-close sea of asphalt from rushing in.

(top): A display bed featuring *Sasa veitchii* in a dormant stage.

(bottom): The contrast between the vast impervious parking lot and the protective, educational pedestrian walkway is a striking, and jarring, contrast.



(above): Aerial view of the High Line through New York's West Side, 1934. Photographer unknown.

(right, top and bottom): The once vibrant rail line is now a continuous ribbon of field grasses, shrubs and trees - a thriving natural community in the air. Both photos copyright Joel Sternfeld.

Images used with permission from Friends of the High Line.

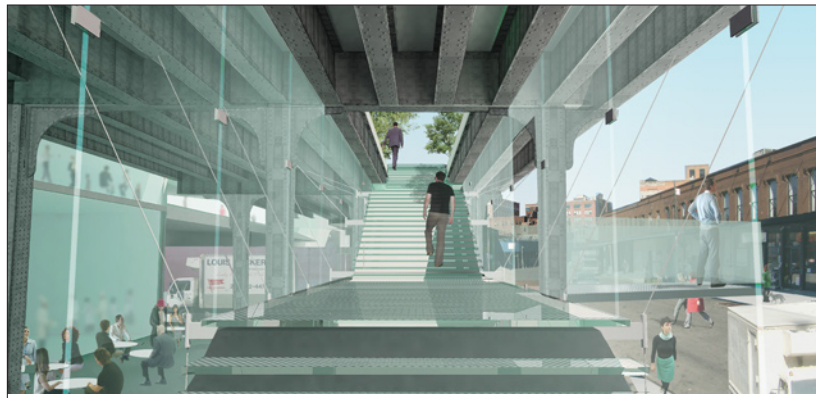
The High Line in New York City is an abandoned 1.5 mile elevated freight rail constructed in 1934 by the New York Central Railroad. The line weaves through Manhattan's West Side, elevated, in some places, over 30 feet above the street. Until 2004, it was seen by some as nothing more than a rusting piece of the city's infrastructure. To others, an opportunity for a remarkable landscape.

Following a design competition in 2003, the nonprofit group Friends of the High Line selected a design team that would restore the rail line's structure and, at the same time, give it new life as a remarkable public park.





Landscape architects Field Operations teamed with architects Diller Scofidio + Renfro to create an urban landscape that brings man and nature back into contact in imaginative ways. The proposal "includes a series of flexible planks interspersed with wetlands, sunken overlooks, and floating ponds" (Geronemus, p.88), replacing old iron rail tracks with soil, water, and plants. This project demonstrates an imaginative and inventive reuse of the city's existing infrastructure. Perhaps more importantly, though, is the recognition that urbanites need these kinds of natural spaces to rejuvenate, relax, and recreate.



Four views of the winning proposal for the transformation of the High Line, submitted by the team of Field Operations and Diller Scofidio + Renfro.

(top): The High Line at night.

(middle): An entry point to the elevated, urban park above.

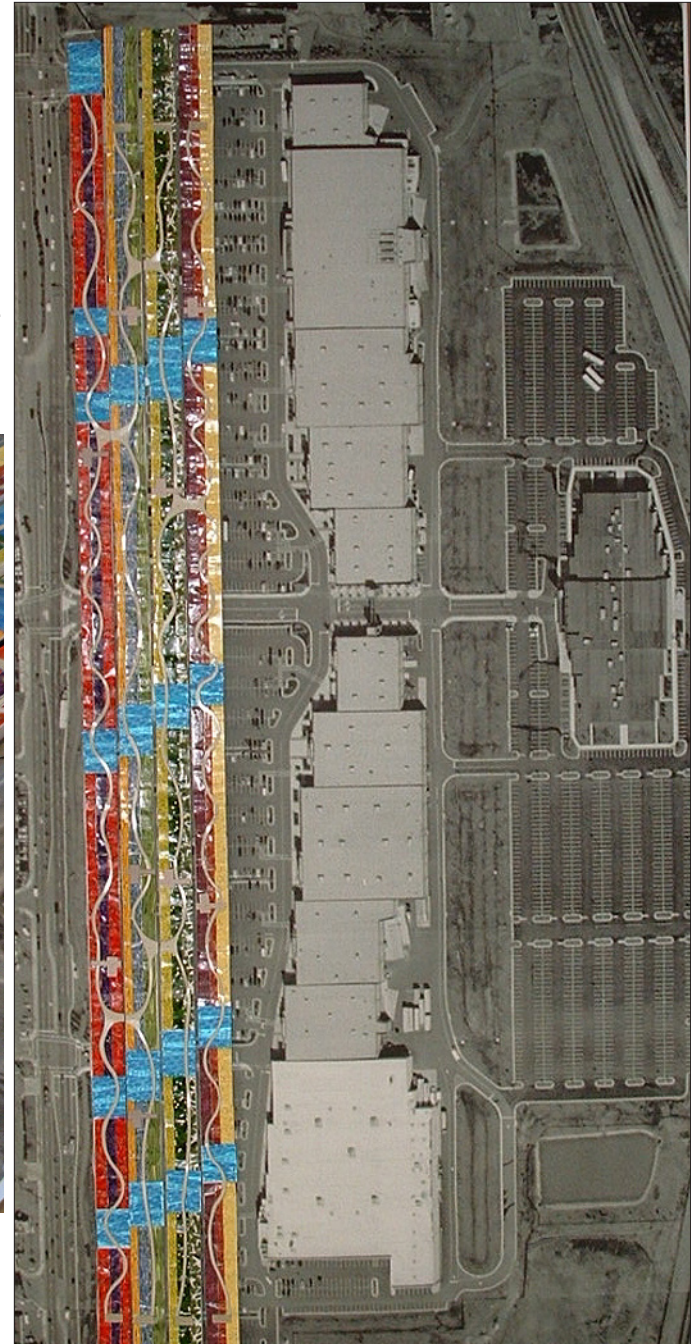
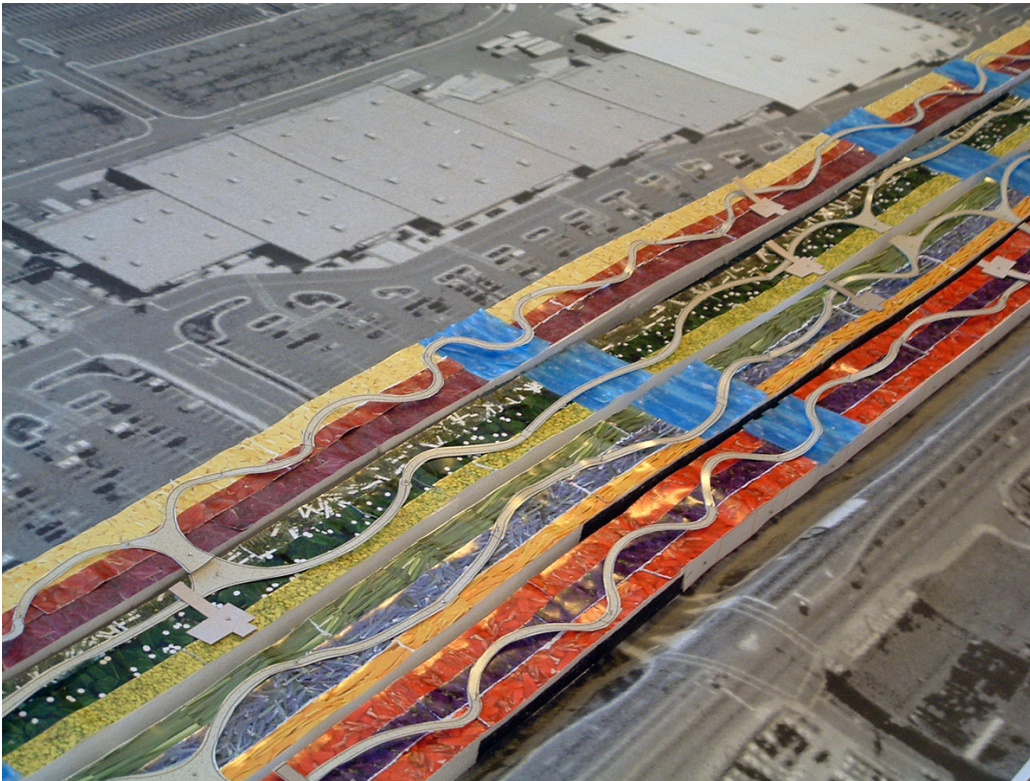
(bottom): The flexible planks move through fields of flowering grasses.

(far right): A terminus on the High Line and another perspective of the park from below.

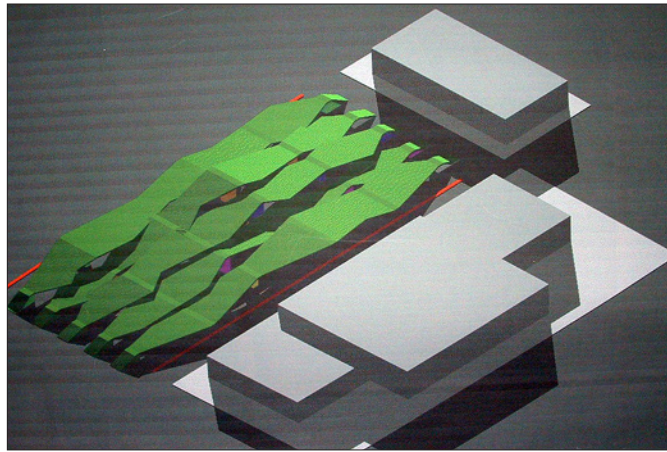
Images used with permission from Friends of the High Line.

Structure Design

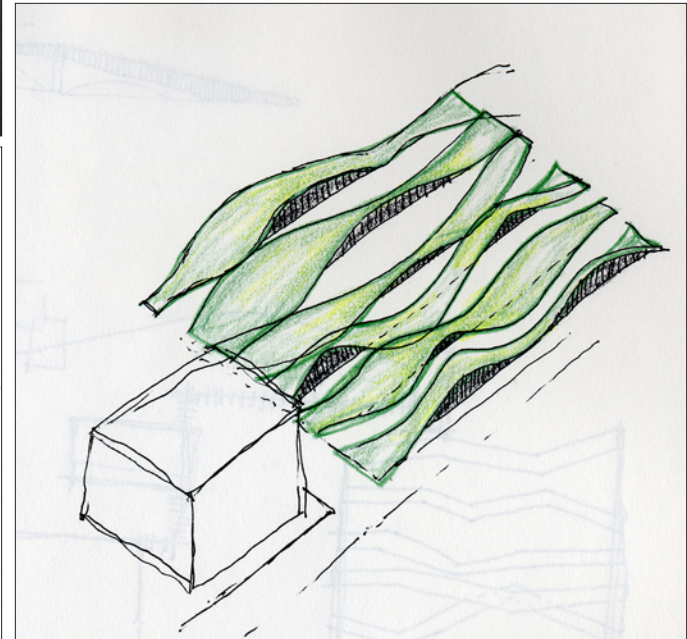
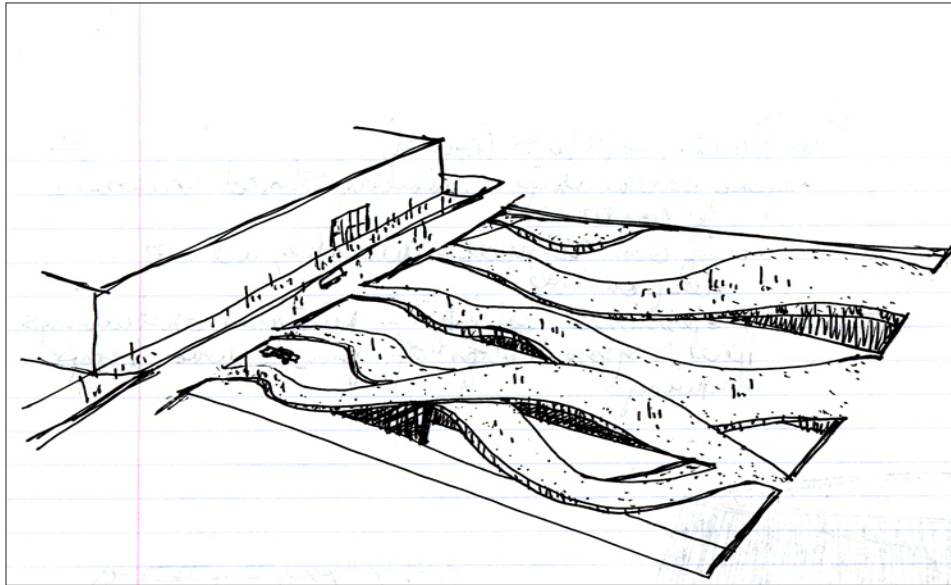
This project utilizes the fundamental beauty of the four seasons – winter, spring, summer, fall – to create a Paradise that demonstrates in powerful ways the significance and value of nature, even amidst the desolate conditions of an urban, surface parking lot. The contrast between the two landscapes - the unappealing parking lot, the other recalling the beauty of the seasons in a distilled form - provides an opportunity to reflect on this dichotomy: the critical need for nature in our ever growing automobile landscapes.



Structure: Evolution Design



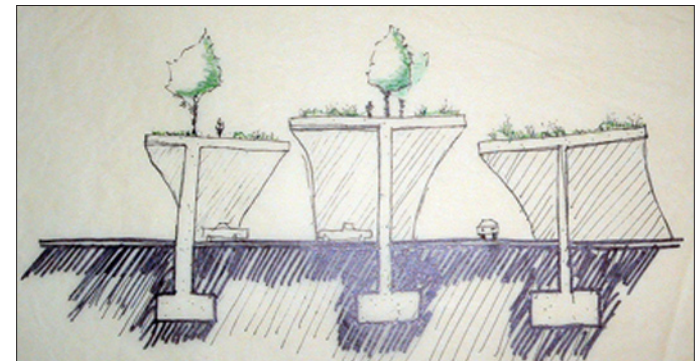
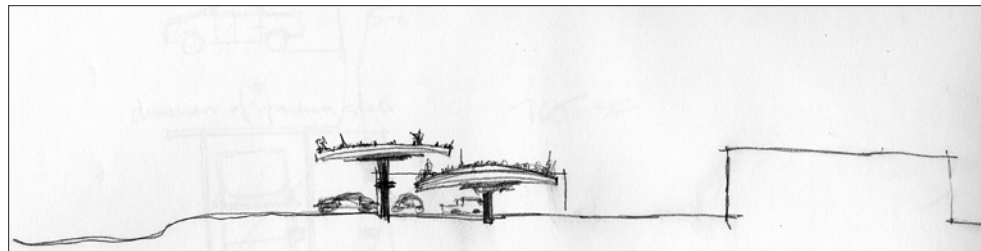
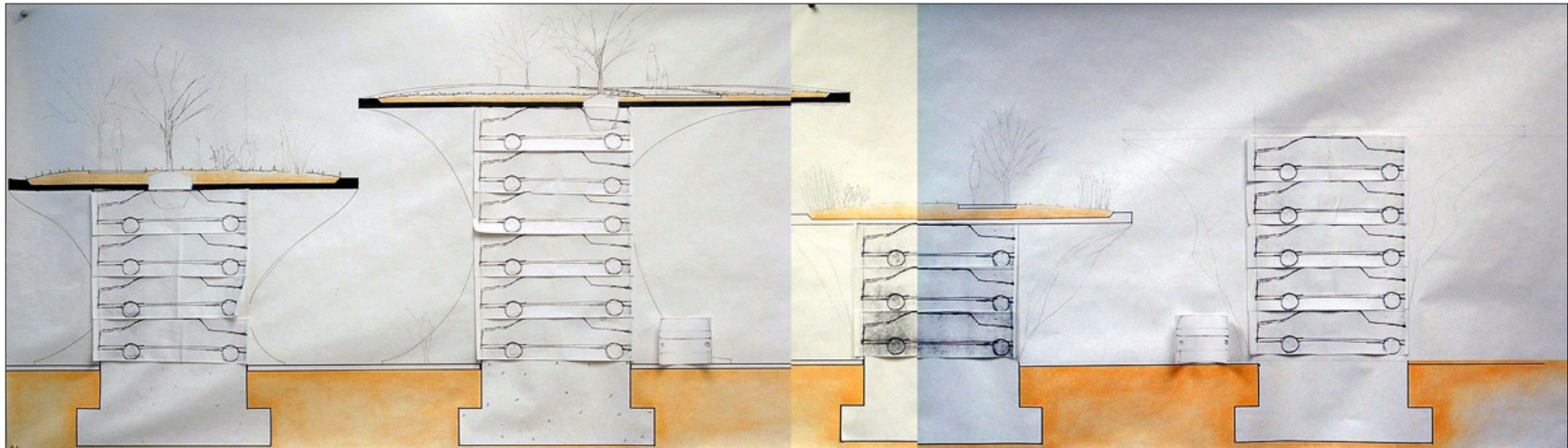
Early concepts conceived of the structures as undulating vegetated “bridges” that provide a green roof over the parking lot, much-needed shade over most of the asphalt parking lot below, and a greater porous surface for collecting rainwater. The structures originally sprang from the edges of the parking lot, rolling over the surface in great waves of green. Access to these green surfaces was limited to the edges of the structures.



Structure: Evolution Design

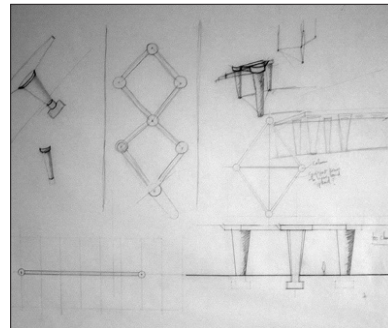
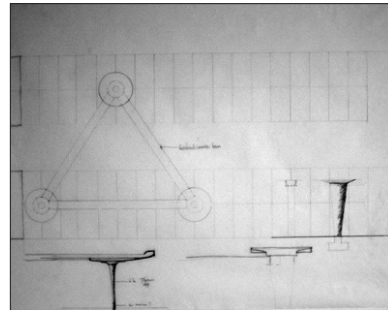
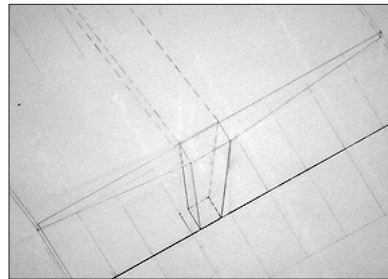
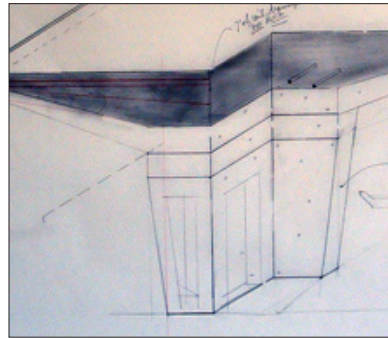


Massive concrete support columns played off the dimensions of the parking stall, measuring 9 feet by 21 feet. Further referencing the automobile and parking lot, the column's varying heights were based on the height found by placing one car atop the other. These overall heights were derived by multiplications of the standard car height. The massive columns allowed for the cantilevered trays above, which supported an engineered soil, plants, paths, and drainage system.

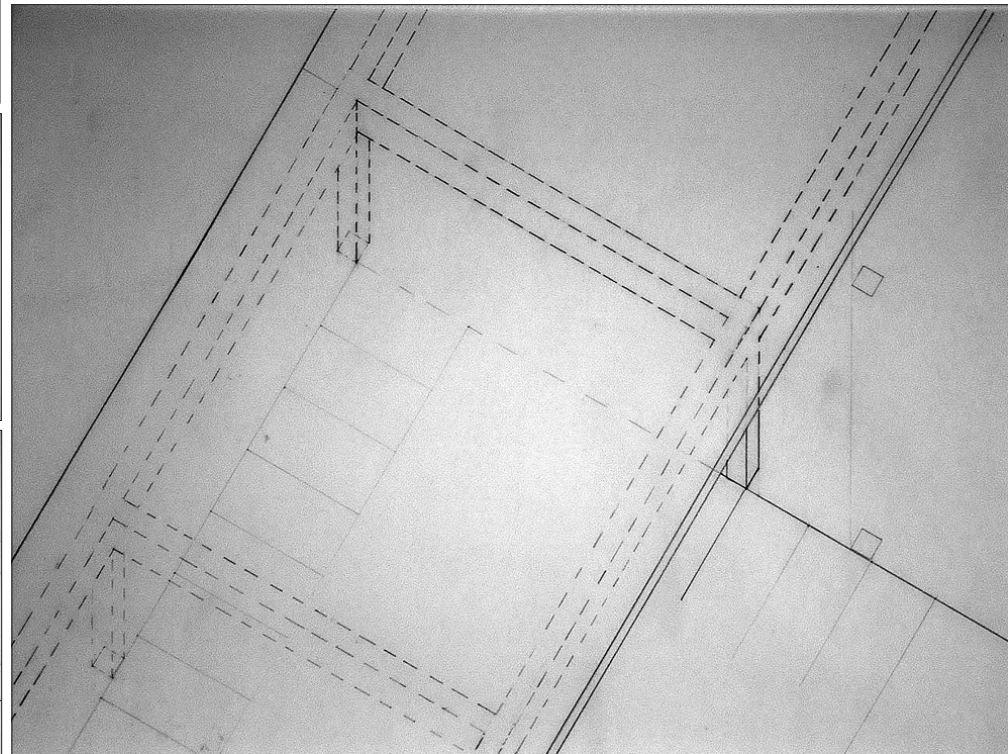


Structure: Evolution Design

To make possible a system that could support the program, the structures used in this design needed to be easily fabricated, relatively simple to assemble and insert into the site, and logical in function. The structural system needed to work with the existing grid system of the parking lot. A modified, precast bridge construction provided the solution. In place of the nonpourous, asphalt roadbed of typical bridges, engineered soil will support plant life and provide the means of absorbing and retaining rain water. By employing a structural system that serves the need of automobile movement and altering that need to support plants, water, and humans, a priority of needs is established. There is no denying the irony of reusing a technology that supports our automobile-centric culture to support an awe-inspiring landscape.



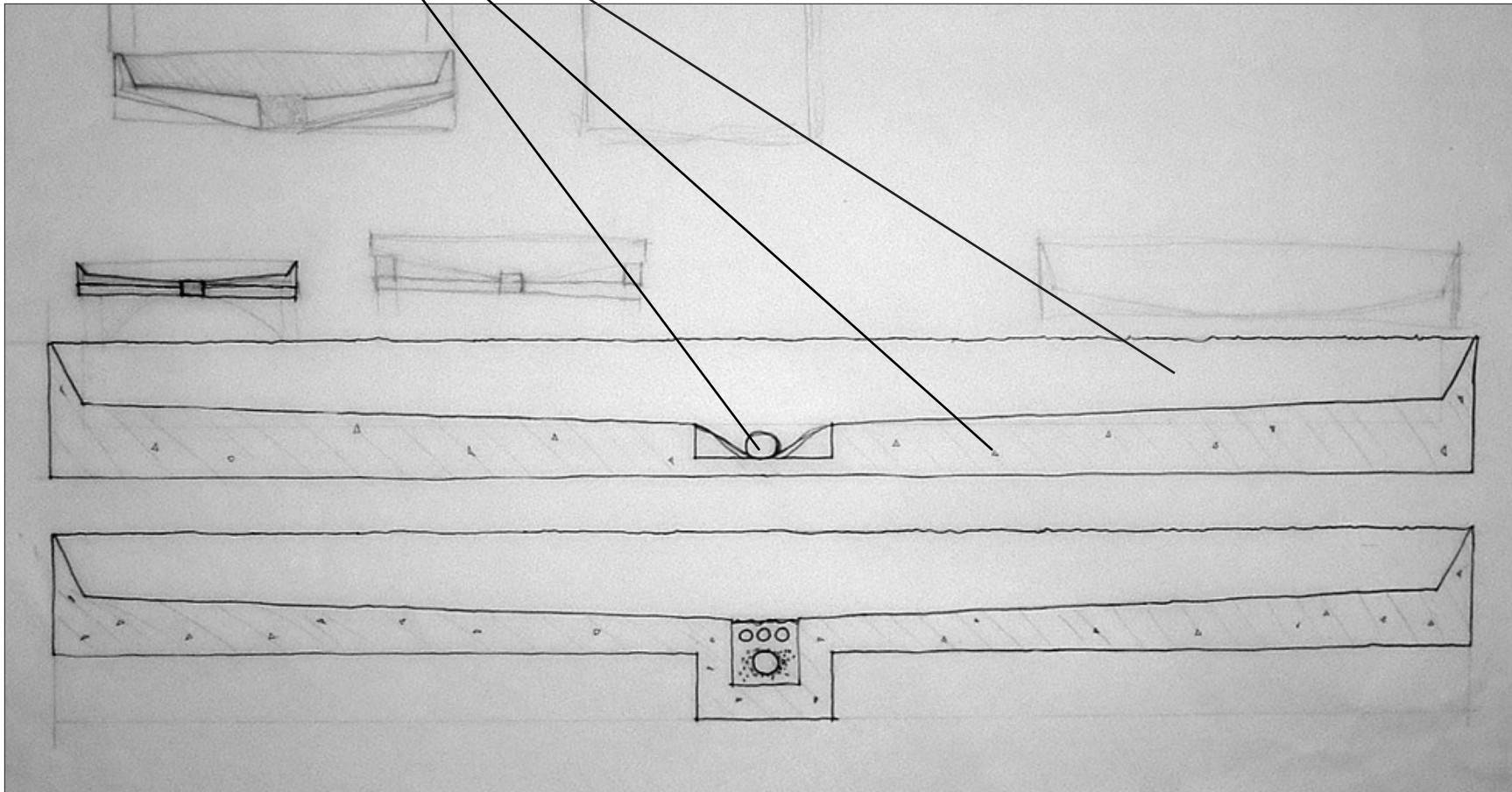
(right, top to bottom): column design evolution.



Structure: Evolution Design

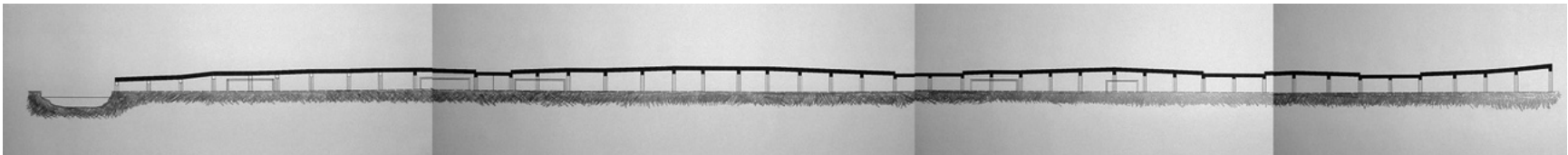
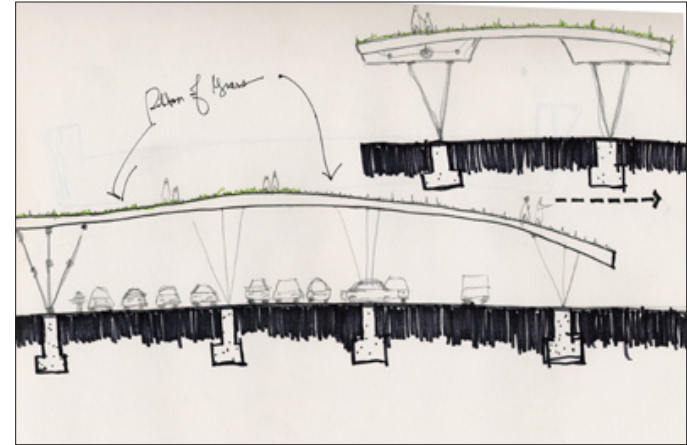
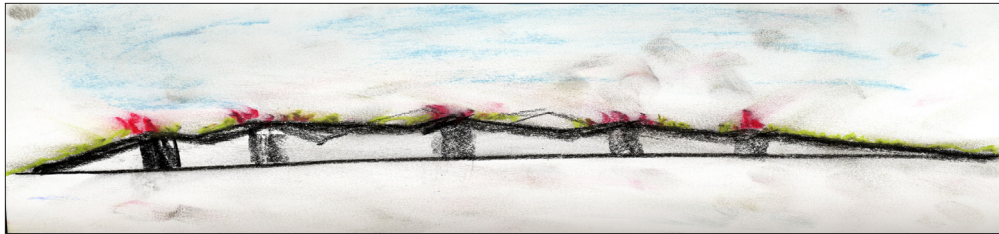
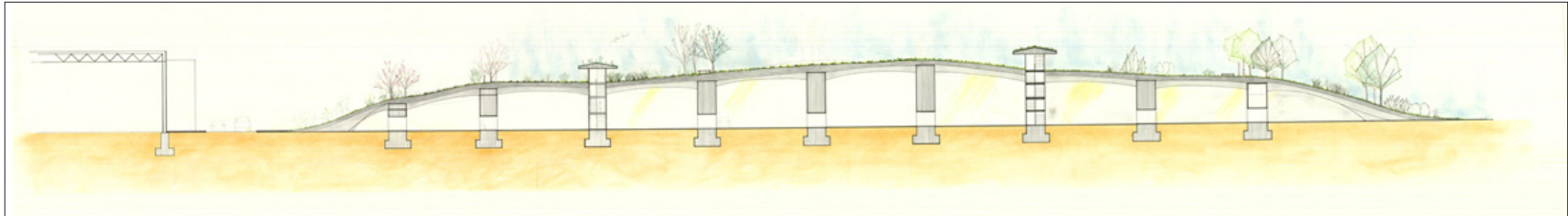
The “roadbed” component of the precast bridge construction is redesigned to hold and support an engineered soil and convey accumulated water through integrated drains. The edges of the tray are designed to hold the soil and vegetation in place, but maintain a minimal edge - in essence, furthering the idea that the landscape “floats” above the parking lot heightening the experience.

Engineered soil mixture
Concrete structure
Drainage system



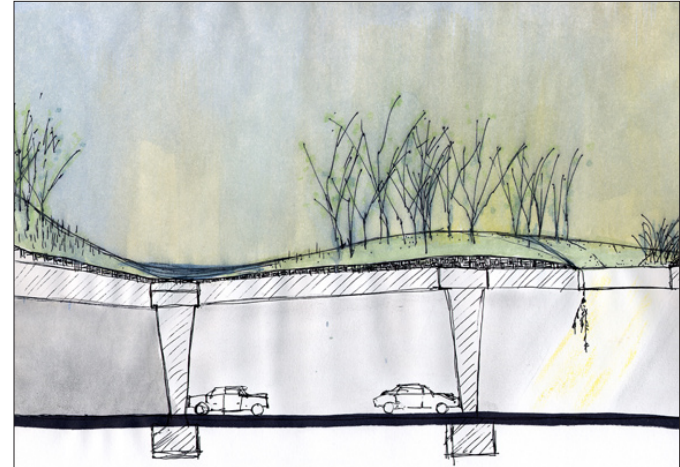
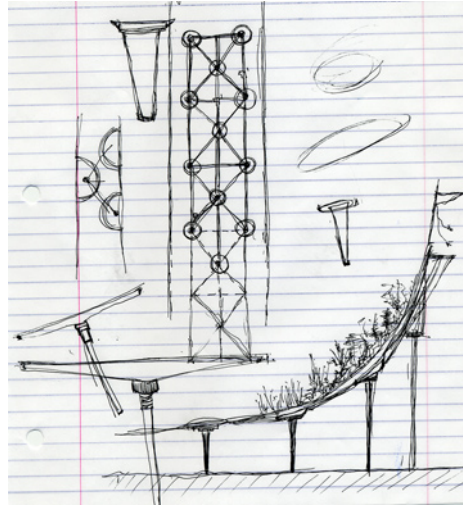
Shock and Awe: Evolution Design

Early designs conceived the structures as romantic landscapes containing collections and groups of plants carefully spaced along the structure's length. Here were beds of shrubs and flowering plants, there was a bosque of shade trees, lawn interspersed with benches stretched between everything.

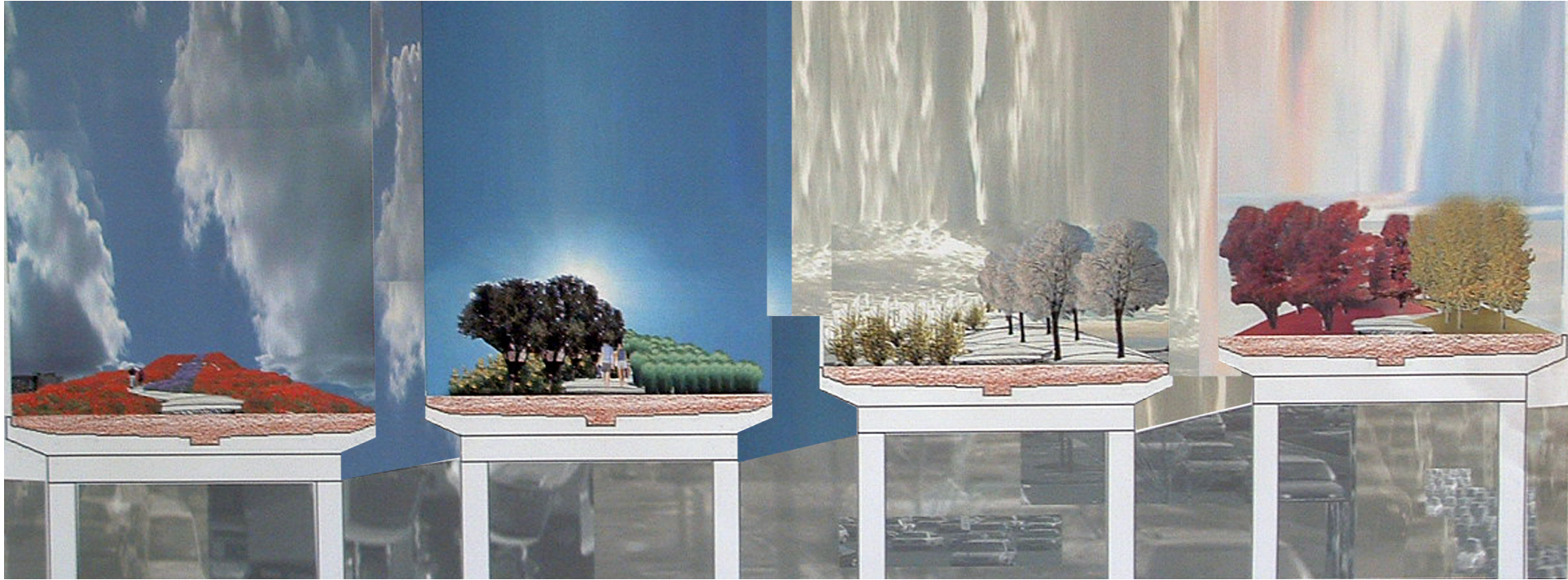


Design

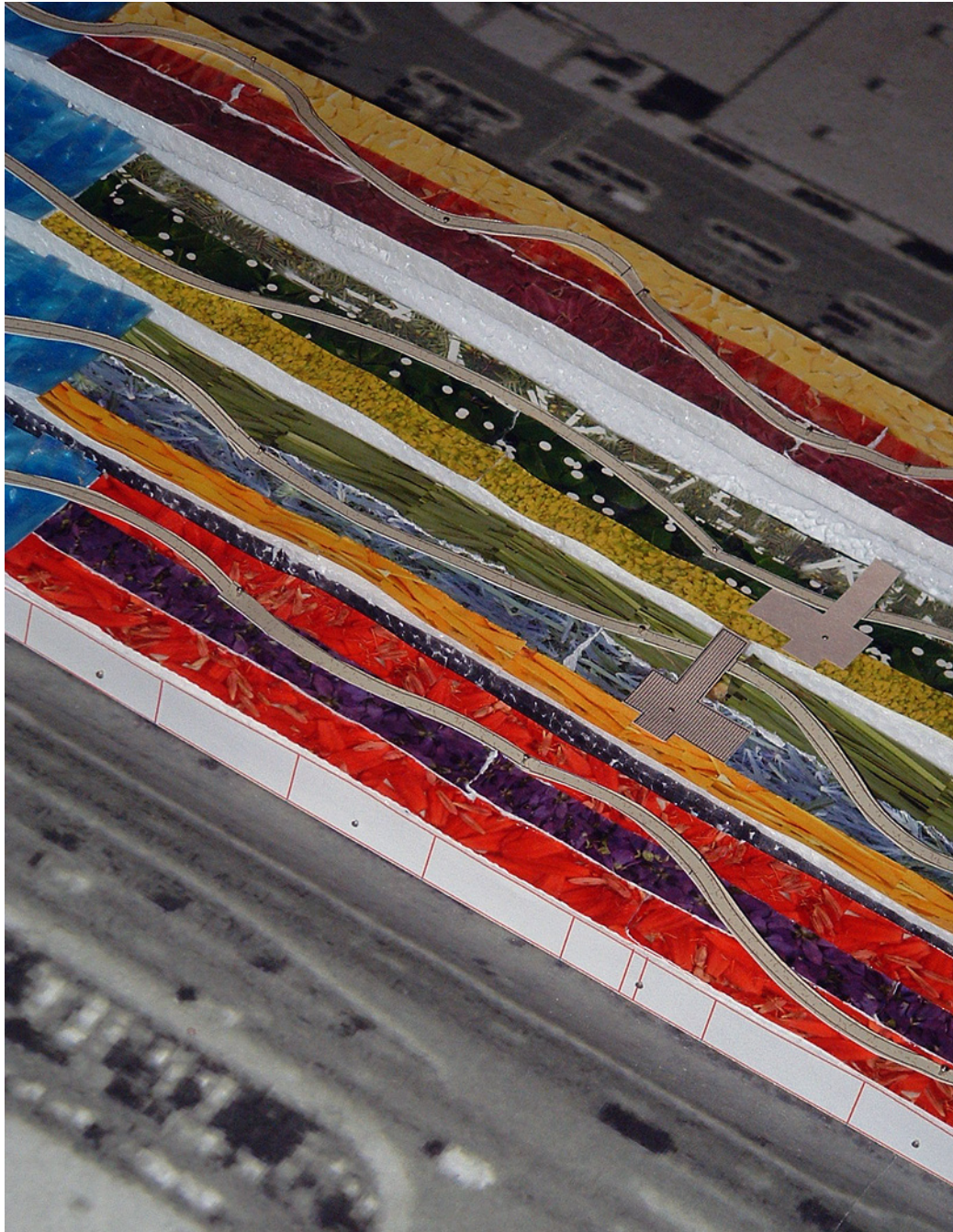
But as the scale of the structures grew, and as the design intent became more focused, the idea of “landscaping” the structures grew weaker and more timid. A much stronger landscape was needed to match the strength of the physical structures and the power of the thesis to remind users of the overwhelming power and beauty of nature/paradise.



Shock and Awe Design



Design



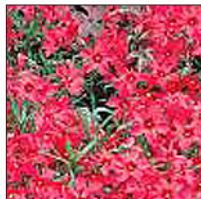
The resulting design reflects the idea of matching the landscape to an intent in a dramatic and meaningful way – use a limited pallet of plant material; use the plant material in massive quantities; arrange the plant material in ways that work with and emphasize the design of the structures. Each structure represents a season of the year, progressing through that yearly cycle in a way that is related to the structure's location within the site. The layout matches an elemental character of each season – color for spring, for example – to the relationship of one structure to another within the larger group. These characters are further described below.

Shock and Awe Spring Design

Spring is the season of rebirth, characterized by a welcome abundance of colorful blooms and new growth. On the site, the Spring structure is adjacent to Route One. The profusion of riotous blooming material on the structure's surface matches, in character, the activity of the adjacent, highly traveled thoroughfare. Glimpsed in places from passing cars and pedestrians, the bands of blooming plant material provide visual confirmation of the changing season and renewal of life.



Shock and Awe Spring Design



Shock and Awe Summer Design

Sunshine, heat, and humidity describe the long days of Summer. The blooms of spring are past, replaced with a persistent green in the landscape. The Summer structure is placed on the interior of the site, next to the Spring structure. This location is quieter, offering a more relaxed setting for the slower pace of life. Ornamental grasses comprise the bulk of the plant material, and stir and sway with the welcome breezes.

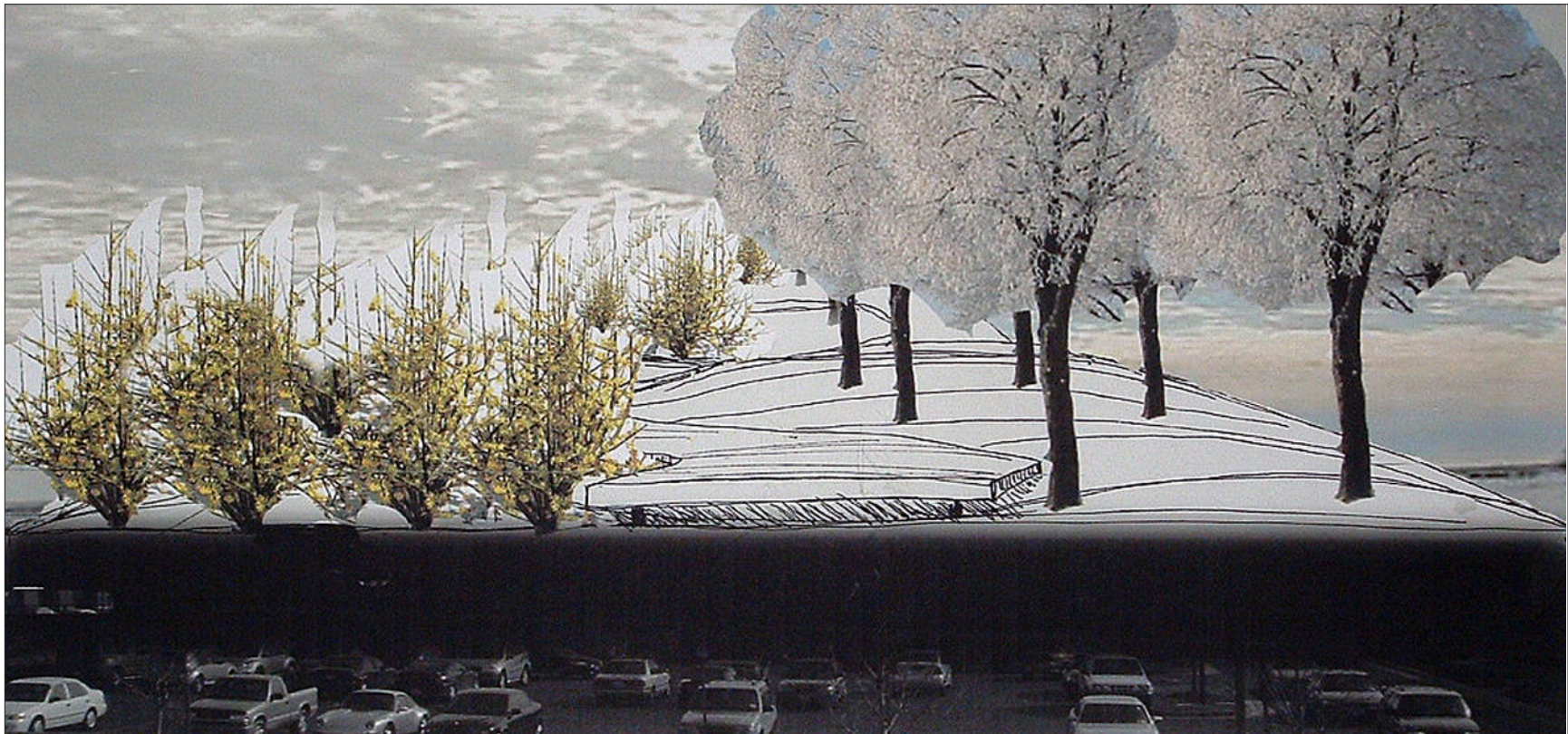


Shock and Awe Summer Design

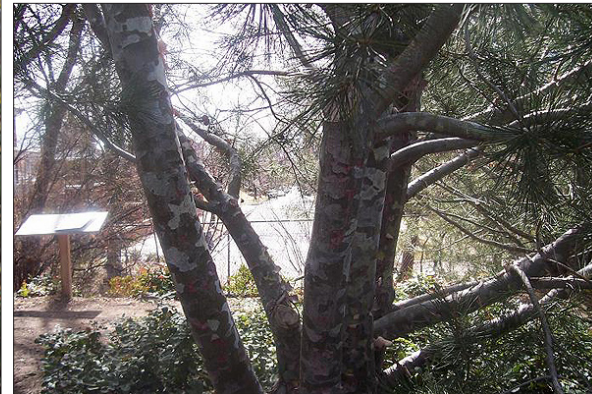


Shock and Awe Winter Design

Winter's icy chill and gray light provide contrasts in the landscape. Leafy trees are reduced to bare branches, creating stark silhouettes in the sky. Snow covered evergreens are part of the still winter garden. The Winter structure occupies the "quietest" place on the interior of the site - away from the noise and commotion of Route One and the entrances to the stores below.



Shock and Awe Winter Design



Shock and Awe Fall Design

During Fall, the pace of life quickens again, as preparations are made for the approaching winter. Spring's colors are matched by Fall's turning leaves. The structure for Fall stands nearest the site's retail, where the hurried movement of consumers in and out of the stores below resembles the activity of the season highlighted in the garden above.



Shock and Awe

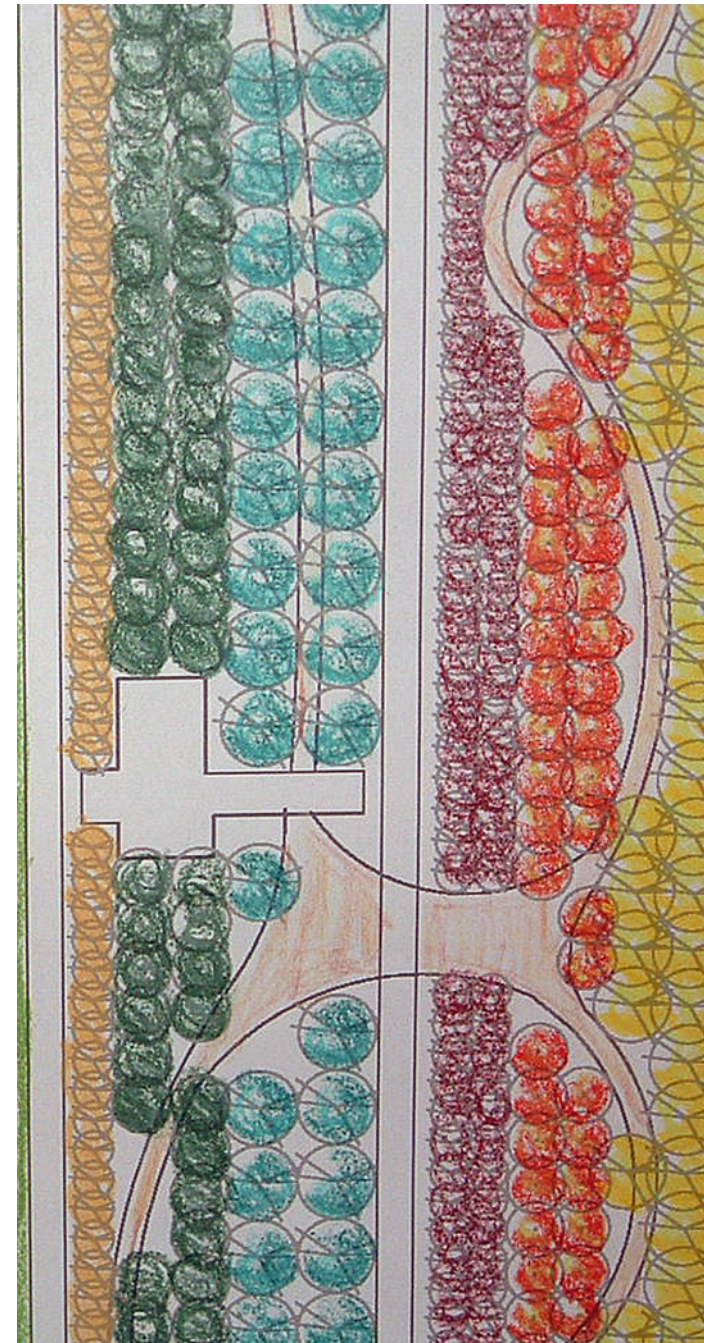
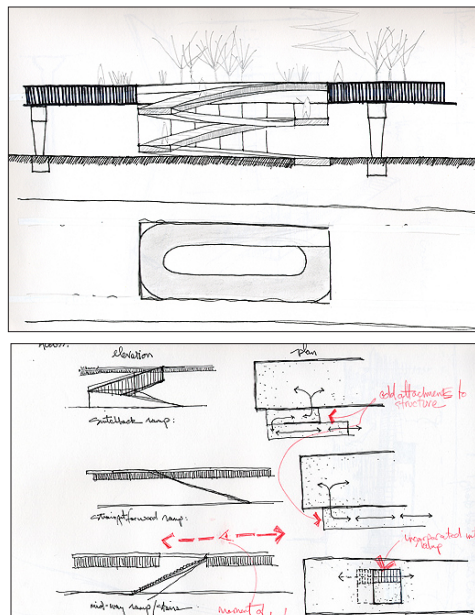
Fall Design



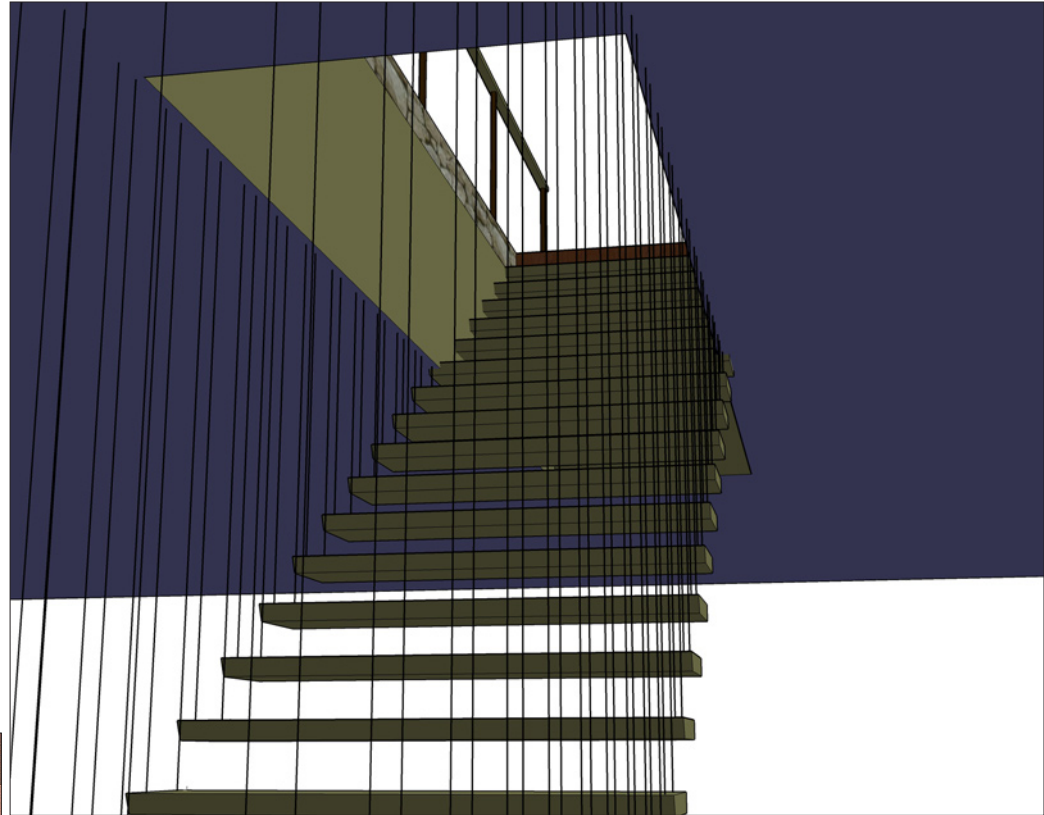
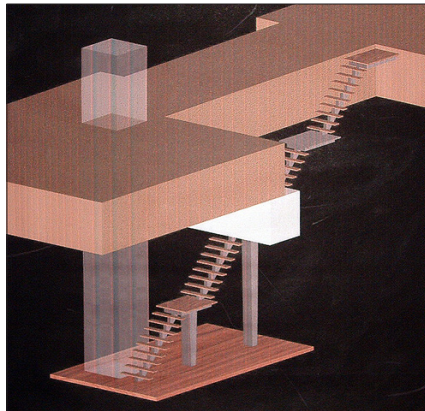
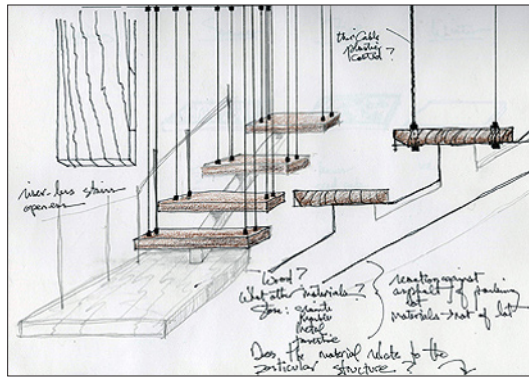
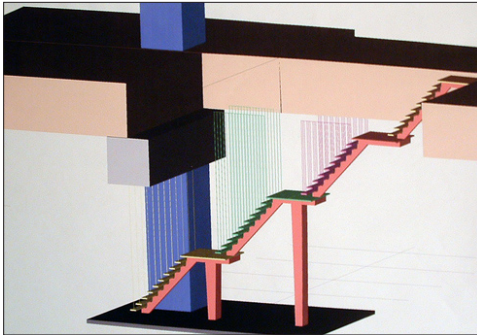
Through the Looking Glass Design

Since the aim of the project is to make as spectacular a distinction between the two worlds as possible, the connection between the two worlds demands a spectacular response. The response here is the use of both a stairway and a glass elevator that heighten the experience of movement between two distinct worlds.

The location of these access points is determined on the ground by the physical layout of the parking lot. Oversized islands within the parking rows provide the points of connectivity by serving as the landing for both elevator and stairs. Two access points are spaced along each structure based on the existing locations of the oversized islands below. A moment of transition occurs during the ascent to the surface. Whether in the elevator or on the stairs, access passes through the body of the structure at its thickest point. During those few moments, the visitor is enveloped in the solidity of the structure and held for a moment between paradise and the world below. Then the ascent passes through the structure and reaches the upper world. The visitor steps out onto the surface of paradise, into the open air, surrounded by flowering plants and shade trees, and the sky above.

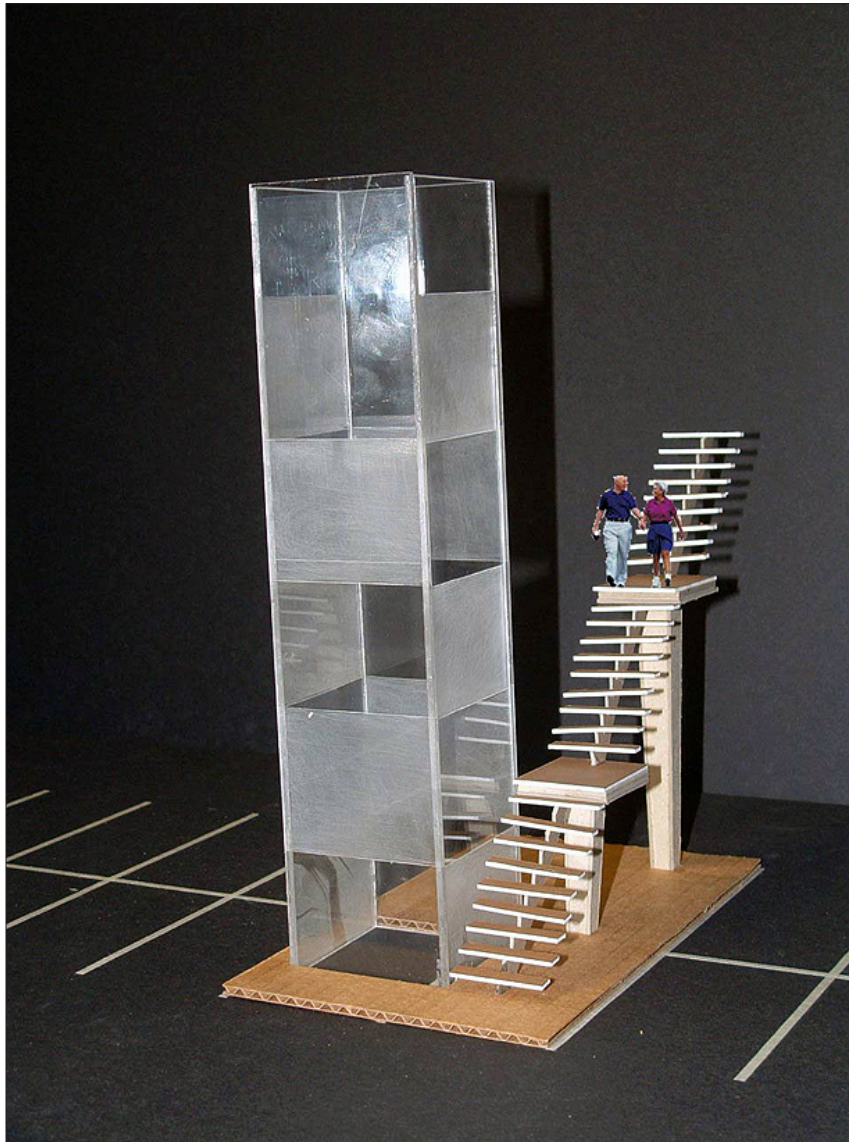


Through the Looking Glass Design

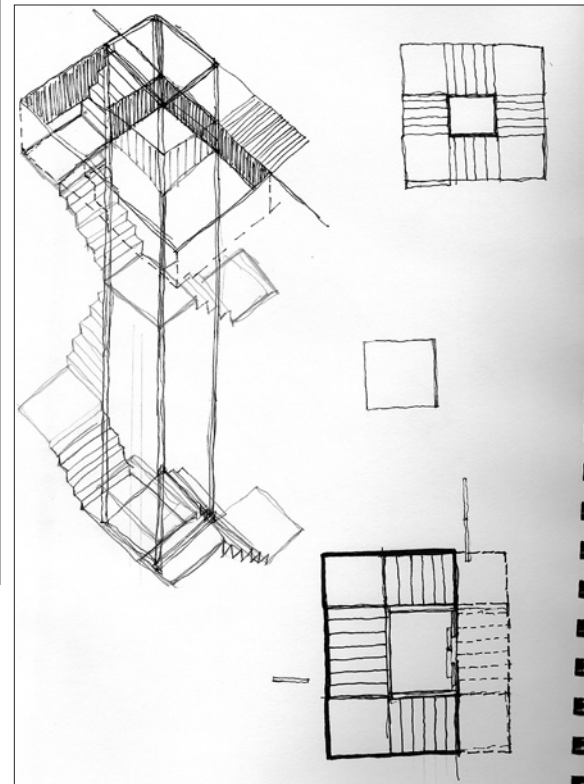


The long stairway is one means of access. Its materiality and clear, minimal design give the stairs a light, open quality. A single iron beam supports the riser-less wooden treads. The treads are suspended from the underside of the structure by thin, plastic coated cables. The cables also serve as a focusing device. As one ascends the stairs, the cables align to create a solid edge along the stairwell, directing the view to the upper landing of the stairs and the sky beyond.

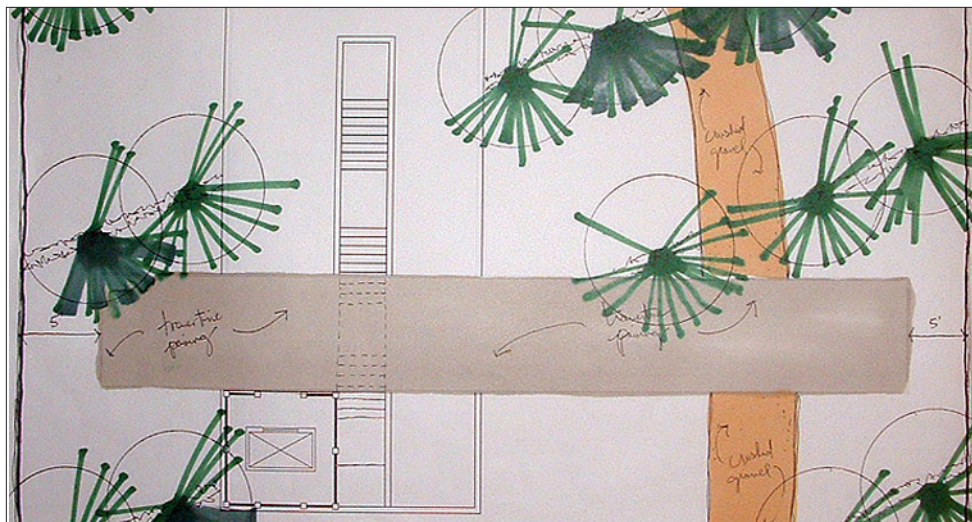
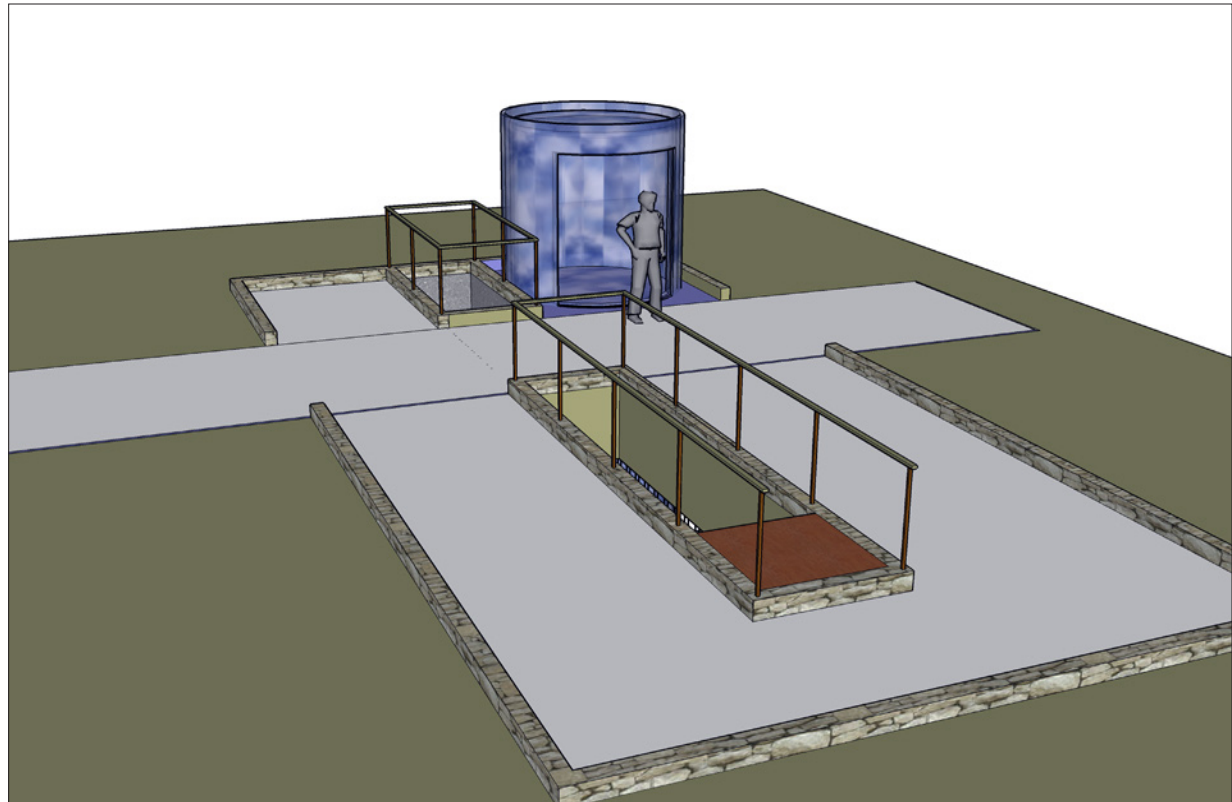
Design



The hydraulic elevator immediately distinguishes itself from the parking lot environment through its materiality. During the day, the elevator's glass shaft serves as a skylight, allowing light to brighten the lot beneath the structure. At night, the elevator appears as a lantern, providing illumination and serving as an orientation point.

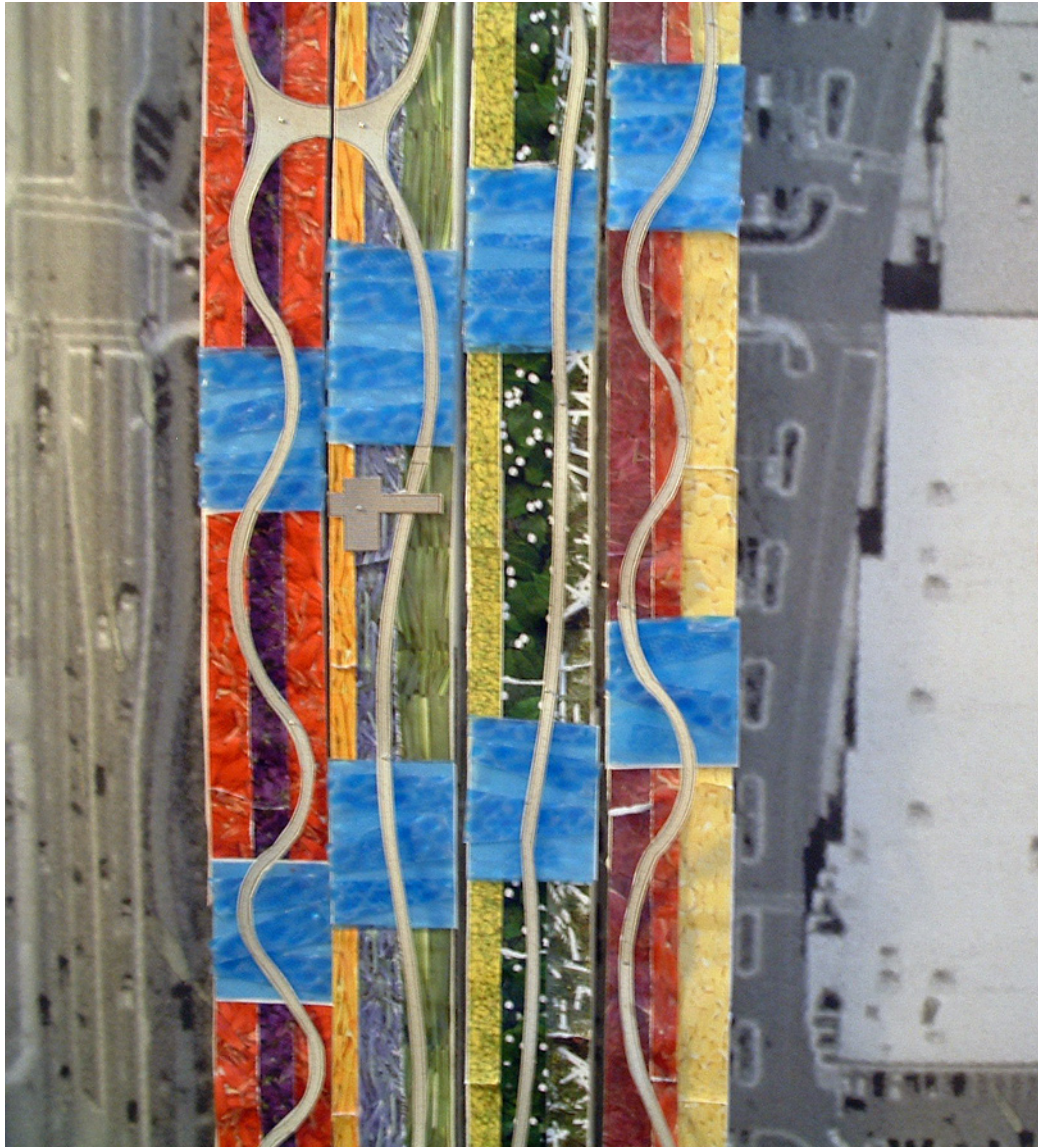


Design

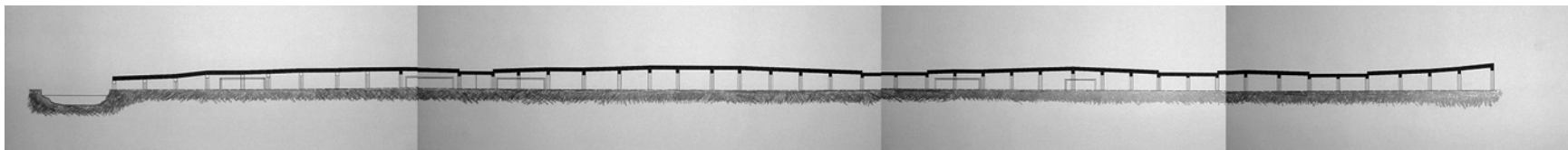
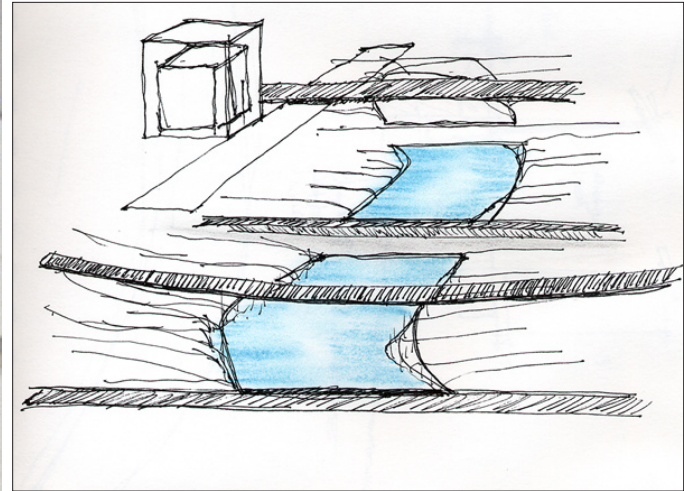


The elevator shaft pierces the structure and the stairwell forms a narrow slit in the structure's surface. These penetrations are elements of the elevator terrace. This multi-function space serves as a collection and orientation point along the length of the structure. A travertine marble surface runs perpendicular to the length of the structure, ending six feet from the structure's wide edge, forming a threshold for the elevator. A broad surface of rough cut cobbles forms the landing for the stairwell. The stairwell is enclosed by a three foot tall glass wall.

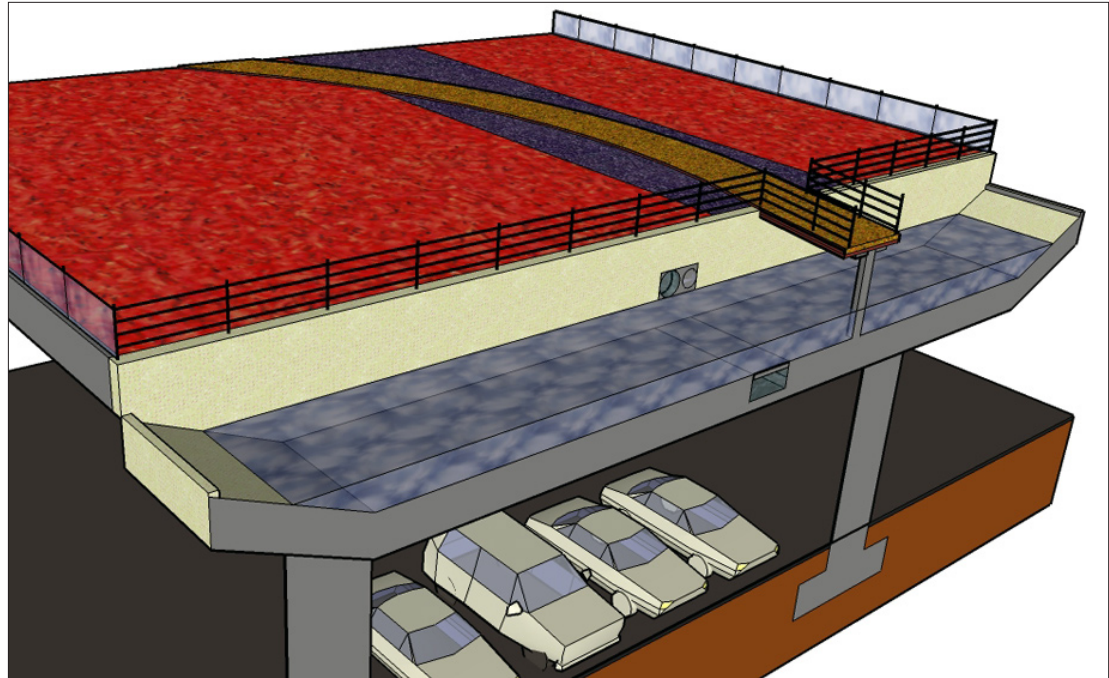
Design



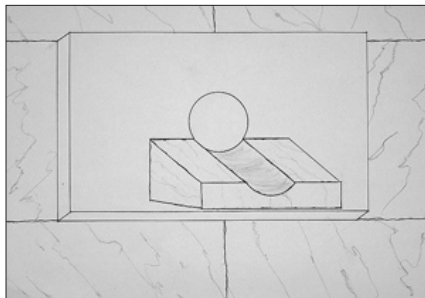
Careful consideration was given to changes in elevation. The rise and fall of the structures provide a dynamic environment and gaps for light to shine on the parking lot below. But the undulating surface also serves as a way of collecting and distributing water.



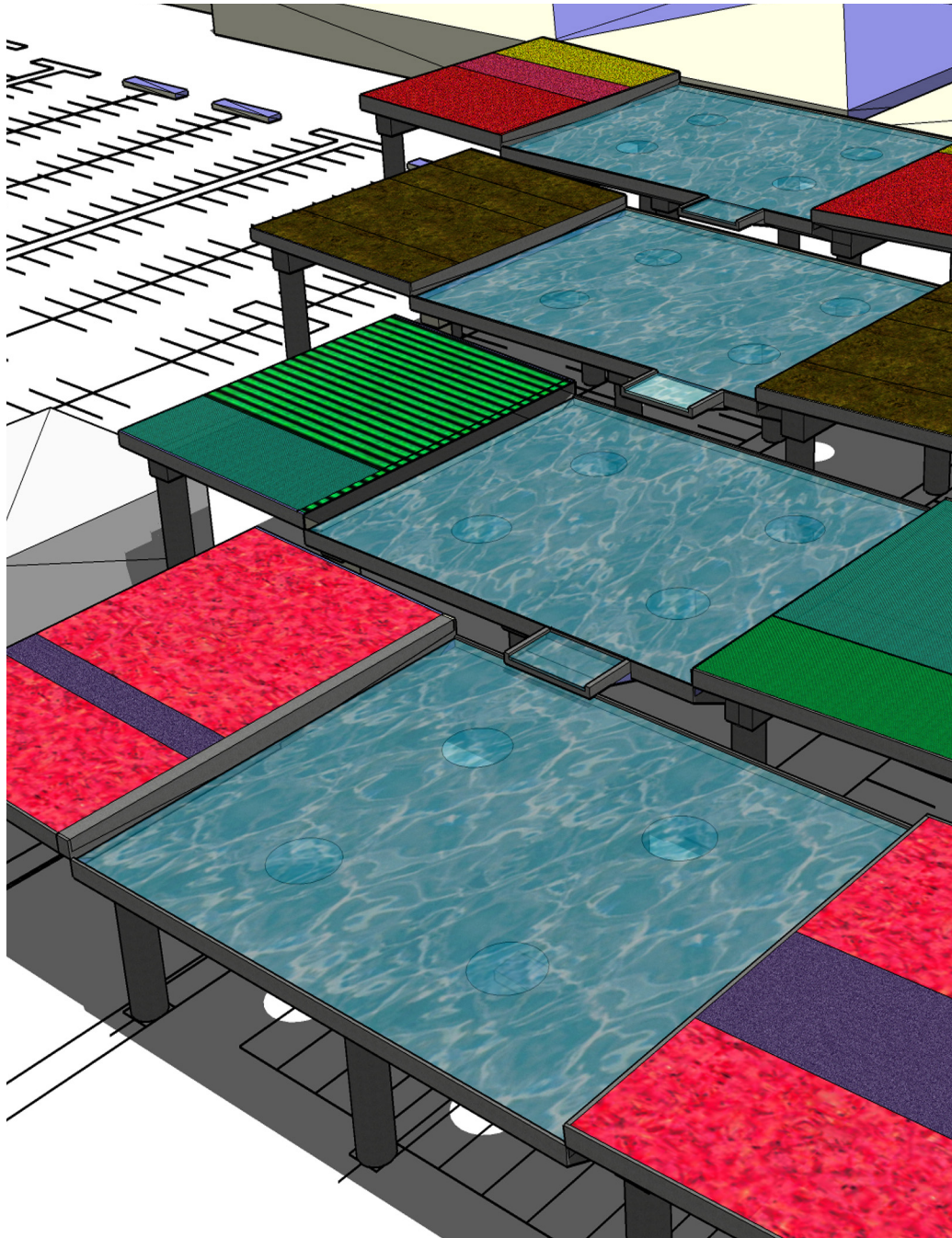
Water's Journey Design



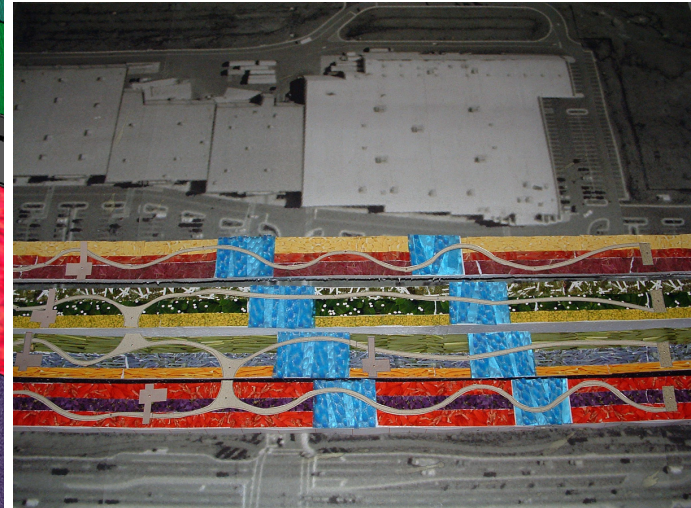
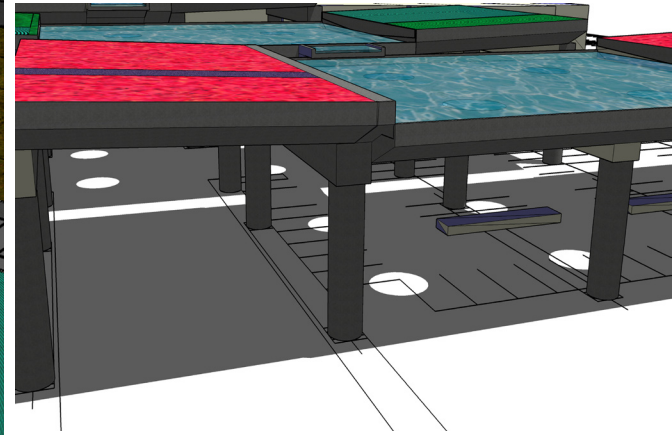
Along each ribbon, water flows over vegetated and pervious surfaces. As it percolates down through the growing medium, it is collected and channeled into a perforated drainpipes, one per structure. These drainpipes then convey the water to the structure's lowest elevations. Here, the vegetation ends and the structure becomes a holding basin for the channelized water. The walls of the water basins are formed by blocks of travertine marble that form a hard white edge between the land and water along the ribbon. A brass scupper protruding from the basin's wall forms a waterfall adding to the contemplative character of the space.



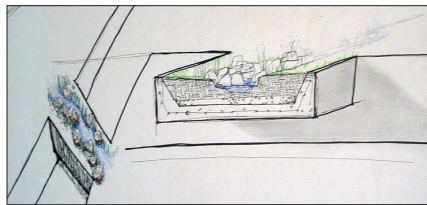
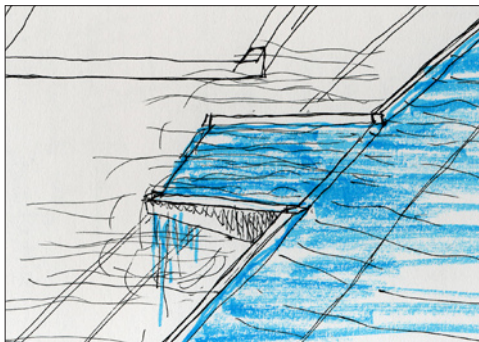
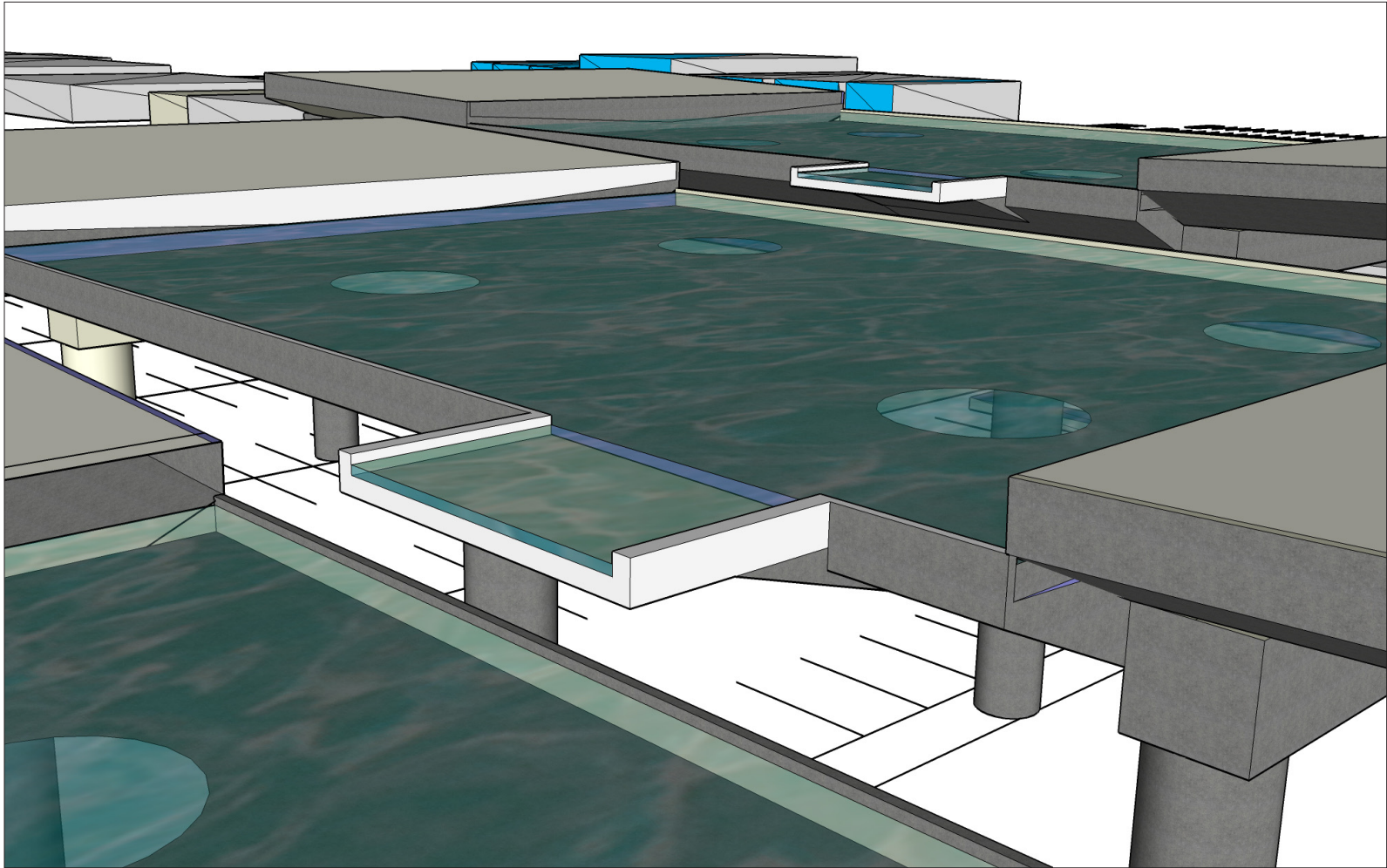
Design



In addition to moving along the length of the structures, the water also moves from one ribbon to the other. All four structures decrease in elevation, moving east to west. The Fall Ribbon is highest in elevation and each successive ribbon is lower in elevation. This allows for the accumulated water to flow and transfer between structures in an amazing series of falls and cascades.

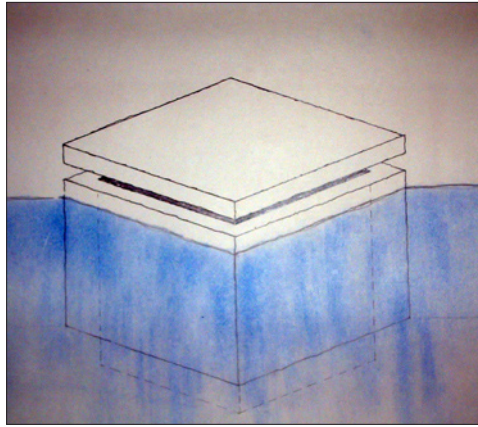


Water's Journey Design

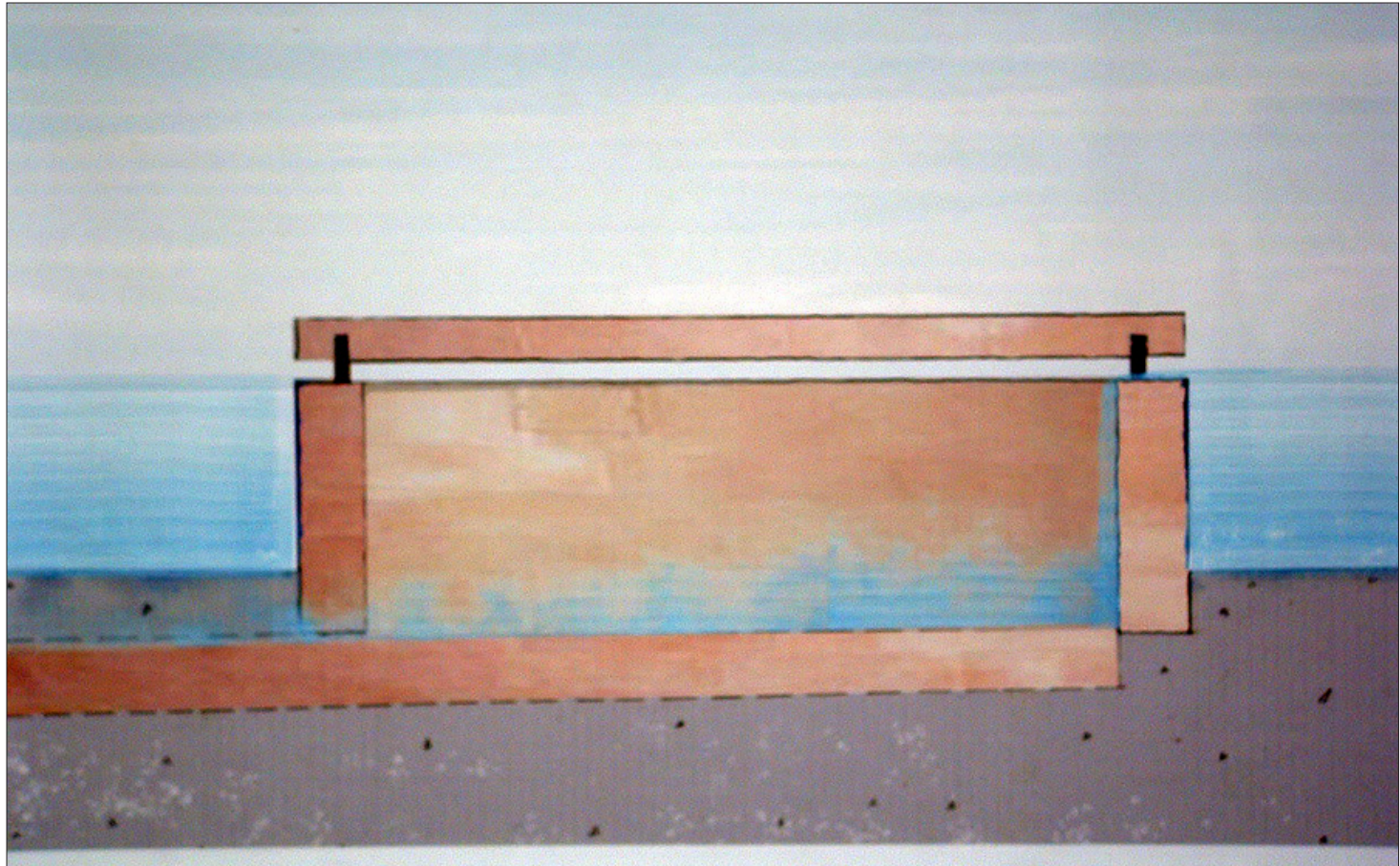


Weirs from the basin's western edges project out over the 9' gap between the structures, overlapping the water basin in the adjacent ribbon. Water is then able to flow from one basin to another until it reaches the last structure.

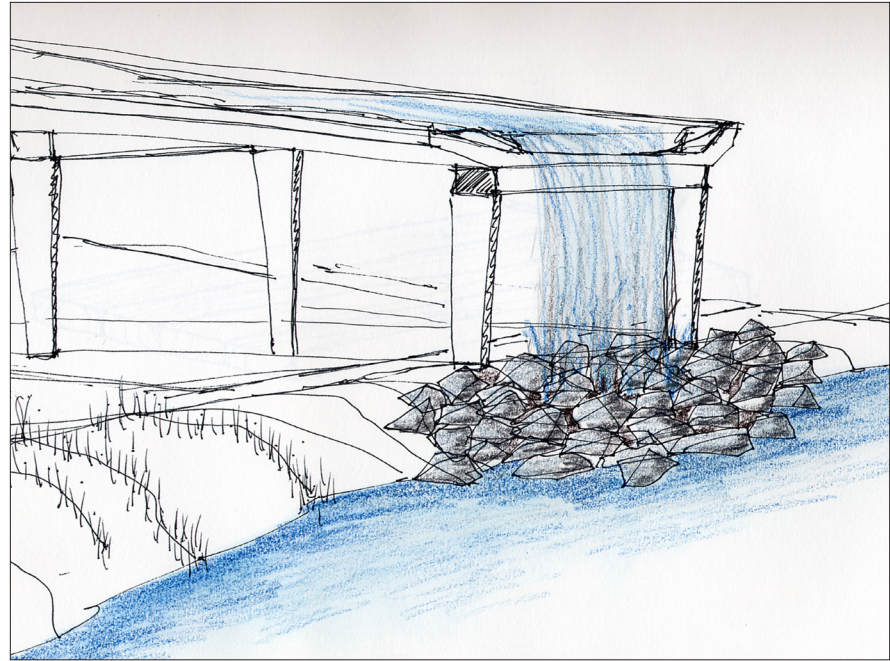
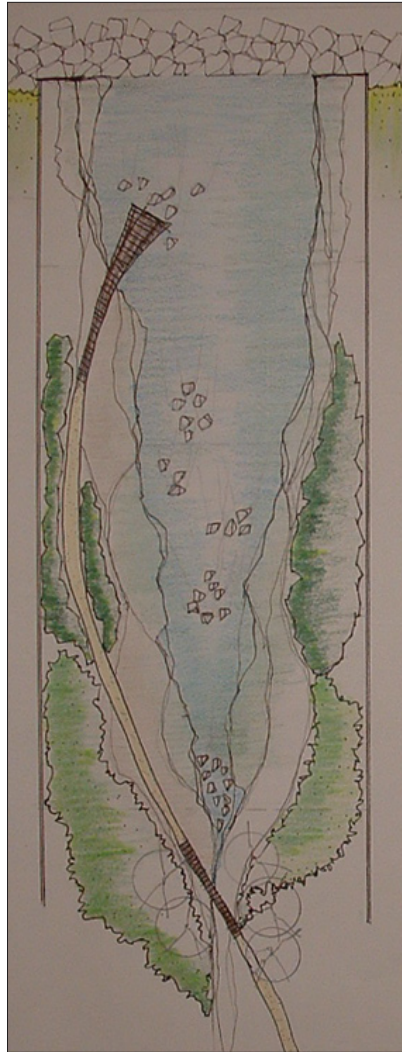
Water's Journey Design



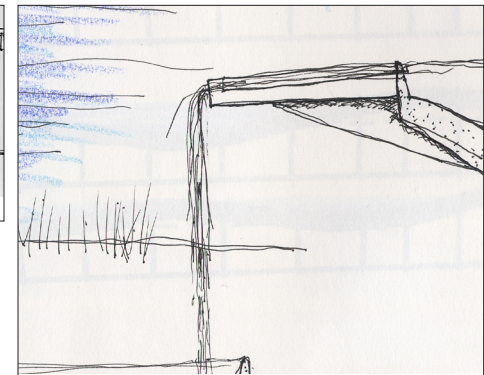
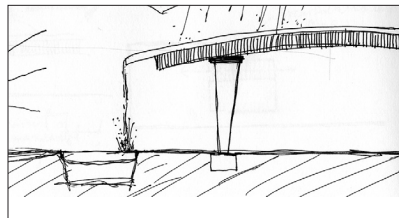
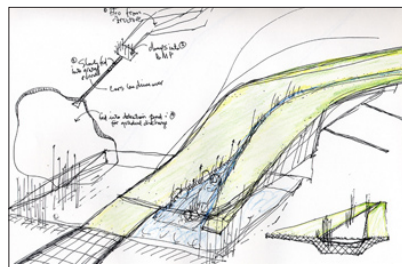
Here, the water is collected into a large travertine drain. This drain is set to collect the excess runoff of water, but further serves to elevate the element through its materiality. This drain is the opening for a large pipe that conveys the water just short of the northern end of the Spring structure.



Water's Journey Design

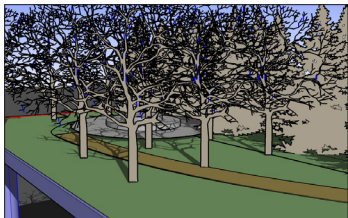
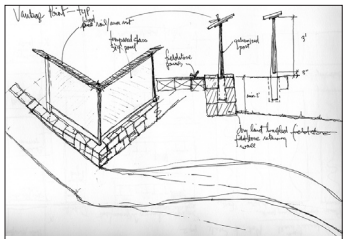
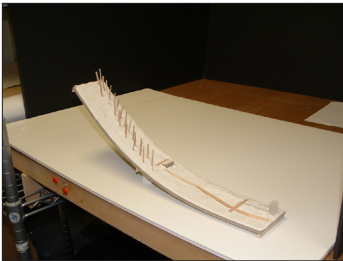
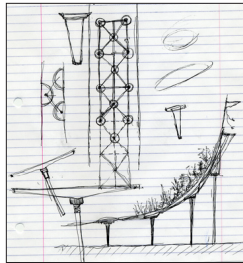


Here the water daylight into a shallow pool that is the width of the structure. The flowing water then reaches the edge of the structure and forms a waterfall into Four Mile Run. This connection between the parking lot and Four Mile Run demonstrates, in a very physical way, the potential role such large impervious surfaces have in degrading the environment if continually built to “shed” water into drain systems.

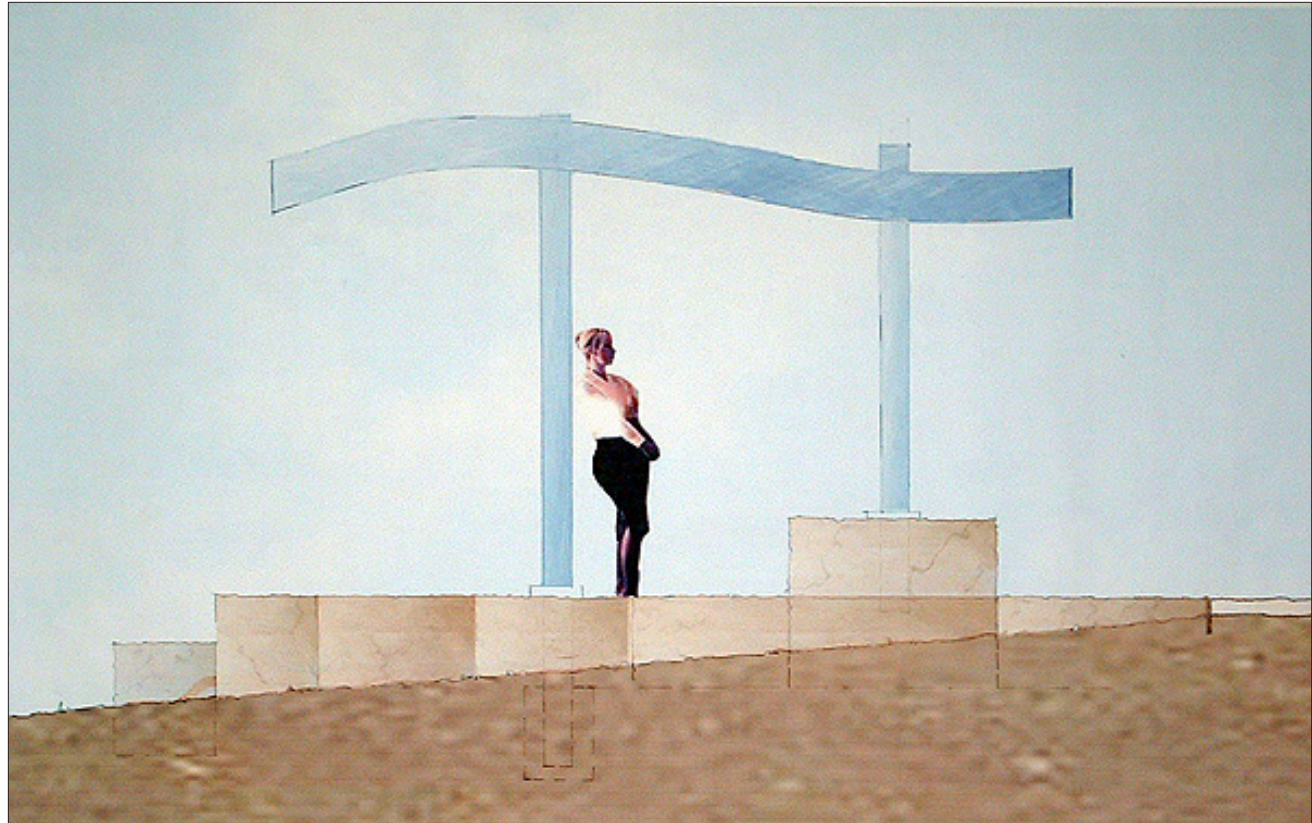


Design

Vantage points are employed as ways for visitors to view the landscape in powerful ways. These points are located at the ends of each ribbon and serve several functions: vantage points, focal points, and rest areas. Since each structure terminates in a higher elevation – essentially curving upwards – the vantage points provide the prospects for contemplating the full extent of the space. Here, one has the chance to turn and look back over the full expanse of the landscape and contrast it to the size and scale of the parking lot below.



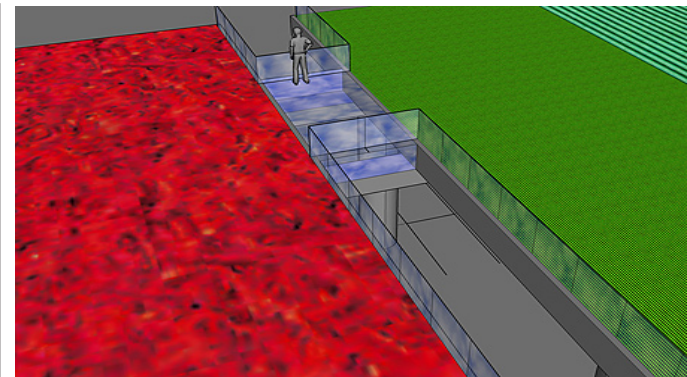
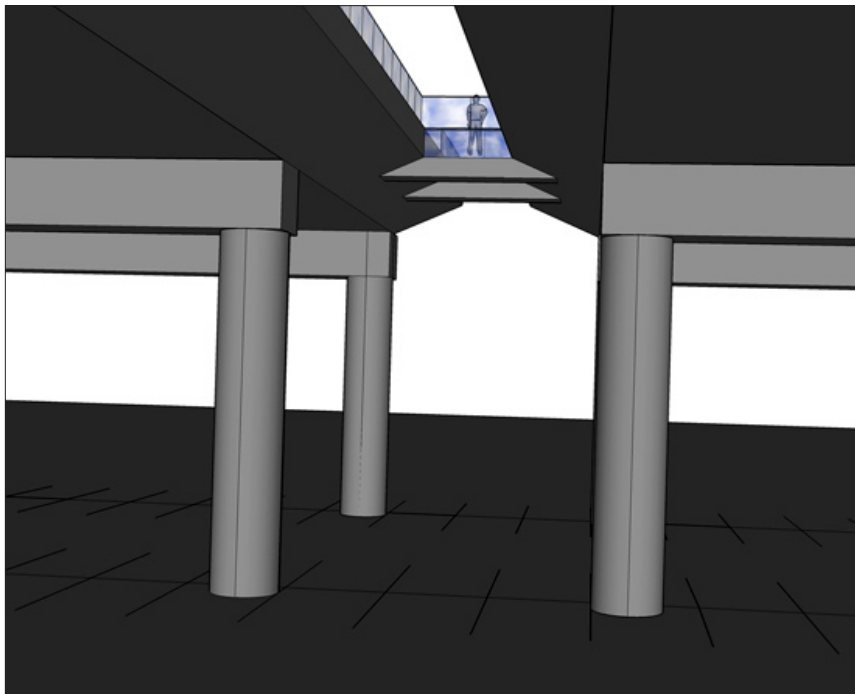
Vantage Points Design



In form, the vantage points are simple, rough-cut travertine stone platforms that rise out of the earth. Because of the gentle upward curve of the structure beneath, the backside of the platform is flush to the ground and engages the crushed gravel path at grade. The front end of the platform rises in elevation, counter to the structure's curve, heightening the view out over the structures to greater effect. A seating wall, also of the same rough-cut stone, rises out of the platform and provides an opportunity for rest and contemplation. An aluminum trellis, the curved beams of which recall the curved surfaces of the structures, covers the seating wall and provides shelter from the sun.

Walking on Air Design

In paradise, movement is free. In this landscape, the ribbons of earth are distinct elements of the landscape, with a 9' void between each structure. A gravel path runs the length of the structures. Movement between the ribbons is made possible by bridges so the experience of movement throughout the landscape can be different with each visit. The bridges are made of structural glass, elevating its basic function by virtue of the material. The visitor experiences a heightened sensation, as though walking between different gardens in the air.



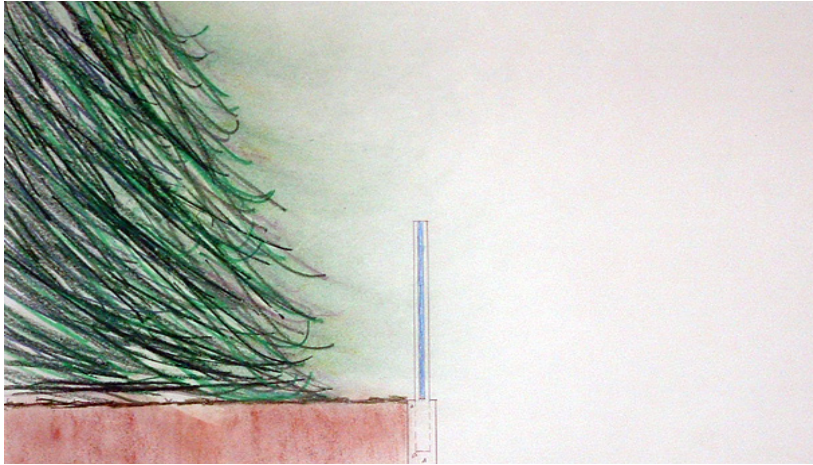
As seen from below, the passage between the two structures via the glass bridges links the structures in compelling ways. The sensation of standing on "air" as one moves from one structure to the next heightens the experiential quality of the landscape in profound ways.

Walking on Air Design

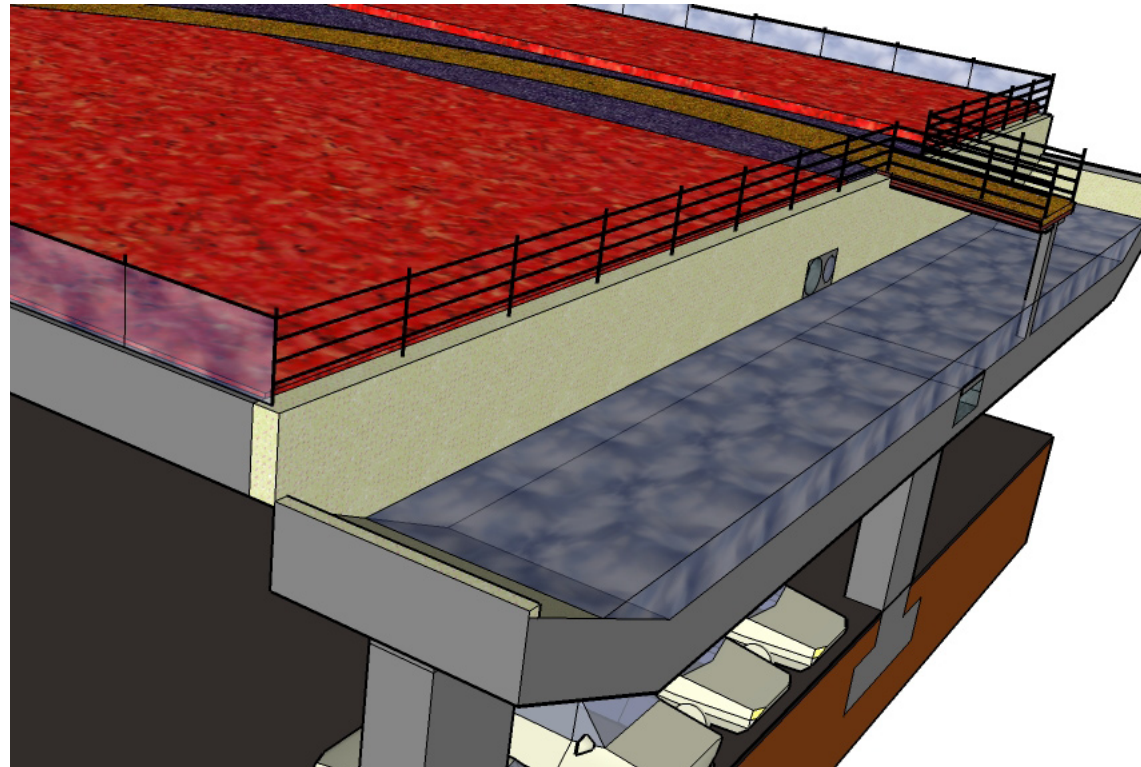


Crossing between the structures is facilitated by structural glass bridges. These bridges provide for a thrilling movement between landscapes, a transition of experiences, suspended over the mundane parking lot below.

Design

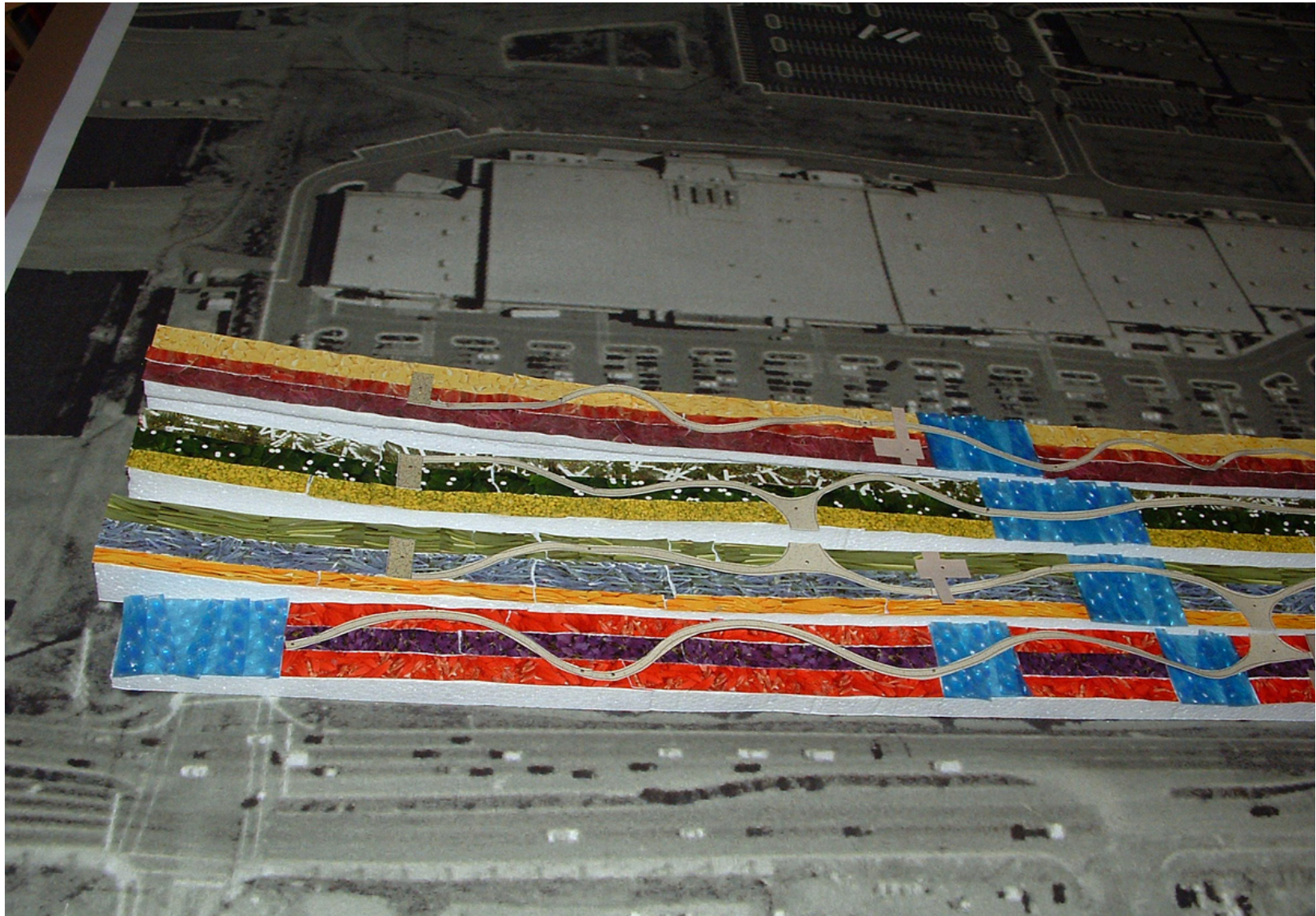


In this landscape, that imagery that paradise has no boundary is best realized at the edges and ends of the structures. The hollowed-out design of the structures has a minimal, 6" concrete rim that contains the growing medium and plant material. This construction creates a negative edge, which is further enhanced by the plant material. The height of the plants conceals the rim and blurs the edge's definition, freeing the mind to reflect on the boundary-less nature of paradise. Where injuries are possible, at stair edges and the crossing bridges, glass panels are used to provide a safe, minimal edge in the landscape.



Endless Edges Design

At the ribbons ends, the structures curve upwards. Here, the negative edge merges with the sky, expanding the landscape beyond its location.



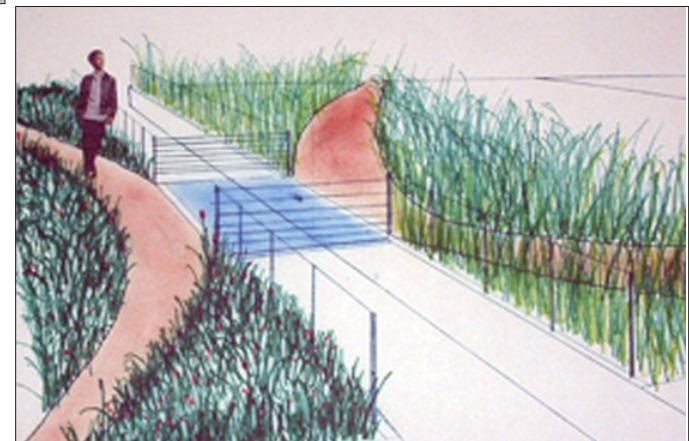
The Path Design

The winding/meandering movement through this landscape provides physical and sensory experiences that are distinct from those in the parking lot. The material of the paths that wind along the lengths of the structures are gravel set into stone dust. This material, which produces a physical, engaging-with-the-landscape sensation underfoot, also provides an audible accompaniment as one moves through the landscape. The cadence of that movement serves as a personal measurement of the experience. Both sensations stand in sharp contrast to movement in the parking lot below. In this environment, the sound of movement, pedestrian or otherwise, is deadened by the solid nature of the asphalt - among other things.

At six feet, the path's width enables for comfortable strolling. Yet that width also maintains an intimate scale throughout the entire landscape. The opportunities to engage with the landscape through touch, smell, sight, and sound are more readily possible, as the plant material forms an edge and contrast to the path.



(top): Gravel paths provide physical and audible sensations as one moves throughout the landscapes. (right): Opportunities to experience the landscape are made more possible by the path's relatively narrow width, which is edged by vegetation.

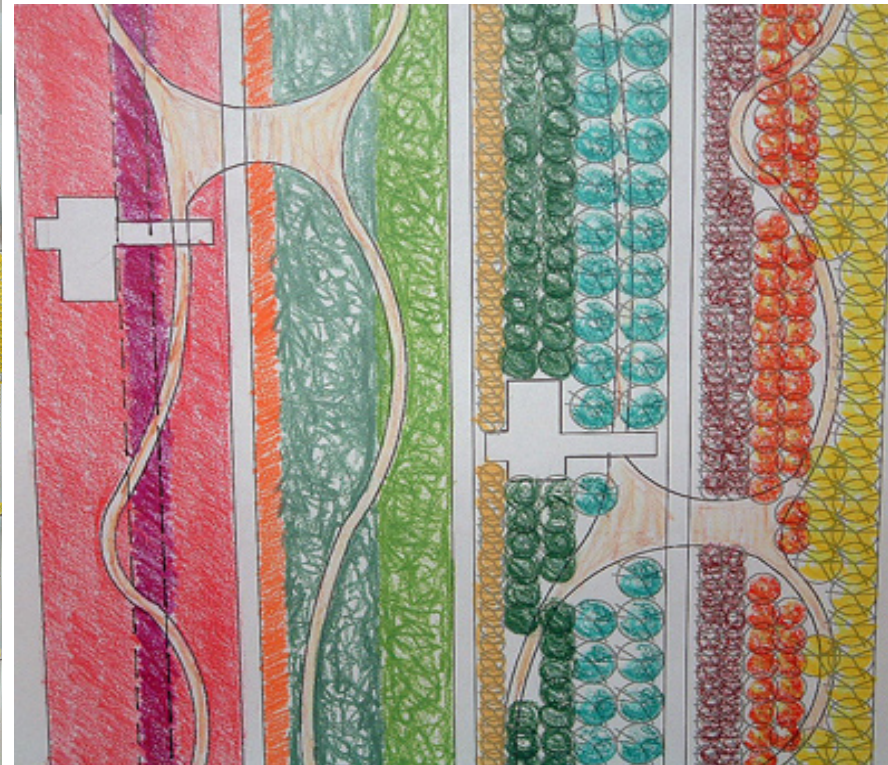
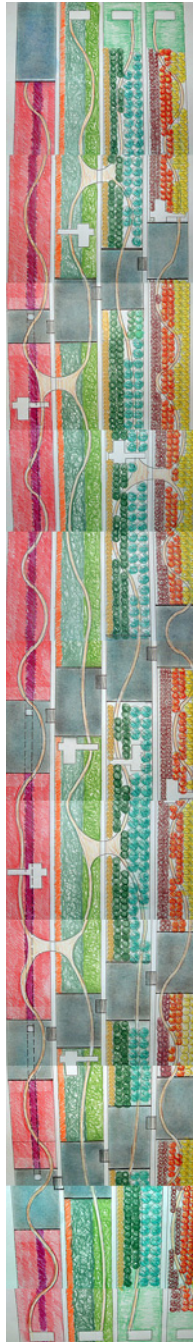


The Path Design

The path's winding character reflects the seasonal nature of the landscapes. The degree of path sinuosity references the pace of life in nature, as it responds to the changing seasons. The paths in the spring and fall landscapes take on a more pronounced winding character, to reflect the surge in activity that occurs when plants and animals emerge from winter dormancy or as they prepare for winter. By contrast, the winding paths in the summer and winter landscapes are gentler, less pronounced, reflecting the less active, almost still-like, qualities of these seasons marked by extreme temperatures.



The paths assume an interactive role in the landscape as the layout relates to the structure's seasonal emphasis.
(left): plan (right): detail showing spring, summer, winter, and fall path plans.



Conclusion

Paradise and the parking lot sit at two extreme ends of how we view our environment. Paradise, on one hand, is the world of beauty, light, and tranquility. It represents a perfect nature. By contrast, the parking lot is, in essence, the negation of nature. Why are these kinds of spaces allowed to dominate the landscape? Our car-centric culture is here to stay and as long as our culture is willing to support it, our parking lot landscapes will persist. They are a necessity, for sure, but they can't be the priority.

It is the ability of the landscape to remind us of the awesome beauty of nature, to reconnect us with the natural world. This natural world, created by the hand of man or not, can energize and inspire us spiritually, and fulfill us emotionally.

The landscape approach proposed in this thesis flirts with the absurd. The idea of constructing Paradise over a parking lot does not solve the problem - devaluing our natural world and replacing it with asphalt. But until our society begins to think otherwise about constructing these vast wastelands at the expense of trees, flowers, and water – Paradise –, this project will remain an absurd solution to a very absurd problem.

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