Explorations of City Image
An Investigation of Tools of Perception and Representation in Urban Design

Tom Dawson

Thesis Submitted to the Faculty of Virginia Polytechnic Institute and State University in Partial Fulfillment of the Requirements for the Degree of

Masters in Landscape Architecture in the Department of Landscape Architecture

Committee:
Wendy Jacobson, LARCH
Brian Katen, LARCH
Dave Dugas, ARCH

April, 27 2004
Blacksburg, Virginia

Keywords: Creative Mapping, Cognitive Mapping, Urban Design, Mexican War Streets, Pittsburgh, Mattress Factory, Derivé
Abstract

Explorations of City Image:
An Investigation of Tools of Perception and Representation in Urban Design

Tom Dawson

The map is vitally important for space design. Maps allow designers to record and filter impossibly complex information about an environment. Designers try to capture a variety of aspects of a site through the use of graphic tools like maps and drawings. While there is a long-established conventional graphic language for recording characteristics of a site, this language is often inadequate when one attempts to explore and capture subtler perceptual qualities of urban environments. Many of these perceptual qualities can greatly inform a design and some designers have invented creative mapping strategies to record and analyze difficult aspects of a site. This position paper follows the work of innovative designers who creatively map perceptual qualities of urban landscapes. The theories and practices of these designers have informed my development of new creative tools for mapping my perception of space.

The design portion of this thesis takes place in the Mexican War Streets Neighborhood of Pittsburgh, Pennsylvania and results in a plaza for the local Mattress Factory Art Museum. The design phase uses and evaluates traditional perception and representational tools of urban design. New creative maps are used to express what the traditional tools cannot. These creative maps are used to derive the concept for the site design as well as the design of the major site elements and materials.
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>II</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>III</td>
</tr>
<tr>
<td>Table of Figures</td>
<td>IV</td>
</tr>
<tr>
<td>Introduction to Project</td>
<td>1</td>
</tr>
<tr>
<td>Exploration of City Image</td>
<td>3</td>
</tr>
<tr>
<td>Evolution of Architectural Expression and Representation</td>
<td>4</td>
</tr>
<tr>
<td>Theory of the Cognitive Map</td>
<td>6</td>
</tr>
<tr>
<td>Categorical Landscapes: Cullen’s Typological Understanding of the City</td>
<td>7</td>
</tr>
<tr>
<td>Halprin: Category, Motion, and Collective Creativity</td>
<td>11</td>
</tr>
<tr>
<td>The Situationists: Psychogeography</td>
<td>15</td>
</tr>
<tr>
<td>Tschumi: Space and Program Mapping with the Manhattan Transcripts</td>
<td>17</td>
</tr>
<tr>
<td>Siza: Drawing as Language and Memory</td>
<td>21</td>
</tr>
<tr>
<td>Morrish: Simplifying Terrain</td>
<td>24</td>
</tr>
<tr>
<td>Observations on Explorations and Cartography of Mind</td>
<td>25</td>
</tr>
<tr>
<td>Why Pittsburgh? Introduction to the Mattress Factory and Mexican War Streets</td>
<td>36</td>
</tr>
<tr>
<td>Traditional Urban Design Analysis</td>
<td>37</td>
</tr>
<tr>
<td>Site Analysis of Mattress Factory</td>
<td>58</td>
</tr>
<tr>
<td>Creative Mapping Applications</td>
<td>60</td>
</tr>
<tr>
<td>Site Design Application</td>
<td>68</td>
</tr>
<tr>
<td>Evaluation of Process</td>
<td>76</td>
</tr>
<tr>
<td>Relevance of Project</td>
<td>78</td>
</tr>
<tr>
<td>Bibliography</td>
<td>79</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>81</td>
</tr>
<tr>
<td>Figure</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Map of Paris</td>
</tr>
<tr>
<td>2</td>
<td>Photo of Category: Animism</td>
</tr>
<tr>
<td>3</td>
<td>Photo of Category: Exposure</td>
</tr>
<tr>
<td>4</td>
<td>Photo of Category: Metaphor</td>
</tr>
<tr>
<td>5</td>
<td>“Serial Vision,” Cullen</td>
</tr>
<tr>
<td>6</td>
<td>“Enclosure Sequence,” Cullen</td>
</tr>
<tr>
<td>7</td>
<td>“Intensity Diagram” Appleyard</td>
</tr>
<tr>
<td>8</td>
<td>Photo of Lovejoy Fountain</td>
</tr>
<tr>
<td>9</td>
<td>“Motion Study” Halprin</td>
</tr>
<tr>
<td>10</td>
<td>Study of Nicollette Avenue</td>
</tr>
<tr>
<td>11</td>
<td>“Motion Study” Halprin</td>
</tr>
<tr>
<td>12</td>
<td>“City Map” Halprin</td>
</tr>
<tr>
<td>13</td>
<td>Photo of Lovejoy Fountain</td>
</tr>
<tr>
<td>14</td>
<td>“Naked City” Debord and Jorn</td>
</tr>
<tr>
<td>15</td>
<td>“MT1” Tschumi</td>
</tr>
<tr>
<td>16</td>
<td>“Parc de la Villette” Tschumi</td>
</tr>
<tr>
<td>17</td>
<td>“Manhattan Transcripts” Tschumi</td>
</tr>
<tr>
<td>18</td>
<td>“Cinégram Folie” Tschumi</td>
</tr>
<tr>
<td>19</td>
<td>“Rome Sketch” Siza</td>
</tr>
<tr>
<td>20</td>
<td>“Room” Siza</td>
</tr>
<tr>
<td>21</td>
<td>“Angel of Evora”</td>
</tr>
<tr>
<td>22</td>
<td>“Evora”</td>
</tr>
<tr>
<td>23</td>
<td>Photo of Evora</td>
</tr>
<tr>
<td>24</td>
<td>“Mountain” Morrish</td>
</tr>
<tr>
<td>25</td>
<td>“Manhattan” Morrish</td>
</tr>
<tr>
<td>26</td>
<td>Rhizomatic Map: Montreal</td>
</tr>
<tr>
<td>27</td>
<td>Coffee/Train Sequence</td>
</tr>
<tr>
<td>28</td>
<td>Snowball Sequence</td>
</tr>
<tr>
<td>29</td>
<td>Rhizomatic Map: Festival</td>
</tr>
<tr>
<td>30</td>
<td>Map of Laffayette Loggia</td>
</tr>
<tr>
<td>31</td>
<td>In-the-round Map</td>
</tr>
<tr>
<td>32</td>
<td>Nega Map</td>
</tr>
<tr>
<td>33</td>
<td>Movement Study</td>
</tr>
<tr>
<td>34</td>
<td>Motion Study of Old Man</td>
</tr>
<tr>
<td>35</td>
<td>Essential Map of Montreal</td>
</tr>
<tr>
<td>36</td>
<td>Sketches of Carpenter Center</td>
</tr>
<tr>
<td>37</td>
<td>Intensity Map: Carpenter Center</td>
</tr>
<tr>
<td>38</td>
<td>Landforms Aerial</td>
</tr>
<tr>
<td>39</td>
<td>Aerial Districts</td>
</tr>
<tr>
<td>40</td>
<td>Aerial Neighborhood Districts</td>
</tr>
<tr>
<td>41</td>
<td>Topography Building Patterns</td>
</tr>
<tr>
<td>42</td>
<td>Figure Ground</td>
</tr>
<tr>
<td>43</td>
<td>Street Heirarchy</td>
</tr>
<tr>
<td>44</td>
<td>Street Sections</td>
</tr>
<tr>
<td>45</td>
<td>Street Sections</td>
</tr>
<tr>
<td>46</td>
<td>Gateways</td>
</tr>
<tr>
<td>47</td>
<td>Edges and Landmarks</td>
</tr>
<tr>
<td>48</td>
<td>Views</td>
</tr>
</tbody>
</table>
Introduction

The brilliance of the map is that it is a device used to capture impossibly complex information and reduce it to simple interpretable forms. This attribute makes the map a powerful tool for recording information about uncharted space. Human cognitive structures also function like maps. We record information that pertains to us, and edit out the constant barrage of information that we feel is irrelevant to our needs. The map not only allows us to record and edit information, it also permits us to communicate ideas on how we perceive that information. This function of the map allowed early explorers to chart the terra incognita of the New World and convince their queens and kings of the existence of un-dreamed of lands. All maps, especially those of gold-hungry early explorers were inherently subjective. They tended to focus on resource extraction. All maps display the biases of the map maker.

The map is a vitally important tool for space design. Designers must understand the spaces that they propose to change. In design, spatially locating features of a site is vital to the success of the site design. Designers may map the prevailing winds, sun aspects, vegetation, human or animal activity, or legal restrictions of the site. Oftentimes in reality these aspects are invisible or obscured. Urban areas are particularly difficult to map, because of the multiple levels of terrain and the density of human activity that exist within them. The designer must use the best evidence coupled with imagination to construct a picture of the site.

A designer is a different type of cartographer. Unlike professional geographers who can afford to be objective about mapping, designers know that they will have to alter the relationships of the places they are mapping. When designers make maps, they are looking for elements of the site that may affect future designs. It is the aspect of mapping that this paper addresses. This study examines how designers make maps of sites. The first part of the paper examines the nature of mapping and what systems designers come up with for mapping their perceptions. These designers/cartographers are designing maps that have the capacity to record information that will allow them to shape a site. They may be recording human movement, human perception, environmental images, or physical aspects of site that they will later bring into their designs.
Designers/cartographers are not bound by the conventions of traditional maps, which tend to require a flat projection of a round world. Designers construct maps with a three-dimensional future design application in mind. This requirement combined with their visual literacy and creativity enables them to construct new types of maps. The quote by Gilles Deleuze and Felix Guattarri, featured on the right, hints at the latent potential of the creativity of map design.

One of the purposes of this study is to develop personal mapping styles that I may later use in a site design. This paper examines the creativity of other designers map constructions and then tries to build upon that creativity by designing maps that reflect theories of these designers. This method provides a repertoire of mapping methods, grounded in design theory, which can be applied in the design portion of this thesis. The goal is to stand on the shoulders of designer/cartographer giants, to develop my own styles of mapping.

The experiential and perceptual qualities of a site are among most difficult aspects of site to map. Understanding these qualities of site has great value in informing a design. How a design is experienced once it is completed is a critical concern to most designers. Designers can choose to weave a site design into the perceptual fabric of an area by picking up on cues from its context. The design phase of this study shows methods of perceptual analysts and propose how these perceptual aspects of a site can inform design. This study also examines and evaluates the anthropology-steeped traditional techniques of perceptual investigation and shows how they can work with a creative mapping style, which is a subjective tool of an individual designer.

The design phase uses both traditional techniques of urban design and perceptual investigation to study a neighborhood in Pittsburgh called the Mexican War Streets. I use both traditional and creative mapping methods to study a neighborhood and evaluate the techniques and determine their potential for impacts on design. These techniques then inform a design treatment for the neighborhood that is derived from the various mapping methods. This produces a design to reflect the perceptual aspects of the Mexican War Streets that were charted by creative mapping.
Introduction To Symbols

This paper discusses tools used to apprehend essential images of the city. The first section, *Exploration of City Image*, describes and evaluates how certain urban designers and artists understand the city through creative cartographic processes at their most basic level of perceiving and drawing. This discussion looks at designers and artists who have crafted their own modes for understanding the urban environment prior to changing it. In order to better understand these designers I have developed my own maps, following their theoretical discussions and mapping efforts. In this way I could appreciate these designers in their own media and better understand their work. A *Cartography of Mind*, a separate piece now integrated into this text, charts my own system of graphics and cognitive processes for developing a creative understanding of the city. It tracks the influence of the cartographers in *Explorations* on my mapping systems and draws connections between the discussion of urban thinkers in *Explorations* and my perceptions as manifested in my drawings. Together these two parts form a map of process.

In order to chart the relationship between the two works, I have developed the symbol system shown below. I have assigned each author a symbol. Through the symbols, the author’s influences are charted from *Explorations* to the maps featured in a *Cartography of Mind*. When one sees an author’s symbol in *Cartography of Mind*, one can relate it back to the text in *Explorations*.

![Symbols](image)

These authors have influenced my ways of understanding and expressing the perceptual qualities of space. The patterns of their thoughts can be found in my maps.

Explorations of City Image: An Investigation of Tools of Perception and Representation in Urban Design

Maps are spatial diagrams that are meant to represent the essence of the cartographer’s understanding of space. They are poor reflections of reality and chart not only space itself, but also the cartographer’s culture and motivations. Maps embody inherent decisions to omit, to edit and to obscure within a hierarchy. Maps can be used to persuade, to sell something or as political propaganda. The book *How to Lie with Maps* by Mark Monmonier, examines the deception found behind the veneer of objective scientific cartography. However, when a cartographer is mindful of the limitations of maps, they can be used as a honest yet subjective tools for understanding space.

The purpose of a map is to chart and represent systems and relationships. The map is concerned with an exploration of space. A drawing can be a map. Gilles Deleuze and Felix Gutti discuss the principles of cartography and what makes a representation a map, rather than a tracing or just a drawing: “What distinguishes a map from a tracing is that it is entirely oriented towards experimentation in contact with the real.” (Deleuze and Guattari, pg 13) Maps are investigations of existing or perceived features. They are diagrams of simple functions of space. Maps can be attempts of the cartographer to represent a three-dimensional conception of space. They are the primary tools for understanding a complex environment. Marco Frascari postulates on the use of investigative tools available to designers and others in *Implementing Architecture*. He examines the nature of maps as tools, both a way to understand and to mold perception.

One way to define “tool” is as the interface between man and environment. Inherent in this interface are both a perceptual filter and a structure of action. By allowing for certain possibilities while disallowing others, a tool dictates both vision as well as course of action. A tool is not a passive dispassionate instrument. A tool uses us as much as we use it. (Frascari I, *Implementing Architecture* pg 2)

Frascari examines the dual nature of the tool. The map is by necessity a filtering device used to edit out information viewed as extraneous. This is the map’s communicative strength and scientific liability. Designers who wish to alter the city environment need to examine the
Evolution of Architectural Expression and Representation

Drawing and graphics are the primary analytical tools of representation of the design professions. However, the typical modes of representation—plan, section, elevation, perspective—were codified in the neo-classical era.

The history of architectural representation is ancient and varied. Graphic skills have tended to be the province of educated professionals, who did not really appear until the Renaissance. Prior to this period, most “architects” were vernacular builders who would verbally tell workers what to build. In his book, *The Architect’s Eye*, Tom Porter discusses the medieval European architect’s representational strategies.

In this traditional context, the “designer” was the builder, an artisan directly in control of building operations. Spatial concepts were carried out completely within the “mind’s eye,” the architectural vocabulary evolving on a trial basis, but being directly linked to natural conditions measured against anthropological needs. (Porter, pg 20, 1997)

Due to the small scale of most medieval building projects, no drawings were needed because there was no separation between contractors and designers. “Designers” worked at 1:1 scale. On more complex projects such as cathedrals, more design work was needed and a separation between builders and designers began to form. The scaled model was the representational tool used by designers in this period. Although the scaled model has stayed with the design professions, it tends to fall out of favor in certain periods. According to Porter, John Ruskin, William Morris and Walter Gropius have publicly argued for its reinstatement because of the “shortcomings of two dimensional visualizations and emphasis on craftsmanship.” (Porter pg 24, 1997)

One of the greatest challenges for designers is in mapping the qualities of the city. The city is a complex array of spatial sequences, overlapping cultures and personal memories, level changes, multiple meanings, subliminal messages, conflicting uses. This territory is *terra incognita* for the cartographer of perception. For designers, this perceptual cartography has no established meridians and only a handful of “explorers” offer charts legible enough to follow.
The thought process Tschumi is speaking of is similar to writer James Joyce’s when in the 1920’s the conventions of language were not sufficient to express the perceptions of the artist. Designers are often frustrated by their inability to express their unique insights when it comes to articulating the perceptual qualities of an environment that are typically overlooked but vital. They use graphics to map how they perceive the environment before attempting to change it. Out of this frustration is born experimentation with other modes of graphic expression. However precise and generative they have been, each implies a logical reduction of architectural thought to what can be shown, at the exclusion of other concerns. They are caught in a prison house of architectural language, where ‘the limits of my language are the limits of my world.’ Any attempt to go beyond such limits, to offer another reading of architecture demanded the questioning of these conventions. (Bernard Tschumi, pg 9 The Manhattan Transcripts)

With the Renaissance, Greek ideas began to infiltrate European thought through Arabic sources. According to Porter, the Arab mathematician Al-Kazen is credited for systemizing the laws of perspective. This greater understanding of vision was then introduced to Europeans who had previously relied on technically inaccurate folk conventions for showing depth.

Designers suddenly realized that they could translate their visual perceptions into an apparently comprehensible and manipulative series of delineated spatial events capable of accurately rendering a design intention. (Porter pg 25, 1997)

This opened up the world of architectural drafting. Models were now constructed only for illiterate workmen. Architectural drawing had great communicative power. Draftsmen began to develop illustrative plans, birds-eye views, elevations, and construct imaginative sections, where a visual slicing through the exterior revealed the interior of buildings. Porter claims that drawing became the essential medium for expression of space.

The final drawing technical achievement was the development of orthographic and axonometric projections. This technique was credited to a Frenchman named Gaspard Monge. The value of these projections was that they could accurately show a three dimensional but accurately scaled drawing without visual distortions. This technique has great power of enabling the visualization of constructed three-dimensional objects. According to Porter, the French Department of War declared the new axonometric technique top secret, but could not hold back its introduction. With orthographic and axonometric techniques, the architectural catechism of tools seemed complete. These tools not only remain in use today, but are the primary forms of architectural graphic expression. Scores of books like Design Drawing, by William Lockard and Landscape Graphics by Grant Reid have introduced the visual language of design to generations of designers. While these techniques are vital to the profession, some have questioned their absolute authority in expression of perception.

Conventional tools are vital; however, they immediately exclude a spectrum of perception that might be vital to understanding features of the city. Some designers question their tools of representation and perception. Bernard Tschumi searched for new modes of representation in The Manhattan Transcripts, which he claims informed his analysis and scheme for Parc de la Villette. He writes about the conventions of architectural graphics and their limitations:

However precise and generative they have been, each implies a logical reduction of architectural thought to what can be shown, at the exclusion of other concerns. They are caught in a prison house of architectural language, where ‘the limits of my language are the limits of my world.’ Any attempt to go beyond such limits, to offer another reading of architecture demanded the questioning of these conventions. (Bernard Tschumi, pg 9 The Manhattan Transcripts)

In most design practices drawing is used to communicate designs to other designers and clients or for construction purposes. These types of drawings are either in a conventional language that all parties can understand or they are designed to impress a client or designer through their elaborate graphics. Less often graphics are developed to represent actual spatial or perceptual conditions of a site. These graphics are not developed to “sell” a design, but to develop the designer’s understanding of the perceptual and physical qualities of space. When these types of drawings are developed the designer crosses into the territory of mapmaking. In the latter process, these designers try to unite what they see with what is understood about the invisible perceptual qualities of site. He or she edits out unessential information in order to develop an understanding of how the site functions.

Urban designers, landscape architects, building architects and artists find ways of articulating different understandings of the city’s spatial and perceptual qualities. They actively try to understand the city by inventing new operations for perceptual understanding and graphic representation. I have chosen to study the approaches of a range of designers from a variety of time periods, countries, disciplines and architectural movements. For the purposes of this study I am less
Kevin Lynch and other designers have tried to gain a perceptual understanding of the city district by attempting to articulate the public’s collective “cognitive maps.” The cognitive map is a unique mnemonic device in the brain that allows us to retain a memory of space once we lose our ability to perceive it with our senses. However, we cannot necessarily “download” our cognitive map to paper, because the mental processes for drawing are not the same as those which construct the cognitive maps. Urban designers understand the necessity of articulating their own as well as others’ cognitive maps of city districts. These cognitive maps relate to surface appearance, but they really reflect perceptual qualities of space.

In the late 1950’s and early 1960’s, scholars working at MIT and Harvard began to work with perceptual qualities of the city and architectural spaces. Kevin Lynch is considered to be the leader in this approach to perceptual investigation of cities. Through numerous studies and observations of human activity in city spaces, Lynch began to describe what he thought most influenced the perceptual qualities of urban areas. Lynch’s *The Image of the City* was first published in 1960. He theorized that the perceptual qualities of cities could be identified and analyzed through a set of typological environmental images. These criteria were based on several types of environmental images. These were paths, edges, activity nodes, landmarks, views, districts and gateways. This category system became a classic way of understanding the perceptual qualities of city spaces.

The Theory of the Cognitive Map and City Image

A framework for understanding the use of representational tools of perceptual qualities comes from the theory in psychology of the cognitive map. The cognitive map is a personal spatial schema built on perceptions and attitudes about the environment. Environmental psychologists believe the cognitive map is built on subtle psychological perceptions of space, such as sense memory, emotional connection, past events or perception of an environment’s ambiance. For example, the game of “peek-a-boo” exists because babies have an undeveloped cognitive map. They have no sense of object permanence; when one hides one’s face to a baby, one “disappears,” to them. (Gould and White, 1986) In time the baby develops a storehouse of memories connected by a spatial schema or cognitive map. Peek-a-boo then loses its charm.

Kevin Lynch and other designers have tried to gain a perceptual understanding of the city district by attempting to articulate the public’s collective “cognitive maps.” The cognitive map is a unique mnemonic device in the brain that allows us to retain a memory of space once we lose our ability to perceive it with our senses. However, we cannot necessarily “download” our cognitive map to paper, because the mental processes for drawing are not the same as those which construct the cognitive maps. Urban designers understand the necessity of articulating their own as well as others’ cognitive maps of city districts. These cognitive maps relate to surface appearance, but they really reflect perceptual qualities of space.

In the late 1950’s and early 1960’s, scholars working at MIT and Harvard began to work with perceptual qualities of the city and architectural spaces. Kevin Lynch is considered to be the leader in this approach to perceptual investigation of cities. Through numerous studies and observations of human activity in city spaces, Lynch began to describe what he thought most influenced the perceptual qualities of urban areas. Lynch’s *The Image of the City* was first published in 1960. He theorized that the perceptual qualities of cities could be identified and analyzed through a set of typological environmental images. These criteria were based on several types of environmental images. These were paths, edges, activity nodes, landmarks, views, districts and gateways. This category system became a classic way of understanding the perceptual qualities of city spaces.

Lynch was very familiar with the concept of the cognitive map. He approached the study of the city through many methods, but his most famous method was to try to capture and collectivize people’s cognitive maps of their own city. Lynch approached the understanding of city space in the way an anthropologist might.
It is equally useful to inquire into the image [of the city] in the minds of the users and decision makers; how they characterize it, how they feel about it, and what they expect of it. Much of the flavor and structure of a place, as well as its present direction of change, is thereby revealed.” (Kevin Lynch, Site Planning pg 19)

Lynch recognizes that the reality of the site to a designer may be far different from the reality of a site to a user, which is why he chooses to say “image in the minds.” Recognizing this idea of multiple understandings of a site, Lynch began to broaden the mapping process by recording the conceptions of non-professionals, especially children, through their drawings. From a collection of these articulated cognitive maps, Lynch attempts to gain an understanding of what are important orientation and cognitive spatial cues to the actual inhabitants of the town. After years of studying these maps and observing repeated patterns, Lynch developed a typology of urban spatial elements that contribute to cognitive maps, which he documented in the Image of the City [1960].

Lynch’s system was steeped in anthropology and social science. The system has validity because the results of the perceptual analysis were reproducible and could minimize subjective interpretations of city image. Lynch believed that one could evaluate the strength of the city image through the use of these categories and determine how one should approach design interventions in these spaces. In the pre-design study of a city, if a category, like landmarks, was weak, the design might call for intervention in that particular area. Lynch’s process is commonly used today in the design fields.

Categorical Landscapes: Cullens’s Typological Understanding of the City

It is interesting to compare Kevin Lynch and Gordon Cullen. They share many similarities. They practiced in the same era of the late modern movement in the early Sixties. Both were primarily concerned with the idea of the townscape being made up of cognitive spatial cues. They both made their own styles of urban map that detailed the perceptual qualities of city life. Cullen developed his interpretation of towns using primarily visual techniques.

As the name would imply, Cullen’s book Townscapes is primarily concerned with the visual aspect of the town. Cullen is a prolific drawer and photographer. His typology of the city is based on over 90 landscape features that he feels are important enough to include in his book on townscaping. These are organized in five main categories. Cullen’s categories range from the practical and easily observable like exposure, enclosure, texture, steps and trim to the less tangible and lyrical like “animism,” “metaphor,” the “secret town,” the “tell tale” and the “white peacock.” Cullen can visually show Lynch’s typologies and move to the next level of complexity through graphics. Cullen believes inclusion of these landscape categories in an urban design makes for an exciting visual environment.

We are concerned with the intrinsic qualities of various subdivisions of the environment... for without distinction between one thing and another all we will get is a form of porridge... (Cullen, Townscapes, pg 57)
Having created this highly developed and articulated landscape category system from years of city observation, or “town appreciation,” as he calls it, Cullen then develops a framework for understanding the constellation of categories within the city. Cullen notes that “time is the pedestrian dimension.” (Cullen, Townscapes, pg 24) His system for understanding and connecting the categories is based almost entirely on the sequential aspects of the pedestrian experience. Cullen believes he has discovered “three gateways” to understanding the pedestrian experience in the city, “…that of motion, that of position and that of content.” (Cullen pg 26) Content refers to Cullen’s elaborate landscape categories. Motion and position relate to the subject or the observer moving through space. The quote from Cullen below develops these ideas further:

By the exercise of vision it became apparent that motion was not one simple, measurable progression useful in planning, it was in fact two things, the Existing and Revealed view. (Cullen, Townscapes, pg 14.)

Cullen’s perceptual study of motion in the city reveals an important point about the development of the human cognitive map. Cullen begins to hint at the pedestrian’s ability not only to apprehend the existing environment, but also to dynamically anticipate the environment. The “Existing” is what one can see and the “Revealed” is what one can anticipate. Cullen believes both aspects are necessary in order to understand the pedestrian experience. He couples this with a need for the pedestrian to understand their position in their own cognitive map and he links their cognitive map with “sense of place,” the poorly understood phrase on every urban designer’s lips.

We discovered that the human being is constantly aware of his position in the environment, that he feels the need for a sense of place and that sense of identity is coupled with an awareness of elsewhere. (Cullen, Townscapes, pg 14)
Cullen once again touches on some of the aspects that would later be called the cognitive map by environmental psychologists. In the quote that was just mentioned and throughout *Townscape*, Cullen couples the pedestrian need to make sense of their environment with the need for mystery in the environment. Cullen reveals sophisticated information about how the human mind perceives space well before the development of the field of environmental psychology. Cullen’s primary tool for developing and articulating these theories is through developing his own understanding of space through drawings and photos. To develop his theories of understanding space, Cullen invents what he calls “serial vision”. Serial vision is the sequential understanding of city spaces. Cullen believes serial vision is what links the complex landscape categories of the city into a coherent, dramatic narrative. To Cullen the sequential understanding of spaces gives elements within them meaning to the pedestrian. Cullen attempts to create a map of what he believes is pedestrian serial vision. This map links the plan view of the city to scenes a pedestrian may experience walking through the space. Cullen’s use of deep shadows and enclosures hints at his theories on “existing and revealed” view.

In order to understand the complexities of the city and map his own understanding of landscape category, Cullen developed the “serial vision” technique. This mapping technique frames his understanding of the drama of urban spaces and their relationship to a town plan. His map is a combination of a plan (or figure ground) understanding and sequential drawings. He uses drawing to simplify the complexities of the city. Cullen’s technique bridges the gulf between the plan and the pedestrian’s conception of space. Throughout his drawings he attempts to capture the pedestrian experience in the city. Cullen’s drawings and writings try to illuminate the pedestrian world of surprise and expectation. Cullen tries to draw both a sense of what the pedestrian can see and hint at the experiences they expect to encounter.

For Cullen the narrative of the city is told through the sequential experience of space. Donald Appleyard, a colleague of Lynch and contemporary of Cullen, also develops the idea of a sequential understanding of space. He also theorizes on the need for enjoyable and legible sequences in the city:

> A sequence may be enjoyed purely as a sensuous dialog with the environment, or it may be used to glean information about the city its structure and its meaning. Desire and need tend to characterize the former, attitude, prediction and expectation the latter. Both may be found, sometimes simultaneously, in any sequence. (Appleyard pg 182)

This quote from Appleyard seems to be directly speaking to Cullen’s technique and theories of townscape. Cullen himself simultaneously aesthetically appreciates traveling through the spaces of the city sequence and at the same time is ravenously drawing information about structure and meaning from the experience. Appleyard may also be speaking to Cullen’s ideas about drama within the city sequence when he diagrams what he calls “the structure of attention.” This “intensity structure” diagrams the experience of the pedestrian movement through a sequence of a space. Appleyard uses this technique to show a sequence of experience to a Greek temple. It is useful to compare this to Cullen’s technique of drawing sequences.
One can see that Appleyard’s diagram (which he admits is primitive) could parallel Cullen’s lyrical interpretation of spatial sequence. By diagramming Cullen’s subjective interpretation of space, one could conceivably develop a typology of spatial sequences. A quantification of a lyrical interpretation of spatial sequence coupled with an analytical diagram of intensity structure could give the technique more external validity. This could then allow for comparisons of city sequences. Cullen theorizes that sequence in the city is the way that pedestrians make perceptual relationships between landscape categories. Diagramming sequence could be a powerful analytical tool for mapping the cognitive structure of cities.

Lynch’s categories for the city are certainly easier for a general audience or even a design studio to understand. Lynch and Cullen both make use of categories in developing and articulating their understanding of the city prior to its modification. Both are concerned with the psychological effects of the urban environment on its denizens. The comparison serves to show the differences in how they perceive and approach the complexity of the visual city environment. Lynch does not make use of drawing in the technique I mentioned; he uses the drawings of non-professionals. He reduces the complexity of the city to five categories. Cullen draws and photographs continuously. He develops a highly complex image of the city based on multiple categories. Though few can follow in his technical footsteps, because of the skill and experience involved, Cullen seems able to absorb and articulate the complex inter-relationships of the urban environment. His ability to see these relationships and understand their potential psychological effects is based on his continuous graphic investigation.

The intent of comparison of Lynch to Cullen is not to pass a qualitative judgment. Both techniques are probably compatible within the framework of the same project. The comparison is meant to show two urban designers addressing the perceptual qualities of urban environments, using different techniques and coming up with different understandings of the city.

In *Site Planning*, Lynch contains his own drawings to a few simple diagrams, which illustrate principles of urban spatial patterns. He is noted more as a collector and compiler of maps and drawings than as an originator of graphic understanding. This method leads him to a typology founded on the forementioned five main features. For many critics, Lynch wears the mantle of objective science through his anthropological studies, while Cullen mentions that he feels accused of being seduced by his own subjective and artistic vision of towns. However, Cullen retorts by rebuking scientific town building.

Firstly we have to rid ourselves of the thought that the excitement and drama we seek (in townscapes) can be born automatically out of the scientific research and solutions
arrived at by the technical man. We naturally accept these solutions but are not entirely bound by them. In fact we cannot be entirely bound by them because the scientific solution is the best that can be made of the average. (Cullen, Townscapes pg 11)

Cullen is not arguing that there is no place in design for scientific analysis. He indicates that there is an intermediary step between scientific analysis and a designed solution, that involves the application of creative powers to analysis of the urban environment. Cullen is developing an analysis that takes into account unique perceptual qualities of towns. This creative analysis tries to show place-making details and how the pedestrian might encounter and make sense of them.

Although Cullen uses the anthropological methods of Lynch and other social scientists he makes the claim that a design that incorporates human psychological needs cannot be completely scientifically derived. The value of Lynch’s work is that the results of a perceptual investigation are repeatable and have a high degree of validity. Lynch’s approach is especially useful when considering the needs of large urban areas. Although like Lynch, Cullen’s approach can record information about landmarks, gateways, paths, edges and nodes, he can also record more qualitative information about these categories. Cullen’s approach is more particularly suited to the pedestrian experience. Since designers must work on a variety of scales, both approaches are compatible. Cullen’s approach has more of an appreciation for architectural details, in particular perceptual cues of the pedestrian experience. His creative analytical techniques seem more conducive to informing the spatial and perceptual characteristics of a contextual design.

Halprin: Category, Motion and Collective Creativity
Lawrence Halprin works as a landscape architect who engages urban design problems. Halprin’s 1963 book Cities reflects a categorical approach to understanding the nature of “landscape of cities.” Like Cullen’s Townscape, Halprin attempts to understand urban environments through the understanding of individual elements. However, Townscape is primarily set in England and speaks to the English city, whereas Halprin’s Cities provides an overview of details of making place within a worldwide setting.

These basic materials (of urbanism) and the way they are structured are the subject of this book. Working with these materials, the urban designer must allow them to interact with the indigenous character of the city, its natural topography and views, its particularly unique features and its cultural heritage. Only when these elements are creatively selected and processed can the resultant form of the city take shape. (Halprin Cities pg.7)

Halprin is looking at the physical parts of the city and relating them to the whole. In Cities, Halprin takes the stance that urban landscapes are knowable through the details that make them up. His beautiful photographs of world cities show the elements of city: floors, street furnishings, drinking fountains, benches, material choice and others. Halprin is using the medium of photography to show how parts of the city make up its sense of place. This categorical understanding of world cities serves him well. One can see how this study has fueled his designs. For example in the chapter “The Third Dimension,” Halprin looks at level change. Here, one can see the potential inspirational

Permission Denied to use Photo

Fig 8. “Lovejoy Fountain,” Halprin, RSVP Cycles pg 61
“Private Ghat,” Halprin, Cities pg 121
Halprin critiques conventional architectural plans and symbolic conventions as being the language of the static objects. “But all of these accepted systems of architectural language describe only the fixed surroundings… This limitation of symbols affects our results.” (Halprin, pg 209) While human interaction and enjoyment of city spaces is Halprin’s principal design position, he recognizes that he has no method of expressing how people move in these spaces. Like Tschumi, Halprin recognizes the “prison house of architectural language.” (Tschumi pg 9)

So Halprin develops his own language. He invents a system for mapping movement within the city. This system will reframe his design sensibilities and his view of the city, from a place of material objects and as a new design language. He places this at the top of his urban design hierarchy.

Since movement and the complex interrelations of which it generates are an essential part of the life of the city, urban design should have the choice of starting from movement as the core-the essential element of the plan. (Halprin Cities pg 209)

Halprin moves from a categorical understanding of the city to finding a mapping system that can chart the ephemeralities of pedestrian motion. This differs from Cullen, who enters the world of motion through sequence of spaces. Cullen’s motion system is a more personal understanding and is recorded in the first person. Halprin attempts to develop a motion mapping system that anyone could use. He invites people to develop their own system or to use his. His system is built to analyze movement on both a qualitative and quantitative basis and then to use it to program movement in the city landscape.

Halprin was not the only urban designer working on a notation system. The call to develop a way of analyzing and recording the complex working of the city was also being explored by Donald Appleyard at MIT and others. Donald Appleyard expresses the need for a new language of graphics that is useful throughout the design process.

The City Designer cannot go out into the city and move it around with his bare hands. He works with symbols, and therefore needs an appropriate language for recording and creating motion and sequence… Plan and sections are still the primary media used, although increasing knowledge of sequences may enable one to read structure through perspective series. (Appleyard, Motion, Sequence and the City. Pg 189)
Halprin uses the motation system for charting the flow of pedestrian and traffic movements through space, but founds the system on the continuity of perceptual experience of the observer. This is like Cullen’s theory that the pedestrian can only understand the “drama” in the landscape through the narrative-giving device of a sequence of spaces.

Halprin uses the motation system shown on the right, to observe movement on Nicolette Avenue and then change the pattern of that movement through design intervention. The motation study charts the objects on the street and how people respond to the objects. The total study charts dynamics of a street in both time and space. Halprin has provided us with the study of motion on the street, “before” pictures of the street, and the design intervention which resulted from his use of the analytical tools.

The overall form of the design seems to reinvest the dimensional awareness of time back into the street. The sinewy curves slow traffic to enhance both the pedestrian and driver enjoyment of the street. The street furniture was constructed to allow areas to slow the flow of pedestrian traffic and to allow places for people to have conversations. Featured prominently in Halprin’s descriptive photos are two large clocks. A sense of time seems to be the landscape feature he wants to instill in the street.

Halprin moves beyond notation for movement and into notation for process in the RSVP Cycles. He applies this notation system to city mapping and to the decision-making process. He compares his notation system to scoring for the arts. The notations created for the street compose the flow of the action, but it is up to the people on the street to determine what action occurs.

The diagrams for city-street systems are scores, but the city street itself becomes a performance while being created, then a score again. Like scores for theater or dance, the street score choreographs or controls what happens. (Halprin RSVP Cycles pg 85).

With this system he maps the links between human systems and landscape systems. He develops a framework for understanding the human impact on space and environment. This shows an expansion of the cognitive map from understanding space to understanding the human layers that inhabit and affect space. He develops a way to chart both the spatial aspects of the city street, and also the dynamic human layer. Halprin used motation to study how people move on Nicolette Avenue in Minneapolis. He noted that environments change their qualities with the variations in speeds that they generate, and related this to the perceptual experience of someone engaging the city: “An individuals only true continuity is his own awareness. This is an essential basis for motation.” (Halprin, RSVP Cycles pg 71)
Once again, Halprin took this process of experiments in environment further, to discover ways of fostering a participatory design process for Cleveland. For Halprin this was a way of gaining insights into the way people view space. Scoring systems are a form of map to Halprin. In the RSVP Cycles he compares the score to the map. “The diagrams for city-street systems are the score, but the city street itself becomes a performance...” (Halprin RSVP Cycles, pg 85.) Halprin is attempting to map the perceptual qualities of space. However, Halprin opened the process to others, thus expanding his own capacity to perceive.

In trying to understand Cleveland, Halprin used what he called a Downtown Experience Map. In this process, Halprin used the workshop group to walk to prescribed points on a plan view city map. At these points on the map, the participant was asked to record their impressions, which could be in the form of field notes, recorded conversations or drawings. In some points on the map, Halprin gave suggestions to spur engagement in the environment, such as, “Walk halfway into the cemetery, sit down and rest. Record the impressions of all of your senses. What if you were here at midnight?” Were this anthropology, these promptings might contaminate the results of the experiment. However, Halprin was doing more than data collection. He was spurring people to engage their environment and to collaborate on changing it. On the whole the process was open-ended, and the “experiments in environment” served as a guide for Halprin and other designers. The experiments gave information to Halprin about the psychological processes used by people to view the city.

Mapping the City, Mapping the Revolution

One cannot divorce Halprin’s analytical techniques and design results from his philosophical position. Knowing the power of conventional maps to propagandize, Halprin’s scoring system was a map to break down conventional practices of closed door city planning and open up the process of shaping the environment. Halprin offered his “RSVP Cycles” not just to landscape architects, but to the 1960’s Revolution. The following quote from Halprin describes his sympathies and intent:
The dichotomy between the score-maker and the scored for... did not exist in primitive cultures where all the people were artists, nor does it even now exist among children or the free young people of the revolution who do not differentiate between the act of symbolization and the life process itself. (Halprin, RSVP Cycles pg 19.)

Halprin was creating a participatory mapping system that was meant to allow people to explore the possibilities of their environment. Halprin’s choice in photographs of the use of the Lovejoy Fountains shows his intent to make it a truly a democratic plaza, rather than just a ornament for the city. Halprin was serious about participation in the design of city environments. The actions of the people featured below would cause most city officials in our era to run for their lawyers and police.

The primary technique of understanding psycho-geography lay in the practice of the derivé. According to Debord, derivé, which is translated as “a drift,” was, “a technique of transient passage through varying ambiances.” (Debord, The Theory of the Derivé pg 22) The process of the derivé was that a team of no more than five would wander through the city, trying to collectively understand its psycho-geographical effects on them.

In a derive’, one or more persons during a certain period drop their usual motivations for movement and action, their relations, their work and leisure activities and, let themselves be drawn by the attractions of the terrain and the encounters they find there. (Debord, The Theory of the Derivé pg 22) The process of the derivé was that a team of no more than five would wander through the city, trying to collectively understand its psycho-geographical effects on them.

Halprin’s position allied him with other designers including Archigram, who anticipated a socio-cultural revolution. Halprin, as well as Archigram, were featured in a book called Arthropods: New Design Futures edited by Jim Burns, who also edited Halprin’s sketchbooks and collaborated with him in experiments in environment workshops. Early Archigram works and thoughts were seriously influenced by an urban art, philosophy and revolutionary group called the Situationists. In the late 50’s, the Situationists began exploring the cognitive image of the city with the development of what they called “psycho-geography.” According to the compilation of Situationist magazine articles in The Theory of the Derivé, psycho-geography is the study of specific effects of the geo-graphical environment on the emotions and behavior of individuals. (Guy Debord, Theory of the Derivé pg 66). This is an early attempt to study and articulate the psychological effects of space.

The primary technique of understanding psycho-geography lay in the practice of the derivé. According to Debord, derivé, which is translated as “a drift,” was, “a technique of transient passage through varying ambiances.” (Debord, The Theory of the Derivé pg 22) The process of the derivé was that a team of no more than five would wander through the city, trying to collectively understand its psycho-geographical effects on them.

The first idea behind the derive’ is to break with the quotidian triangle of work, home and school. The idea is to move to the level of urban explorer of place and to appreciate the ambiance of the surrounding city. This awareness of place and the effects of place distinguishes the derivé from the stroll or even from Baudelaire’s enlightened flaneur. Despite the random-seeming nature of the derivé, the teams sub-divided the word “ambiance” into a typology of their own devising. On the derivé they felt pulled by the psychological currents of this typology, which they claimed determined the course of their walks. The basic idea of the
...maps whose inevitable imprecision is no worse than that of the first navigational charts; the only difference is that it is a matter of no longer precisely delineating stable continents, but of changing architecture and urbanism. (Debord pg 26)

The maps that Debord proposes are not just ends in themselves, but also ways for people to re-envision their city. Psycho-geographical mapping was meant to erase artificial gerrymandered borders within the city and value the places of meaning that planners were obliterating. A Situationist psycho-geographical map implied critique. Debord’s and Asger Jorn's map of Paris, "The Naked City," shown right, is a minimalist portrayal of the areas within Paris that still contained a sense of place.

The use of the famous Turgot plan of 1739 was meant to conjure up a sense of the patina of age on Paris. The title "Naked City" is a reference to the crime photography of Weegee and the idea of the Raymond Chandler-style detectives in the 1948 noir documentary drama of the same name. The utilization of the detective as metaphor was referenced to lend rigor and immediacy to Debord and Jorn’s investigation. The map was based on extensive investigative dérivés through Paris.

1. As urbanist philosophers centering on Guy Debord, the Situationists were diametrically opposed to the grand urban schemes of Le Corbusier, CIAM and the urban theories of Team 10. On the whole, the Situationists were defined by their opposition. The trained architect of the group, Constants, was expelled for designing a city based on the tenets of the group. Yet their explorations of urban environments are both rigorous and open and have fomented a lasting dialog about the city. They anticipated the movement of architectural thought from solid objects to the psychological effects cities have on their inhabitants. They rejected the formal functionalism of designed cities like Brasilia in favor of the labyrinthine qualities of old Paris. These self-proclaimed cultural inheritors of dada and the Surrealists influenced or provoked artists, revolutionaries, the International Congress of Modern Architecture (CIAM), and architects like Bernard Tschumi, Rem Koolhaus, and Archigram. For a time they partnered with Henri Lefebre, the urban theorist. (Sadler, The Situationist City pg 56) Despite the difficulty of studying the group and the impossibility of observing built work, (except for the exiled Constants, whose model for a city is housed in the Centre Pompidou, which also hosted a exhibition on the group in 1989) the Situationists put forth important methods of observing and recording their environment. In the 1950’s when architects were coming to grips with the idea of cities as being both the “art of shelter” and a medium of communication, the Situations were developing psycho-geography. The idea of psycho-geography is not dissimilar to some of the goals of the recently formed field of environmental psychology, such as understanding the psychological effects of space. However many key differences exist between environmental psychologists and psycho-geography, primarily the Situationists refusal to become a spectator in the scientific process or to leave experimentalism to experts. The Situationists radicalized the dialog of urbanism.

The element of chance is less determinant than one might think: from the derive point of view, cities have a psycho-geographical relief, with constant currents, fixed points and vortices which strongly discourage entry or exits from certain zones. (Debord, Theory of the Derive pg 22)
As one of the few architects to delve into Situationist thought and extract physical form, Bernard Tschumi has developed a unique style of building in both landscape and architectural idioms. In addition to shared theory, he is linked to the Situationist magazine, Te Quell, which also published Henri Lefebvre. In a way, Tschumi answers Halprin’s call for a language to describe movement in the city with the Manhattan Transcripts (MT); however, Tschumi’s notation differs from Halprin’s. Halprin studies observed motion in the city and Tschumi uses movement notation to create a narrative of program. Unlike both the Situationists and Halprin, Tschumi is creating a personal mapping system rather than a team mapping system. Tschumi’s mapping system develops his own spatial and programmatic ideas. He uses a cinematically inspired mapping system in the Manhattan Transcripts that in turn develops his architecture while sparking a theoretical debate about the city.

The Manhattan Transcripts are Tschumi’s form of creative mapping and they are vital to his built work and design theory. He rejects the “fountainhead approach,” where architectural form is internally inspired. He instead opts for observation and graphic mapping of conditions which are seen through the lens of his theory. He writes about the development of his architecture through contextual study of existing elements and implies a critique of those who do not study context.

Style today can only be the result of a conscious methodical manipulation of forms, which owns little to preconceived images. A methodology cannot ignore the social, cultural and historical circumstances of its use and current architectural methodology will inevitably differ from the past. (Tschumi pg 41, Arquitectura 1988)

In order to manipulate existing environmental forms, Tschumi develops a mapping system in the Manhattan Transcripts. He uses the Transcripts to study Central Park in Manhattan and
Tschumi is developing cartography where plan and architectural spaces are not separated from the human activity and program of spaces they contain. This is an important cartography in light of the theories that cognitive maps are composed of both spatial and event information. "The Manhattan Transcripts are not a random accumulation of events; they display a particular organization. Their chief characteristic is the sequence, a composite succession of frames that confronts spaces, movements, and events, each with its own combinatory structure and inherent set of rules." (Tschumi, pg 11)

The sequences in MT1 are linear. The "frozen" moment scenes are framed by a square border, which has the effect of taking the most critical aspect out of a larger scene. Tschumi uses the analogy of movie notation to describe the scene changes. The notation of events in MT1 comes in three modes: events, spaces and movements. This allows Tschumi to draw connections between human actions as captured by photography. He links this with architectural spaces as described by plan, perspective and axonometric. These drawings follow, but occasionally question the logic of architectural drawing. Tschumi uses a movement notation which is drawn to "eliminate preconceived meaning of particular actions, so as to concentrate on their spatial effects." (Tschumi, pg 11) Tschumi tries to create a notational language that shows the spatial movement of people through space. "...as if the dancer had been carving space out of a pliable substance." (Tschumi, pg 11) Tschumi attempts to link the three modes of architectural thought through the use of sequence.

Like Cullen's understanding that a narrative of a city is revealed through sequences, Tschumi uses sequence to describe the program and spaces in the Manhattan Transcripts. MT1, the first Manhattan Transcript, is an exploration of Fredrick Law Olmsted's Central Park. Tschumi links the architectural space of the park to the most extreme program of a murder and detective story. Tschumi's fictional murder plot program is part of the architectural space. He explains, "The formula plot of the murder is juxtaposed with an architecture inextricably linked to the extreme action it witnesses." (Tschumi pg 8) He uses this intense example to illustrate the links between architectural program and architectural space: "There, attitudes, plans, notations and movements are indissolubly linked. Only together do they define the architectural space of 'The Park.'" (Tschumi pg 8)

When confronted with an urbanistic program, an architect may either:

a) design a masterly construction, an inspired architectural gesture (a composition);
b) take what exists by critically analyzing the historical layers that preceded it, even adding other layers derived from elsewhere—from other cities, other parks (a palimpsest). (Tschumi, pg 7, 1989)

Tschumi opts for the palimpsest approach. Since no useful tool exists for analyzing historical layers that would be useful for his designs he develops the Manhattan Transcripts as a prototype of his personal design mapping system. He also uses the MT to study "the layers derived from elsewhere," where he maps Central Park for its relevant design elements. The Manhattan Transcripts is Tschumi's mapping tool for feeding his designs, studying historical layers and developing his theory and his artistic vision.

Like Cullen's understanding that a narrative of a city is revealed through sequences, Tschumi uses sequence to describe the program and spaces in the Manhattan Transcripts. MT1, the first Manhattan Transcript, is an exploration of Fredrick Law Olmsted's Central Park. Tschumi links the architectural space of the park to the most extreme program of a murder and detective story. Tschumi's fictional murder plot program is part of the architectural space. He explains, "The formula plot of the murder is juxtaposed with an architecture inextricably linked to the extreme action it witnesses." (Tschumi pg 8) He uses this intense example to illustrate the links between architectural program and architectural space: "There, attitudes, plans, notations and movements are indissolubly linked. Only together do they define the architectural space of 'The Park.'" (Tschumi pg 8) Tschumi is developing cartography where plan and architectural spaces are not separated from the human activity and program of spaces they contain. This is an important cartography in light of the theories that cognitive maps are composed of both spatial and event information.

"The Manhattan Transcripts are not a random accumulation of events; they display a particular organization. Their chief characteristic is the sequence, a composite succession of frames that confronts spaces, movements, and events, each with its own combinatory structure and inherent set of rules. (Tschumi, pg 11)"

The sequences in MT1 are linear. The "frozen" moment scenes are framed by a square border, which has the effect of taking the most critical aspect out of a larger scene. Tschumi uses the analogy of movie notation to describe the scene changes. The notation of events in MT1 comes in three modes: events, spaces and movements. This allows Tschumi to draw connections between human actions as captured by photography. He links this with architectural spaces as described by plan, perspective and axonometric. These drawings follow, but occasionally question the logic of architectural drawing. Tschumi uses a movement notation which is drawn to "eliminate preconceived meaning of particular actions, so as to concentrate on their spatial effects." (Tschumi, pg 11) Tschumi tries to create a notational language that shows the spatial movement of people through space. "...as if the dancer had been carving space out of a pliable substance." (Tschumi, pg 11) Tschumi attempts to link the three modes of architectural thought through the use of sequence.
The mapping system that Tschumi is exploring is difficult to interpret without an a priori understanding of his theoretical positions. Unlike Halprin, Tschumi is not just inventing an interpretable mapping system, but is also exploring ideas about fragmentation, program, and events. Also, he questions the effectiveness of conventional architectural graphics. The mapping system must work hard to contain all of these facets. However, given the complexity of Tschumi’s ideas, the above graphic manages to capture and convey a great deal about space and program. The mapping system itself is a clear method of linking spaces, program, and movement through a sequence. MTI links the need for sequence of spaces as expressed by Cullen and explores an architectural vocabulary of movement called for by Halprin. Mapping a program as intense and random as a murder and subsequent detective story would appeal to the Situationist authors of ‘The Naked City Map of Paris.’

Tschumi uses the maps of the Manhattan Transcripts to develop and express his urban design theories. He uses his mapping system to apprehend both the spaces and the drama of human life. The Manhattan Transcripts act as maps and are meant to be used as a reduction device for complexity. Tschumi admits that the Manhattan Transcripts are “literally a work in progress.” He is using the maps to explore ideas about space. They do not “read well” in that their meaning is immediately clear, like an advertisement for soap. Tschumi’s maps are complex, but interpretable like a topographic map. They represent a personal mapping style that is not necessarily intended for emulation. He alone can be the cartographer. However, his personal search to express the city and its inhabitants introduces a powerful new vocabulary in the search for new methods of representation of urban life.

Bernard Tschumi is known equally for his architectural practice and his theoretical writings. The difference between Tschumi’s Manhattan Transcripts and methods of the other designers and urbanists in this study is that Tschumi’s mapping takes place in real spaces, but includes imagined programmatic events. “The Transcripts always presupposes a reality already in existence, a reality waiting to be de-constructed.” (Tschumi pg 8) Tschumi needs a mapping system to study this reality so he can support his design position as a deconstructionist. His system of design is to observe architectural norms in order to recompose them. Tschumi’s mapping of space includes both literal spaces and also a fictional architectural narrative interpretation. Tschumi uses the Manhattan Transcripts to explore his own ideas of programmatic events occurring within real spaces. His cartographic exploration is as much about charting his own reflections on space as it is about charting the spaces themselves. The importance of the Manhattan Transcripts is not in the events and spaces they chart, but in the development of a new cartographic language for spatial and program charting. Tschumi develops the language to represent things that cannot be represented by conventional architectural graphics. Through the Transcripts, Tschumi is searching for tools. Tschumi describes some of his goals for the Transcripts in this statement:

Their explicit purpose is to transcribe things normally removed from conventional architectural representation, namely the complex relationship between spaces and their use; between the set and the scripts; between ‘type’ and ‘program’; between objects and events. Their implicit purpose has to do with the twentieth-century city. (Tschumi, pg 7)

Tschumi uses the Manhattan Transcripts to explore the complex nature of the city as well as his own mental understanding of urban spaces. In the Transcripts, he develops a language of spatial exploration that sharpens his understanding of the contemporary city and fuels his design. Tschumi tells us that without the techniques developed in the Manhattan Transcripts, his designs would be different, because they would derive from a different process.

The themes developed in the Manhattan Transcripts have informed much of our subsequent work. Neither the Parc de la Villette nor Le Fresnoy could have existed without the Transcripts. (Tschumi, pg XXX)
Understanding the operation of cinema helps Tschumi transfer those ideas to landscape in the cinematically inspired site element: the covered walkway. This site element facilitates a movie-like sequential viewing of the Parc de la Villette.

This strategy implied considering a pre-existing spatial organization model which could then be adapted or transformed in the manner that Joyce transformed Homer’s Odyssey. This method had already been applied in MT1 (The Park) in which Central Park acts as the original or hypotext for the contemporary hypertext of the Transcripts. (Tschumi pg 17, Arquitectura 1988.)

Tschumi used his study of Central Park to inform his design in Paris. In order to deconstruct and recompose his design, Tschumi needed an existing model to study. Tschumi considered the MT as a method of mapping an existing space in order to inform design. He is comfortable with a subjective interpretation of Central Park, because the creative subjectivity is allowing him to develop his theoretical ideas and design visions that will inform the development of his built work. His methods of creatively mapping and interpreting city spaces help develop the theory that will inform his design concepts and provide him raw material for his deconstructivist design position.

A strategy Tschumi considers in the development of the Parc de la Villette is the deconstruction of Central Park. His study of Central Park allows him to explore that option. The quote above shows his increasing development of transferring cinematic ideas to paper media in the MT and then to landscape.
When you really travel, your eyes and through them your mind, take on an unsuspected power. We learn hugely and what we learn reappears, dissolved in the lines, which we later draw. (Siza pg 113)

This quote illustrates his ability to use drawing as a way of learning and understanding rather than just articulating a preformed image. He is illustrating a thoughtful method of using drawing as a way of seeing. Siza understands the need for architects to communicate with themselves and express their perceptions of site. The following quote illustrates the position drawing has in Siza’s design process. It represents an attempt at discerning reality, prior to overlaying a new reality: “On the first rather disappointing visits to the site a sketch was produced with the aim of accepting the reality of that street.” (Siza, pg 160) Drawing for Siza is both a tool and an alternative form of communication that attempts to describe how one sees the spatial environment. Siza talks about drawing as a tool that directly aids the mind in understanding.

When you really travel, your eyes and through them your mind, take on an unsuspected power. We learn hugely and what we learn reappears, dissolved in the lines, which we later draw. (Siza pg 113)

Siza has a technique of sometimes placing himself within the image. This is a boldly honest display of his subjectivity. Siza is aware of his subjectivity and even claims in his notes “…not much time, not much subjectivity in writing as in designing.” (Siza pg113) The quote above shows that Siza recognizes that the designer is not a “scientific” observer of terrain; he acknowledges that he must observe in order to transform.
The swimming pool, planned later, was designed like a ruin invented from the memory of many things that belonged to the Minho landscape and also other landscapes. It is oriented along the route of the sun, and is intended to relate to everything that surrounds it—old and new—as though it were an intermediary or possible synthesis. (Siza, Pg 159)

Siza links drawing to understanding. He uses drawing as a mnemonic device in the design process. Siza uses his knowledge of spatial schemas he has drawn in the past and brings them into his designs. He employs drawing as a tool to understand the present conditions of the site and as a method of transforming them in his mind.

Siza was commissioned to develop a “new town quarter” for the town of Evora, Portugal. The intent was to develop a modern quarter that would reflect and compliment the old town. Siza first began to understand the context of the old town in order to tailor the new development. His drawing approach is highly imaginative and clearly shows the spatial arrangement of the old town, but connotes a sense of change. He recognizes his role as an active observer who will soon tamper with the existing fabric of the city or landscape. In the drawing below he includes himself (or an archetypal image of himself) in the image of the city for which he is beginning to design an addition. In the quote on the following page, Siza describes the drawing.

He is aware of his own subjectivity. This also may be valuable to him in developing his own ideas about the cognitive map. It is not enough for him to be aware of his spatial schema, but he must know about his relationship to the objects in the schema. This fact moves him from observer to active participant in the environment. His drawings often include his hands or feet, such as the drawing on the right.

This shows Siza’s ability to provide an image of how he sees the spatial environment, but also shows his awareness of his relationship to that environment and how he occupies space. This technique is similar to what the artist, David Hockney does with photographs. By placing something of themselves in the image, Hockney and Siza create a sense of scale and distance between the view and the viewed. Siza uses drawing as an extension of his powers of perception and memory. These perceptions serve him in understanding a site’s context prior to design development. The drawings aid his memory bank of spatial arrangements and other solutions to physical problems.

Siza draws to understand, but also to sharpen his mnemonic cache of spatial schemas. In the passage below, Siza describes how his design is generated from his memory of landscape forms. He seems to take images and arrangements from his memory and weave them into the existing reality of the site.
The drawing shows the architect commissioned to plan a site next to the town wall of Evora. He observes and records the crystalline profile of the town. He is probably reflecting on what he is going to superimpose on this profile, how he will plough the soil with streets, channels, energy... The whole world and the whole memory of the world are continuously designing the city. (Siza, Pg 177)

This drawing is interesting because it is drawn with several intents. The drawing illustrates Siza’s mental scrutiny of the town’s plan prior to the design stage. He encompasses his image of the town in a mental fly-over to create a spatial image of the town to which he will later add. He then draws an image of himself as some sort of demi-god looking over the town. He writes about this image in detached terms, referring to it as “the architect.” He recognizes the fuss and imposition on the landscape and is ironically commenting on his role as he states, “all this disturbs simple ideas with ridges and bulging surfaces.” (Siza, pg 177) He is drawing with an intent to understand the landscape, but with the knowledge that he must transform it. Through this he is also commenting on the objective and subjective relationship of the observer to the observed. Perhaps he is commenting that designers cannot be objective observers, because of the transformations they are commissioned to bring about.

Siza designed the new town quarter of Evora after making hundreds of sketches depicting the existing character of the old town, such as the drawing featured on the right. The sketches ranged from aerial overhands to detailed sketches of people. Drawing was the principal medium for Siza’s understanding of context. The sketching continued through the design and construction stage, until the project was completed. The results, as depicted by the picture on the next page, are meant to be a composite between regional idiom, the principles of modernism, and the architect’s vision.

The new town quarter is meant to be wholly modern, but also an outgrowth of the regional built environment and landscape. The pattern of clustered houses looks familiar to the earlier sketches of Evora. The geometry of modern development fits with the context of the old. Siza develops his understanding of context through his sketches, then imaginatively overlays his transformative designs. Siza used drawing, especially aerial drawing, to gain a gestalt understanding of the nature of the city prior to design. He also used drawing to map spatial arrangements of existing towns in order to feed future designs. Drawing was his method of understanding the world and representing his view of space. Drawing both articulated and developed his cognitive map.
William Rees Morrish: Simplifying Terrain

Rather than express the complexity of cities or experience of sequence like Tschumi, Cullen or Siza, William Rees Morrish boils the complexity of landscape down to a more basic level as he looks at the essential relationships between human culture and landscape form. In *Civilizing Terrains*, William Morrish takes a single issue of a city’s cultural connection to mountains and compares it across many different landscapes. His argument for a geomorphic placed-based built environment is constructed primarily through spatial diagrams. His graphic style supports his thesis through illustrating a simple diagrammatic spatial schema. Morrish employs a loose, straightforward, and powerful graphic style in order to show the traditional connection between cities and the landscapes in which they exist. His style of drawing is a search for essential qualities of a landscape that may drive the design concept and develop a placed-based design.

This investigation is a first step in response to these questions [of placed base design that responds to geomorphic resources]. The study is a lateral exploration, investigating historical roots and contemporary expressions of the role that the *earth* and *sacred mountain* play in the formation of urban space... It is proposed that this study will illustrate some basic notions of the origins of integrating the land and built form together into a comprehensible urban terrain. (Morrish, pg iv)

Morish’s drawings are clearly maps meant to show the relationships he sees in the environment. While they cannot be mistaken for a literal reality, these images show how Morish views space and its many components. In *Civilizing Terrains*, Morish removes the cacophony of urbanism and the accretion of history to show the quiet drama between the landscape and the city. The next page shows examples of his technique.

In the drawings to the left, Morish reduces the complexity of the city to simple landscape relationships. Even Manhattan is transformed into simple, primal forms that illustrate the meaning of the man-made monoliths. Morrish’s analytical technique, though in some ways similar, is fundamentally different from Ian McHarg’s layer cake analysis of the influential landscape architect Ian McHarg. Morrish may use graphics to separate out aspects of the landscape and the built environment, but the intent behind the graphic separation is to show the relationships and interconnectivity. Morrish illustrates that his advanced abilities to show cognitive vision goes beyond how the landscape appears, in that it includes a fully three-dimensional, creative image of space which breaks down complex relationships.

Though his technique is excellent for diagramming a limited number of relationships, it effectively edits out volumes. The relationship between Morrish as a cartographer and the subject is clear. With his maps, Morrish wishes to investigate one or two simple relationships in the landscape. Maps or aspects of the sites that do not enter into the limited relationship are edited out. His technique is especially suited for comparing one aspect across a variety of landscapes, such as in *Civilizing Terrains* where he studies a city’s cultural relationship to its topography.
Observation on Explorations and A Cartography of Mind

The requirement that designers recognize the perceptual qualities of space opens urban cartography to a world of poorly understood but vital facets of the experience of the city. Complicating the matter is the fact that designers and some artists are some of the only professionals working to understand the psychological aspects of the city. “Place” in the city is more than just its spatial aspects. Designers like Tschumi believe that architectural space cannot be separated from the program of human events. Halprin sees the city in terms of the political, social and psychological health of its people. The Situationists try to understand urban districts in terms of emotion and ambiance. Cullen reads the quiet drama of city space. Morrish is interested in understanding the cultural relationship of landscape form to city. The need to understand the perceptual qualities of space is hampered by the unavailability of tools and the fact that the denizens of the city tend not to “know their own mind,” when it comes to understanding the spaces they inhabit. Designers know that they must come to an understanding of the perceptual qualities of space before they design for it. Often this understanding can drive the design. Designers need to understand the tools they use to map city spaces or they risk becoming lost in the realm of possibility. The hardest part of mapping is knowing where to stop.

The authors studied in Explorations are successful because they have a thorough understanding of their mapping tools. Because of the lack of development in the area of perceptual mapping and the vastness of the mental terrain, the authors have had to creatively design their own maps to suit their needs. They know how to use their maps to chart their own perceptions of the city and to relate their understanding of the perceptual qualities to others. The authors use a variety of different operations for understanding city spaces. They base their methods on their understanding of particular space and often adapt their mapping style to suit the location that best corresponds to their philosophical position. This ability to adapt to new spatial scenarios shows these authors’ mental flexibility. The strength of their mapping styles is an ability to accommodate change while not getting lost in the complexities of the city.

Following the example in the Explorations study, I developed a separate folio of drawings (now included in this text) which I called A Cartography of Mind. These drawings articulate my own operations for understanding city spaces. I have tried to understand the methods of spatial and perceptual understanding of the authors in Explorations and then tested and filtered their operations through my own style of drawing. The authors that I’ve studied in Explorations inspire the operations for my understanding of space. In A Cartography of Mind, I try to track the influences of the authors in order to better understand the perceptual filters I am setting for myself. Each drawing follows a different logic for understanding space. The differences represent both a need to experiment with various modes, as well as to recognize that certain operations might not be suitable for certain spaces.

I used the Rhizomatic Map shown on the following page from a Cartography of Mind to draw connections between the scenes I observed on a walk through downtown Montreal. In the Rhizomatic Map, everything had potential importance. This map represents an attempt at a phenomenological investigation of Montreal. A question that arose from this method is what provokes drawing of the image? What interests me about a scene enough to want to draw? I recognized that this map could be calibrated for a free format phenomenological approach or that it could be based on a categorical understanding of the city, where an observed category “triggers” the sketch. The Rhizomatic Map is an attempt to collect the chaotic experience of the pedestrian and link that experience through framed sequences. The triangular frame for the sequences is inspired by Bernard Tschumi. Tschumi states that “Transformational sequences tend to rely on the use of devices or rules of transformation such as compression, rotation, insertion and transference.” (Tschumi, pg 154) I used the idea that the frames of sequences were derived from folding. To me this implied a unity of experience of the city beyond the device of the fold and the image sketched on the page.
The Rhizomatic map represents the sequences formed by a 24 hour period of walking and sketching in the City of Montreal. The framing device is folding. The frames of the map point to compass directions. Each “branch” of the map represents scenes selected from the different districts of the city. The scenes are drawn based on curiosity about people or architectural spaces. To determine the direction of the walks, I moved towards areas that seemed to contain an interesting liveliness or ambiance. Any frame in the map could connect to another potential sequence.
I experimented mapping a temporal event, the International Festival in Blacksburg, shown on
following page. The image on the page represents a larger world, which was made interpretable
by the origami-like folds of the map. The drawings to the right and below, "the Snowball Se-
quence," and the "Coffee/Train" represent attempts to display a sequence of events. I applied this
technique to understanding the sequences in urban environments. The Rhizomatic Map also
follows the advice of Cullen, when he shows that city is made interpretable through the sequence.
The Rhizomatic map implies that each frame of the sequence is connectable to another set of
sequences. This design is meant to represent the interconnectedness of the city.

These images are attempts to develop a graphic vocabulary which can show a sequence of
events. These exercises inform my understanding of city sequences. The framing device used to
show a change in scene is inspired from the folded paper. The framing device shows the
dynamic intensity of the action within the scene. With this technique we can imagine there is a
larger scene, a unity of image, but it can only be ordered and interpreted through the sequential
device of the folding.

Coffee/Train Sequence

The Snowball Sequence

Fig. 27 “Coffee Train Sequence” by Author

Fig. 28 “Snowball Sequence” by Author
Anomalous Temporal Map:  
International Fest Map on College Avenue  
5/4/03  
Fig 29. International Festival Rhizomatic Map

This map documents an event which only occurs once in time. The action is defined by an occupation of space. This map shows an alternate reality of the normal functions of a College Avenue.
This technique was not appropriate for use in a charrette on recording the experiential qualities of Lawrence Halprin’s fountain in the Richmond Art Museum. Instead, I used a style of mapping I called In-the-Round Map, which tried to incorporate a unity of the space of the architecture and landscape architecture, shown on the left. I decided that a sequence was not the most important element to use in understanding the space. In fact, solitary drawing might not have been the best operation. As I show in Explorations, Halprin was concerned with participatory mapping. Solitary drawing can remove one from the action. In the charrette, I sensed that during the course of my drawing the space, I had become removed from experiencing the site with other people. I then switched to a participatory method of mapping the experience that was more in the spirit of Halprin’s.

Figure 30. Map of Lafayette Loggia

Whenever possible, participatory mapping offers real potential to gain insight into a group’s perceptual understanding of space. It also has the added bonus of bringing people into the design process and educating them on the potentials for shaping the city. The difficulty is retaining an openness to people’s interpretations of space while collecting a data set that can be interpreted to combine into an accurate map. Having a simple system is also an issue. Halprin’s “RSVP Cycles,” are well formed, but would require an extended explanation to a general audience. Halprin overcomes this by becoming the guide, or conductor, of participatory mapping exercises. He creates situations where people are compelled to articulate their responses to place. Halprin records the responses to place and charts the various participants’ reactions into a large map.

Figure 31. In the round Map
Recognizing that most of my drawings are complex and virtually unrepeatable, I developed a method of charting knowledge that could be applied to participatory mapping. I produced the “Nega Map,” shown below, by cutting out the unknown areas of a town with a razor. After cutting out the areas of Blacksburg, VA. that were unknown I was able to represent areas that I am actually familiar with. The Nega Map records some interesting patterns of where I walk and drive. It shows the complexity of experience beyond the work, school, and home triangle. I was inspired to create the Nega map while simultaneously studying the Situationist’s “Naked City” map and seeing studio mate Matt Johnston’s poster of Floyd, Virginia. This poster showed a topo map cut to represent the crossroads of Floyd. I realized that Johnston had shown what he really knows about Floyd by negating everything but the road system.

Nega Maps This series of maps is formed by cutting out areas on conventional maps where I have no direct experiential knowledge. These cut out areas represent zones outside of my cognitive map of Blacksburg. What is represented on the remaining maps is the terrain I am familiar with. The beauty of this concept is its ease, anyone could dissect a map and represent the terra incognita of their hometown.
In a participatory mapping exercise, one could distribute readily available photocopies of conventional maps and ask participants to cut out the areas with which they are not familiar. These maps could be compared and even overlaid to determine areas within the participant’s zones of perception. This style of mapping could also be useful in a Halprin style “City Map,” exercise or a Situationist style derive’. The participants could chart the paths they travel and the nodes where one stops by cutting out areas that they don’t travel through. The “Nega” style of map making could also give cartographers information about viewsheds with the use of topographical maps. Nega Maps could also show links between cognition and map style. A test could be developed to give a participant several styles of maps of the same area to determine which maps produced fewer cut-outs, or unknown areas. This could give information about how different maps styles spark recognition of place.

I attempted to create a movement notation, but based on an image rather than a chart. I use the idea of footprints in the snow and lines indicating step to show movement and time passing. These drawings below develop a vocabulary of movement in an image.

Motion Studies: These drawings represent attempts to develop a notation system for motion. This system is parting from the “frozen moment” sketch. The idea behind the notation is as if the subject in the sketch is stepping through snow and leaving tracks. Like musical notations, these “tracks” could be made to show the tempo of walks through the city. Lines connecting the tracks follow the subject to attempt to illustrate the dynamics of movement. The sketch below is of an old man, moving slowly through the streets of the old town in Montreal. The subject was originally drawn in architectonic space, but was removed and simplified for experimental purposes. The sketch on the left is mapping the movements of a student as they document the experience of Halprin’s courtyard in Richmond. The architectonic space is only suggested, but could be fully represented.

In a participatory mapping exercise, one could distribute readily available photocopies of conventional maps and ask participants to cut out the areas with which they are not familiar. These maps could be compared and even overlaid to determine areas within the participant’s zones of perception. This style of mapping could also be useful in a Halprin style “City Map,” exercise or a Situationist style derive’. The participants could chart the paths they travel and the nodes where one stops by cutting out areas that they don’t travel through. The “Nega” style of map making could also give cartographers information about viewsheds with the use of topographical maps. Nega Maps could also show links between cognition and map style. A test could be developed to give a participant several styles of maps of the same area to determine which maps produced fewer cut-outs, or unknown areas. This could give information about how different maps styles spark recognition of place.

Fig. 33. Movement Study

Fig. 34 Motion Study of old man in Montreal
The essence of the map is in the reduction of complexity. William Morrish’s maps simply and beautifully illustrate the relationships he is trying to understand. I developed a Morrish style map of Montreal, shown below of *A Cartography of Mind*, after diving into the complexity of urban city sequences in the *Rhizomatic Map* of Montreal. The Morrish Map smoothed out the complexities of the city and allowed me to focus on the essential landscape relationships of the island, the city grid of Montreal and Mont Royal. The lyrical quality of Morrish’s written notes inspired me to simplify the attendant text on my map to the most essential information.

**Fig. 35 Essential Landscape of Montreal Map**

This map acts as a crucible to simplify the complexity of the city’s many elements. The map boils down the city’s relationship to the dominant natural elements: sun, moon, mountain and water.

Montreal has evolved within the boundaries of water. This fact puts it into a small class of island cities. The matrix of the city revolves around the mountain. Mont Royal. When the city glows at night, the mountain becomes an island of darkness. The roads, and attendant architecture, align in obedience to the mountain. The mountain belittles the skyscrapers, the tops of which can be viewed at eye level through a screen of trees. The mountain orients the island. Direction can be determined in relation to the position of the mountain and the water.
In order to test the accumulated experience gained from my studies in *Explorations* and practice in *A Cartography of Mind*, I decided to map the Carpenter Center, the only American building of famed architect Le Corbusier. I had drawn the building as an architecture student in Boston four years before. At that time, I had drawn it as an object floating on the page. It was clearly not a map, but a mental tracing of a captivating urban sculpture. This drawing from four years earlier is a good datum line with which I can observe my new understandings of space.

I went to Boston without any preconceived notions on how to map the Carpenter Center. One of the many interesting features of this building is that Le Corbusier designed a gently arcing ramp to bring the pedestrian from the Cambridge sidewalk into the middle of the building, where the pedestrian can observe the inner workings of the art workshops and galleries can be observed. The ramp descends to the street on the opposite side of the building. The sequence of spaces in the Carpenter Center seemed to have unified cinematic experience. Mapping this building with the fragmented sequences of the Rhizomatic Map would have been inappropriate. The sequence one experiences while walking through the Carpenter Center had a dramatic emotional intensity that seemed almost cinematic. This was suited to Cullen’s reading of urban spaces. I sketched the sequences of the spaces while thinking of Cullen’s methods. Keeping in mind Tschumi’s theories about rules for the transformation of sequences, I used a framing device inspired by Appleyard’s “Intensity Structure” diagrams. The resulting map, on the right, shows the sequences within a framing device that expresses the experiential qualities of the walk-through of the building.
The combined approach of *Explorations* and *A Cartography of Mind* has allowed me to delve into methods of some of the “early explorers” of perceptual mapping. My own understanding of these authors has improved by putting their ideas to work in the course of my own mapping of spaces. Mapping spaces myself engages me in a dialog with the authors using their chosen medium. The study of the authors in *Explorations* increases the investigative rigor of my own mapping systems. It sometimes widens my perception and opens possible urban relationships that can be explored through mapping. The process of studying these authors and developing these techniques also allowed me to make instructive mistakes in mapping that provoke questions as to how my perception or expression could be improved. This process makes me question how tools are used to chart the environment.

The method of combining academic study with drawing and mapping practice allows me to understand the authors’ messages by using their media. One of the conclusions I have gained from my work in the *Cartography of Mind*, is that to map a site, no matter how general the study, one should keep two things in mind; “intent” and “operation.” Intent is what to map; operation is how to map it. Operations are self imposed rules that guide the making of the map. The operation can be an assumption, such as that contour lines suggest elevation changes in topographic maps. In the case of the maps in the *Cartography of Mind*, the operations can stem from subjective perceptual understandings of spaces. Examples of “operations for understanding” in *Cartography of Mind* include: folding, where one scene is folded into another to represent change with continuity: compression and expansion, as in the Cullen and Appleyard inspired *Intensity Map* on the previous page. These operations are the foundations of mapping and give a starting point to begin to understand and distill the complexities of perceptual space. Each of the designers studied in this position paper have developed their own operations for understanding space that allow them to begin to map the characteristics of space and the people within it. This mapping has allowed the designers to order and strengthen their perceptions, because they have found methods of visually composing their perceptions. These maps inform and have the ability to generate their design ideas.

This study gives me a range of options and choices of tools to begin to map the perceptual qualities of Pittsburgh, PA. However, as Kevin Lynch warns perceptual cartographers of urban environments, apprehending the image of the city does not dictate the design.

The image of the site guides the design. It does not dictate the design. However, nor is there any unique solution latent in the site waiting to be uncovered. The plan develops from the creative effort of the designer himself, but he must respond to the site not disregard it. (Kevin Lynch, *Site Planning*, pg 286)

A good designer will be informed by a site’s perceptual qualities and will draw on them for inspiration for the design of the site. The inspiration comes from the designer’s view of the site, not from the site itself. Therefore it is important to be as creative and rigorous in the investigative process as one is in the design phase.

A design position is a theoretical basis for action, just as knowledge of the tool dictates how that tool is used. Understanding the important role perceptual mapping can play in the urban design process should show how tools of perception can affect the design of city spaces in the next phase of this thesis. The importance of this study is to understand how other designers have used mapping to help fuel their designs. Design is inherently subjective. The designers studied explore a missing link between objective analysis and design. This link seems to be a creative analytical path. It is subjective, but designers establish internal rules to guide their analysis. Creative analysis allows designers to explore the context of their sites and to derive appropriate designs that are signatures of their design abilities, as well as indicators of the powers of perception they record and develop through mapping. This approach strengthens their designs by tying them into some aspect of the place. Their analysis is seen as creative and rigorous as their physical designs.
The methods of analysis used by Kevin Lynch have endured over the past forty years because they are grounded in good social science. Lynch has taken anthropological techniques and applied them to the study of cities. These techniques allow the user of Lynch’s perceptual analysis to gain information about the general nature of an urban district’s environmental cues and assess their quality. This gives the users of these techniques an image of the city. These techniques work because they are repeatable by others, giving them external validity. It is sometimes possible to establish external validity with some creative analytical techniques discussed in this paper; but, it is not always necessary or possible, because the techniques are usually derived from the designer’s representational ability and particular theoretical insight.

At some point, subjectivity is acceptable to the designer. An engineer may seek an objective scientific design, but designers tend to believe that when designing for humans, all factors are not knowable. Creative mapping allows designers to take an aspect of place that they feel is important, and attempt to understand it through their own unique abilities. This informs design and can possibly drive the design, depending on the discretion of the designer.

The design is not solely a formal entity and is typically thought by designers to have both a program comprising the human activity anticipated for the site, and the physical design features, which are composed of material choices and spatial manipulation. In my design I will demonstrate how the traditional objective analyses proposed by Lynch and other urban designers can be used to determine the appropriateness of the program for the site. Creative mapping can be used to support the traditional analysis when it attempts to evaluate the quality of environmental images, such as paths, edges, landmarks and nodes found in the Lynchian system. The design phase of my work will show how creative analysis can be used to support the findings of the traditional analysis. Several of the mapping techniques attempt to capture the experience of pedestrians through graphic representation. These should be useful in supplementing the static, plan view of the traditional analysis.

The potential of creative analysis is to aid the designer in developing a contextual design. Designers can use mapping techniques to develop their ideas about the spatial and physical make up of place. They can use this information to pull physical and spatial characteristics of place into a design. The value of drawing over photography is that one can draw the unseen. Maps can chart zones of Parisian ambiance as in Debord and Jorn’s Map of Paris, movement like Halprin’s Motation studies, or urban drama like Cullen’s studies. Designers can map emotional nuances of the neighborhood that cannot be scientifically described or photographed but nonetheless exist and form place. Creative mapping can suggest design and even drive it. Bernard Tschumi’s Manhattan Transcripts enabled the design of Parc de la Villette. His creative analysis was driven by his de-constructivist design position. His deconstruction of Central Park and analysis of la Villette site generated his design ideas. My design work will demonstrate how creative mapping of the neighborhood can lead to a contextual design for my site. In my site in Pittsburgh, I will use creative mapping techniques to “fill in the blank spots,” and support conventional methods of mapping place in the city. My design study will show how I can use creative mapping to discover and draw conclusions about specific physical and perceptual aspects, such as important environmental images, of the study neighborhood that may be important to my design. My mapping study will also lead me to themes in the neighborhood that will be valuable in deriving a design concept. These maps will be a framework for charting the terra incognita of place.
From the first time I visited Pittsburgh and experienced the city’s urban entry sequence, I realized that this was a city that could not merely be represented in plan-view mapping. My main activity on my first meeting with Pittsburgh was walking endlessly through neighborhoods and city spaces with friends and artists from Carnegie Mellon University. The small groups I wandered with were very familiar with the Situationist’s ideas of the dérive, referenced in my position paper. We wandered freely through the city without a fixed destination. We also discussed townscape appreciation in terms that Gordon Cullen would appreciate. I later read *The Mysteries of Pittsburgh* by Michael Chabon. His character’s favorite occupations were strolling through Pittsburgh neighborhoods and discussing the dramas of the city.

Pittsburgh has hidden neighborhoods and neighborhoods which cling to the sides of hills or reside under tall bridges. The architectural story of Pittsburgh is the story of building on steep slopes. The city is an architectural response to topography. The city government’s promotional map (see appendix) tries to counter this flat-projection defying topography by producing a bird’s-eye view map of the city. This map works fairly well for guiding tourists to major tourist attractions and city icons, but even the bird’s-eye view projection is confusing and inaccurate when trying to get a sense of the city. It is clear that no conventional map could do Pittsburgh justice. Because of its intense blend of architecture and topography, Pittsburgh seemed to call for an alternative mapping, which could begin to interpret what makes Pittsburgh such a unique place among the cities of the world. The difficulty of mapping this city through conventional methods makes it ripe for study using the methods and techniques developed in my position paper. Mapping the city itself requires techniques not found in my position paper; rather it requires a synthesis of several techniques. My position paper will provide the launch pad for any new methods of mapping space.

**Revitalization Strategies**

Pittsburgh is famous as a gritty, rust-belt post-industrial city. Despite, or because of this, artists are attracted to the city because of its aesthetics and its depressed housing market. Where an artist could work as a waiter in New York and rent a sub-standard apartment, they could easily buy a home or studio in Pittsburgh. Pittsburgh is conveniently located five hours away from New York and is near other major cities in both the mid-west and eastern seaboard. There is also an intellectual infrastructure in Pittsburgh, which includes Carnegie Mellon University and University of Pittsburgh. These universities are leaders in technological innovation and have impacts on the local economy.

Despite its assets, the City of Pittsburgh is bankrupt. One of the hopes for revitalization of the city is in what is termed “cultural industries.” Pittsburgh is acting on a long-standing plan to develop the riverfront and the downtown. According to a article in the *New York Times* dated 3/7/2000 entitled “Buttressing the City with the Arts” by Paula Dietz, the City has pursued a policy of economic revitalization through recreational and artistic catalysts. It has attracted top designers like Landscape Architect Michael Van Valkenburg and others to design segments of the urban waterfront. Architect Michael Graves has been commissioned to design a new theater for the city. The Warhol Museum is an important attraction. The city and private corporations commission artists like Louis Bourgeois to design urban plaza sculpture. The goals of the city are to attract tourists, to foster a sense of vitality to attract businesses, to develop businesses around these attractions and to retain young professionals within the city.
The city of Pittsburgh, Pennsylvania dates back to the 1700’s when it began its life as a frontier outpost. It became famous for manufacture of steel and infamous for its pollution. The city core originates from the river valley. It is formed by the confluence of the Monongahela and the Allegheny Rivers, which form the Ohio River. The surrounding topography, outlined in dark green on the adjacent map, is dramatic and features high cliffs and unbuildable slopes. Few cities in the world feature nearby mountains that can be viewed on equal plane to the skyscrapers and Pittsburgh is one of them. The Mexican War Streets neighborhood lies to the North of the downtown core. It is in an area which features nearby cultural attractions, like the Stadium and the river walk, the National Aviary, the Warhol Museum, the Mattress Factory contemporary art museum and West Park. Despite its cultural riches the north side neighborhoods and the Mexican War Streets are considered by the city and Pittsburgh Gazette to be economically blighted.
The Mexican War Streets neighborhood partially occupies bluffs overlooking the city, but its view of the river is blocked by major buildings.
The Mattress Factory

Inserted into this mix of cultural industries and icons of the city is the Mattress Factory. The Mattress Factory lies on the North Side of the city. In contrast with its neighbor half a mile to the South, the Warhol Museum, the Mattress Factory was conceived as an anti-museum. The Mattress Factory was established by Barbara Luderowski in 1977, when she purchased an old mattress factory in a run-down neighborhood called the Mexican War Streets. She and her partner Michael Olijnyk developed the Mattress Factory to be a world famous gallery for installation art. The Mattress Factory became renowned for its daring shows and talent. Olijnyk is quoted in the Pittsburgh Post Gazette 9/18/2002:

“Someone’s coming to this neighborhood that doesn’t look like a museum neighborhood, to a building that doesn’t look like a museum—that doesn’t really have a front door.” (Michael Olijnyk, curator of Mattress Factory.)

The Mattress Factory takes pride in being outside the “system” of cultural industry and seems to enjoy being different. The only way to find the Mattress Factory is through signage. There is no obvious frontage for the building and no apparent entry. This contributes to the ambiance of the Mattress Factory and its pseudo-underground feel. According to the Mattress Factory Website (www.mattress.org) and the Pittsburgh Business Times article of 2/9/01 “Not Lying Down,” the museum hosts around 30,000 visitors a year. The Mattress Factory is also known for its young, Generation X, volunteers and employees. I met two staff members, Maggie and Peter, at parties in an Pittsburgh neighborhood after an MFA show at Carnegie Mellon. They seemed very proud of their association with the museum and were dedicated to the Mattress Factory. The article and other sources describe Luderowski as a strong, committed personality who delights in taking on the improbable.

The Mexican War Streets Neighborhood

The neighborhood where the Mattress Factory resides is a historic neighborhood which was first laid out in the 1840’s following the Spanish American War. The streets were named for battles or political figures during that period. The neighborhood rests on a slope under a steep hill and features a broad range of Victorian row houses. The street pattern was completely established in the boom period of the 1870’s and did not significantly change over the next hundred years. The neighborhood is currently roughly composed of half African American residents and half European American residents. (See Perceptual Analysis: Neighborhood Statistics.) The architectural and topographical qualities of the neighborhood make it an aesthetically interesting place to live. These aesthetic and physical qualities served to draw Luderowski to the neighborhood in 1977 and continue to draw new residents to the neighborhood.

The Mattress Factory seems to realize that part of the success of fund-raising and thus the future of the Mattress Factory is contingent on integrating with the community and drawing in new visitors and volunteers. The Mattress Factory does many outreach programs with local school groups. I witnessed several school groups being led on art discovery programs, called Art Labs, by my contact, Maggie. Simultaneously with the school groups a yoga class of Pittsburghers was being conducted to the sound of live crystal bowl players.

Luderowski and Olijnyk pursued a policy of buying row-houses in the neighborhood and installing artists-in-residence. The Mattress Factor now owns about 6-10 row houses in the Mexican War Streets. The housing and studio space is used as an incentive to draw prominent artists. Though a small portion of the neighborhood, these houses and artist residents contribute to the vitality of the neighborhood. Despite its renown, the Mattress Factory is conducting a campaign to raise money for building and salaries. According to the Pittsburgh Business Times article, the Mattress Factory wishes “…to augment its budget and make itself more attractive to corporations that fund its endeavors.” Money-raising is an issue the Mattress Factory faces.
According to the 2000 Census the population of the neighborhood is about 3200 and is comprised of about half male and half female residents. There are 1,992 housing units in the neighborhood. The majority are rental units and 440 are vacant. Vacancies and rental units may add to the perception of the Mexican War Streets being a struggling neighborhood.

The majority population of the Mexican War Streets is of African origin. Residents of European origin make up the largest minority population. There is a comparatively small population of residents with a Hispanic or Asian origin.

The Mexican War Streets neighborhood is very diverse in both its population and their living situation.
During both weekdays and weekends the Mattress Factory is a hive of artistic activity. Fewer inroads have been made into the immediate community of the Mexican War Streets. Maggie tells me that the Mattress Factory attempted to hold an Art Lab for the neighborhood at the local Jefferson Activity Center (see Perceptual Analysis: Activity Nodes). The neighborhood outreach drew almost no participants from the community.

The Pittsburgh Post-Gazette picked up on some of the acrimony in its 8/18/02 article on Luderowski entitled “The woman behind the Museum.” by Cristina Rowalis.

She (Luderowski) has had run-ins with the neighbors, who have fought her unsuccessfully in court over her expansion of the museum... Other critics who have not taken her to court say she is prickly and insensitive to neighborhood concerns. (Rowalis 8/18/02)

The Mattress Factory has an uneasy alliance with the Mexican War Streets. The Mattress Factory has undoubtedly contributed to revitalization efforts of the neighborhood and given the neighborhood exposure to the City. As a catalyst, it could be argued that the Mattress Factory has contributed to the neighborhood. However, although the Mattress Factory has been in existence since 1977, there are still over 440 vacant homes in the neighborhood and only small areas of redeveloped houses. There has been a steady growth in redeveloped housing in the neighborhood and new amenities such as parks and gardens. This has been enough of a success for the City to choose Luderowski and the Mattress Factory to lead the development strategies for the blighted neighborhood. According to Rouvalis’ article the neighborhood association members are not pleased with the City’s choice. There is also some resentment to the fact that the mayor’s office chose the Mattress Factory to be a development partner in transforming the blighted Federal-North project. (Pittsburgh Gazette, Rowalis 8/18/02)

From a planning strategy standpoint the situation between the Mattress Factory and the Mexican War Streets Neighborhood is sensitive. If the neighborhood association, which is primarily composed of new residents, feels left out of the redevelopment process then it seems unlikely that the redevelopment of the vital commercial areas on Federal and West North Street will proceed smoothly. The longtime residents, who tend to be lower income, seem not to participate in the neighborhood association. This raises the question “Will the longtime residents be driven out by revitalization of the neighborhood?” According to Joan Kimmel, an active member of the neighborhood association with whom I spoke, they have programs to retain economic diversity within the neighborhood. She also says these programs are controversial within the neighborhood association.

Although the neighborhood has made strides in improving the quality of life, the coalition is fragile. The City has vested Barbara Luderowski as the leader of development for the neighborhood, because of her tenacity and track record of successes. However, re-development is a glacially slow process. If Luderowski were to opt out of the process, the revitalization efforts could be blunted. The weak coalition between the neighborhood and its best cultural asset, the Mattress Factory, could disintegrate. Clearly the best policy for both the Mattress Factory and the Mexican War Streets is to form strong social and economic bonds. This policy could be enhanced if the Mattress Factory could be made to physically respond through design to its context: the Mexican War Streets, which drew the creators of the museum to Pittsburgh in the first place.

The Importance of Perceptual Mapping in the Mexican War Streets

The physical, social and perceptual complexity of the Mexican War Streets situation seems to be a perfect scenario to which I can apply my mapping strategies in order to evaluate the traditional and new tools of urban design that I explored in my position paper. The potential volatility of the Mexican War Streets development efforts calls for a sensitive design treatment that is rooted in the context of the neighborhood. The theory developed in my position paper is that maps can be used to record environmental images that give cues to perceptual aspects of place. In a neighborhood like the Mexican War Streets, much of the population of the neighborhood and its major cultural asset was drawn there by the physical aesthetic qualities and ambiance of the neighborhood. Environmental images collected from various perceptual mapping strategies could be
creatively collected and composed to assist the designer in developing a placed-based design for the neighborhood. These images from the neighborhood could be placed in the spatial framework of a map and used like a palette to design a space that draws from the the context of the neighborhood.

The Tools of Urban Design
Urban designers use a variety of tools to engage the study of the complex urban environment. I will utilize a variety of maps primarily developed from Kevin Lynch’s framework laid out in The Image of the City. These tools are meant to gauge the perceptual fabric of urban districts and include maps of the location of views, edges and landmarks, activity nodes, districts and gateways. In this study I will also include a more common range of urban design tools which include street hierarchies, street sections, and drawings of figure-ground, topography and building pattern, using auto-cad, aerials, and panorama photography. These tools are used to develop an overall sense of the perceptual and physical aspects of the neighborhood. This will be useful in identifying a set of issues and opportunities for the neighborhood and developing a neighborhood-wide set of goals and objectives. This will enable me to develop a concept plan for the neighborhood and determine the appropriateness of site design. These tools will give me an understanding of the neighborhood and its residents and help me to construct an appropriate program for the site design. I will evaluate these tools and determine their effectiveness and what they say about the neighborhood. Field observations, discussions with neighborhood residents and Mattress Factory staff, and newspaper articles about the neighborhood will also be used to flesh out the traditional mapping techniques.

Position of Mapping and Perceptual Tools
The value of the mapping strategies and techniques indicated above is that they have a high degree of external validity. This is basic anthropology and social science filtered through the graphic techniques and training of an urban designer. Another urban designer or social scientist could reproduce the results of this study. Yet designers are not social scientists. In fact, social scientists tend to believe that research is inherently biased if it is used with the intent to alter the culture and the lives of their study subjects. The designer is asked to be an objective researcher as a first step, then in the next stage to take the research and use it to creatively develop a design. At what point does the creative process begin and the objective research end? In evaluating and developing this design process I have been forced to examine the dance between science and art, the objective and subjective. This theoretical loop is endless.

As a designer, I have the humanistic mandate to provide a physical site design that incorporates rational planning structure and environmental requirements, but also to satisfy the psychological and perceptual requirements of the user groups. My position is that there is value in the externally valid social science techniques; however, I plan on moving the creative process from its traditional placement in the site design back to the research phase. When designers visit a site they absorb volumes information about the place that is not found in aerials or AutoCAD maps. They are absorbing the experiences of the place. This is a creative and important but typically unacknowledged process. The intent behind creative mapping is to make that process visible and to aid designers in spatially locating their experiences and observations. Creative maps are tools to articulate and strengthen the designer’s perception. This will improve the outcome if the goal is placed-based design.

Creative Mapping Theory
Creative mapping is done with rigor and intent. It can be used to develop a more lyrical understanding of context. Lynch has developed a general mapping system which can be applied to cities all over the world. This thesis explores and applies mapping techniques that are developed particular to place. These maps are generated from the designers’ theories and practices explored in my position paper, then they are applied to place. Creatively generated maps can have several functions. The goal of these maps is to come closer to how the site is perceptually experienced and then recorded in a spatially-located two dimensional medium. Through this method the maps can support a Lynch-style perceptual analysis, recording not just where an event is perceived, but how it is perceived.
Creative mapping may be used to record physical phenomena that influences how specific environmental cues of the neighborhood are experienced. This could address a specific aspect of design, such as how the paving surfaces of the neighborhood are perceived by the pedestrian. Such a map could be drawn upon to develop site design paving patterns. Creative maps can be used to understand and articulate the designer’s own perceptions of place and thematic vision. This could be akin to an artist drawing to understand the inner nature of a subject. From this method of mapping one can develop an understanding of the latent psychological properties of the spaces of the neighborhood. A designer can then choose to instill these properties in a design.

**Application of Creative Mapping in the Mexican War Streets**

The Mexican War Streets and Mattress Factory scenario is a good case to begin to apply mapping techniques because of the complex social and psychological needs of the multiple stakeholders of the museum and the neighborhood. A creative solution is called for because of the nature of the relationship of the art museum to the generally art-appreciative new residents. An understanding of the needs of both the new and old residents and their relationship to shared spaces of Mexican War Streets is necessary to fulfill the long term health of the social relationships of the neighborhood. As an outside designer, I must be able to learn more about the neighborhood spaces, textures, colors, sequences, mysteries, architectural jokes, nature’s revenges; the nuances of everyday life. Then I must tell those stories in graphic form with a spatial framework. When I can tell natives something new about their environment, I will be able to design a space that speaks to the experience of their context.

**The Traditional Mapping and Evaluation Process**

The process began with an investigation of the Mexican War Streets in relationship to its urban context. I employed aerial maps, (shown on page 37), to evaluate large topographical features and how the neighborhood is situated in relation to downtown Pittsburgh. To examine how the neighborhood might be viewed from a high point in the downtown, I composed a panoramic photography collage, (shown on page 38). I used an aerial close-up of the Mexican War Streets neighborhood, (shown on page 40), to examine the specific neighborhood features; its relationship to West Park and to the surrounding hills. In this aerial, the Mattress Factory is located and marked in orange to examine how it fits into the context of the neighborhood. I changed media to auto-cad maps to examine the relationship of the topography and building patterns, and drew conclusions (on page 44). AutoCAD allowed me to erase all but the building pattern to establish a figure ground map, (on page 44), with which I could draw conclusions about the building patterns and street walls.

With AutoCAD maps I could compose a Street Hierarchy Map, (see page 46). The discoveries of the Street Hierarchy map were reinforced with street sections which described the volumes of the streets. With photos taken on a site visit to the neighborhood, I could supply this map and the following maps with a visual typology of the features located on the maps. Based on site visits, I composed maps to locate prime views, gateways to the neighborhood, activity nodes, barriers and landmarks, and the general location of sub-districts within the neighborhood. These maps allowed me to compose a list of issues and opportunities for the overall neighborhood. (see page 55) Coupled with the hard-to-map field observations, discussions with residents of the neighborhood and of Pittsburgh, I composed a list of Mexican War Streets Issues and Opportunities. This allowed me to see the range of issues affecting the neighborhood and compose those issues into a Neighborhood Concept Plan (see page 57). This concept plan illustrated the need for a site that could serve as a node where the various neighborhood groups could overlap. This validated the idea of the Mattress Factory, which is a centrally located space on one of the neighborhood’s busiest streets, for site design treatment. The following pages detail my investigation of the neighborhood using traditional methods.
The topography is intense in the northern end of the neighborhood. The topography dictates the building patterns. Most of the Mexican War Streets is on gently sloping ground. The buildings form a dense rectilinear grid. The steep vegetated slopes form a perceptual and physical edge to the neighborhood. The building patterns become less dense and less rectilinear where the topography becomes more intense. The neighborhood boundary is marked in light orange. The Mattress Factory is located in the center of the neighborhood, marked by the orange circle. The Mattress Factory site is already graded and its slope mitigated by steps and a ramp.
The Mexican War Streets neighborhood retains a distinct block structure. Houses are close together and usually form row house walls. Interior to the block are small backyards and sometimes outbuildings. With the exception of the large Allegheny Medical Center, the majority of buildings are all the same scale and similar building type and form solid street walls. According to histories of the neighborhood this pattern has not changed since the 19th Century. This building pattern tendency lessens in the north end of the neighborhood where topography and building decay make the street wall less solid. The South end of the neighborhood has a dense pattern of larger civic, residential and commercial buildings, which form an architecturally diverse and impressive wall. The building pattern of the neighborhood contributes to its feeling of being a distinct and separate neighborhood.
There are few high speed through streets. The internal streets of the neighborhood often end in T-intersections, which contributes to slow, pedestrian friendly speeds. The pattern of alleys function like wooners; pedestrians dominate, but cars are permitted. This is a very pedestrian friendly neighborhood.
Mexican War Streets, Pittsburgh PA

Perceptual Analysis:
Fig 44 Street Sections, West North Avenue, Arch Street Sections
-Not To Scale-
Mexican War Streets, Pittsburgh PA

Perceptual Analysis:
Fig 45 Street Sections, Typical Interior and Alley Street Sections
Not to Scale

Typical Alley Section

Typical Interior Street Section
West North Avenue

West North Avenue is a broad street and feels very open. The street height to width ratio is 3:1 creating very little sense of three dimensional enclosure. This due both to its the street width and to the soft edge of the park on the opposite side of the street. The enclosure is formed by the typically three to five story buildings (20 story buildings, the hospital and a high density apartment are found on both ends of the street) and the tall Amur Cork trees (philodendron amurense) that line West Park. The buildings that line West North Avenue are the tallest in the neighborhood. They are a mix of commercial, civic, churches and residential. Unfortunately, these buildings do not serve as a business district for the neighborhood and many are abandoned. Because of the quick transition from tall building to park the street wall of West North is perceived as an edge of the neighborhood rather than a seam. The empty buildings penetrated by dark alleys make this an uncomfortable street to walk on. The people who do walk this street seem transient and many of them are patrons of adult theater and the Salvation Army services. A female contact from the Mattress Factory claims that she is afraid to walk on the street, despite having to catch a bus there. Neighborhood residents and Pittsburghers who know the neighborhood are very interested in the redevelopment of West North Avenue. According an article dated 8/18/2002 in the Pittsburgh Post Gazette Gazette by Cristina Rouvalis, Barbara Luderowski, the director of the Mattress Factory has been appointed by the City Council to head a redevelopment committee for this street, especially the Garden Theater. The experience of this street is very different from the lively walking streets of the interior of the neighborhood. The building side of the street is un-

Arch Street

Arch Street can be thought of as the perceptual main street of the Mexican War Streets. It has a roughly 1:1.5 street height ratio, which forms a good sense of three dimensional enclosure for the street. Both street walls are completely intact. It contains the majority of landmarks and nodes and is one of the primary entry streets to the Mattress Factory. The street supports a corner store, Doug’s Market, and features the redevelopment of the old fire station into artists lofts. The street is larger than the many of the interior streets, but speeds are slow and the street terminates at Jefferson Avenue. There is a sense of enclosure, supported by tree plantings, but the street has a full southern exposure which encourages street barbecues. People cross the street in relative safety, but tend to walk on the side walks rather than in the street. Building heights are typically between 25 and 35 feet high.

Interior Streets

The section above is typical of most of the interior streets in the Mexican War Streets Neighborhood, which tends to have a 1:2 street height ratio and forms a strong sense of enclosure. It could be found on Palo Alto, Monterey, Buena Vista and other streets. The street provides a pleasant volume, which becomes a shared, but linear community space. People occupy their stoops which extend halfway into the sidewalk and engage passersby. The sidewalk can be too intimate and territorial. That fact combined with the slow and infrequent traffic causes people to walk in the less congested street, where they have more of an option to choose their social engagements.

Mexican War Streets, Pittsburgh Pa
Perceptual Analysis: Street Sections, Arch Street

Alleys

The volume of the alley on the right is also typical of the many alleys in the neighborhood. The alleys tend to have a 1:3 street height ratio. It has an intense feeling of enclosure and tends not to host social gatherings. The three dimensional volume of the alleys restricts light and feels slightly claustrophobic. The fronts of the buildings are simple and form a discrete wall; however the alleys reveal the complex geometry of the backs of the buildings of the Mexican War Street Neighborhood. This alley system functions like woonersf, where pedestrians have dominance over cars. The alleys allow one to travel through the neighborhood relatively inconspicuously, where a typical street would force interaction.
Primary way to enter Mexican War Streets, but doesn’t announce the neighborhood.

The north Gateway imparts a strong sense of entry. It provides context producing views.

This gateway speaks the language of the neighborhood: part ancient building, part natural hill.

Tall buildings form the West entrance to the neighborhood.

The most distinct gateways in the neighborhood are to the North where topography and architecture work to close in the entry point. The scale of the hospital and bridge over the highway make up a tangible eastern gateway. The least defined gateway is at West North Avenue on the corner of Brighton Street. The apartment buildings help enclose the space but do little to announce the neighborhood scale or feel. There is a good sense of entry into the neighborhood.

Perceptual Analysis: Fig. 46 Gateways
Site Visit: February 14, 2004
The many perceptual and physical barriers surrounding the neighborhood help give it a spatial identity within the city. It is identifiable from a distance by the landmark of the hospital. Other landmarks are surprises found within the dense fabric of the neighborhood.
The prime views of the city are at the northern end of the neighborhood at the higher elevations. In the interior and southern end of the neighborhood only the neighborhood interior is visible.
Observed:
Rent $1325 +Utilities

Mexican War Streets,
PITTSBURGH PA
PERCEPTUAL ANALYSIS: FIG. 49
DISTRICTS
FEBRUARY 14, 2003

High Quality Row Houses
Transitional Block

High Quality Restoration
Transitional Blocks
Degraded Housing Stock

Commercial
Public/
Non-Profit
Industrial
High Density
Residential
Park
Woods

Commercial Block
Degraded Housing Stock
Mexican War Streets, Pittsburgh Pa
Perceptual Analysis: Fig. 50
Activity Nodes
February 14, 2003
Each activity node within the neighborhood tends to have a specific user group which dominates the node. There are few areas of overlap. When a social overlap occurs it is around a specific use that needs a skill or developed interest, like gardening.

Many commercial, public and recreational nodes exist in the community and many possible nodes have undeveloped potential, like the Garden Theater which only serves one population. A large park exists as a node, but it is seen as not belonging to the neighborhood, users of the park are clustered around specific and exclusive activities, like all black male football and basketball.

Pedestrian circulation within the neighborhood is excellent. There is a clear hierarchy of roads. Major roads circulate around the neighborhood and bisect its middle. These major roads attach to commercial zones rather than residential. On the interior t-intersections and narrow roads enclosed by approaching ideal street volumes make traffic slow. Alleys function like woonersfs.

Pedestrian circulation within the neighborhood is excellent. There is a clear hierarchy of roads. Major roads circulate around the neighborhood and bisect its middle. These major roads attach to commercial zones rather than residential. On the interior t-intersections and narrow roads enclosed by approaching ideal street volumes make traffic slow. Alleys function like woonersfs.

 Leading to the neighborhood the streets are physically or perceptually disconnected from West Park and the North Side cultural amenities like the Warhol Museum. This makes it difficult for tourists to find the neighborhood and very difficult for Mattress Factory workers, volunteers and tourists to walk to the neighborhood from the North Side.

Internal streets have comfortable street volumes providing a near ideal enclosure for pedestrians.

The best views are in the northern end, which has the most degraded housing stock. The interior of the neighborhood has completely internal views.

The massive hospital complex breaks the block pattern of the neighborhood and forms a barrier which separates a small part of the neighborhood from the rest of the neighborhood.

The lack of density in the northern end of the neighborhood allows for new infill and houses with yards for people who prefer more space than the interior neighborhood row houses afford.

The steep topography disallows building on slopes.

The barriers help form a strong neighborhood identity and the natural barriers like the Park and steep hills are physically beautiful. The barriers should be emphasized, but way finding and paths connecting the neighborhoods should also be developed.

There are opportunities to develop public mixing points within the neighborhood. Because many houses in the northern end of the neighborhood have burnt down or completely degraded, this makes it an ideal area for new infill. This has already started with one “experimental metal house” seen on the Landmarks Map. According to an informal discussion with a Mexican War Streets Neighborhood Association member, the association has a program to buy and redevelop housing, to promote economic diversity within the neighborhood.

The prime views make a case for infill at the northern end. The “experimental metal house,” is designed especially to take advantage of the views.

The slopes should be preserved, because of their scenic qualities. They are the green infrastructure of the neighborhood and have the potential to be developed as vertical parks.

A strong gateway exists at the northern end of the neighborhood, this should be emphasized. Arch Street features an ideal scenario for pedestrians and better displays the interior qualities of the neighborhood. Arch Street connects to West Park, features an inviting corner store and leads more directly to the Mattress Factory.

The neighborhood is physically disconnected from its surrounding neighborhoods and the cultural amenities of the North Side.

Degraded housing on the northern end of the neighborhood and re-developed row-houses on the southern end form sub-districts that seem to emphasis higher and lower income enclaves.

The barriers help form a strong neighborhood identity and the natural barriers like the Park and steep hills are physically beautiful. The barriers should be emphasized, but way finding and paths connecting the neighborhoods should also be developed.

There are opportunities to develop public mixing points within the neighborhood. Because many houses in the northern end of the neighborhood have burnt down or completely degraded, this makes it an ideal area for new infill. This has already started with one “experimental metal house” seen on the Landmarks Map. According to an informal discussion with a Mexican War Streets Neighborhood Association member, the association has a program to buy and redevelop housing, to promote economic diversity within the neighborhood.

The prime views make a case for infill at the northern end. The “experimental metal house,” is designed especially to take advantage of the views.

The slopes should be preserved, because of their scenic qualities. They are the green infrastructure of the neighborhood and have the potential to be developed as vertical parks.
Evaluating the issues and opportunities brought forth by the traditional urban design analysis has allowed me to compose a list of goals and objectives. The traditional analysis has allowed me to identify the overall community needs and strategies to improve the quality of life within the Mexican War Streets.

**Goal**

- To promote an economically and culturally diverse neighborhood that is characterized by ample opportunity for social interaction among residents.

**Objectives**

- To promote new infill in the north end of the neighborhood to diversify the income level there and fill derelict spaces. To promote home ownership among lower income residents and blocks with mixed income levels. To promote ownership of the 440 vacant houses, which tend to be a liability. The ideal scenario is that they become homes and redeveloped, in some instances they could become parking spaces or even art projects.

- The vegetated hills to the north can be developed as vertical parks. The invasive vegetation and trash should be removed. Native vegetation should be featured. Steps and trails could course up the bluff and platforms could take advantage of spectacular views of the city. Several abandoned houses exist perched on the bluffs. These houses could become artful ruins in the landscape.

- To develop a pedestrian and bike friendly greenway between the Mexican War Streets Mattress Factory, the Aviary in West Park and the cultural amenities, like the Warhol Museum, and shopping areas of the North Side neighborhood. A pedestrian friendly gateway should be developed at Arch Street to invite pedestrians into the neighborhood.

- To promote business development along West North Avenue which would create a more inviting edge to the neighborhood and provide a business district for the Mexican War Streets.

- To increase the population overlap at activity node points. This includes broadening the range of activities at the Jefferson Activity center to be more inviting and inclusive and to develop the Garden Theater to appeal to a wider audience that would be inviting to women and children. To improve the threshold of the Mattress Factory to make it more inviting to neighborhood residents and provide a cultural node that serves as an overlap point for community members to meet.
The Jefferson Activity Center is re-developed to encourage multi-use outdoor athletic courts. It is redesigned to make it look less like a prison yard and encourage a diversity of uses.

The higher elevations to the North of the neighborhood support new infill. The new houses take advantage of spectacular views and integrate the sub-districts.

Several houses in this area are unredeemable. The neighborhood takes advantage of the city funding to remove vacant housing and develop a parking lot serving the MF.

Several houses in this area are unredeemable. The neighborhood takes advantage of the city funding to remove vacant housing and develop a parking lot serving the MF.

The Jefferson Activity Center is re-developed to encourage multi-use outdoor athletic courts. It is redesigned to make it look less like a prison yard and encourage a diversity of uses.

The higher elevations to the North of the neighborhood support new infill. The new houses take advantage of spectacular views and integrate the sub-districts.

Several houses in this area are unredeemable. The neighborhood takes advantage of the city funding to remove vacant housing and develop a parking lot serving the MF.

Several houses in this area are unredeemable. The neighborhood takes advantage of the city funding to remove vacant housing and develop a parking lot serving the MF.
Site Analysis
Mexican War Streets
Fig 52. Mattress Factory

Attraction, Main Door
Greenspace
Artspace
Road
Pedestrian Way

Jacksonia Street
Garfield Street
Greenspace
Artspace
Road
Pedestrian Way
Site Analysis

It was an accurate comment that the Mattress Factory curator Michael Olijynk made in the aforementioned article, that the museum has no front door. Visitors to the museum must enter the gates of the cyclone fencing and park their cars in a muddy dirt lot. The lot only holds roughly ten cars at a time with only one entrance so many people park in the neighborhood. Once in the parking lot, one descends some steps which are under a pergola. One walks along a concrete walk where one can either enter a sliding glass door which opens up into a display space, or walk past that to the main doors. Once inside one can wander through the installations of brightly colored geodesic spheres, mirrored rooms casting infinite projections of the visitor and occupant, a polka dotted mannequin; and completely dark rooms where a square of light is the focal point of the exhibit.

The outside of the Mattress Factory features one of the most unusual exhibits of landscape art in the world. Designed by Winifred Lutz, *The Garden* functions as a mysterious draw for visitors to the Mattress Factory. Below is a description of the site by Paula Dietz of the New York Times in a 5/7/00 article.

Even the garden, designed by Winifred Lutz is installation art. In a brilliant stroke she created an archeological site by excavating the basement of a burned-out factory next door, uncovering several levels reached by steps with twisted iron handrails. Planted with grasses and wildflowers it could be a site from ancient Rome.

*The Garden* has an air of mystery that cannot be conventionally explained. An article by Harry Schwalb of ARTnews called *The Garden* Piranesi-like in a September 1997 article. It is dangerous, with unguarded holes and exposed metal rebar. It is completely ADA inaccessible. Children love it, as evidenced by my photos. Young adults love it. The readers of the Pittsburgh Tribune Review voted it “the best place to make out in Pittsburgh,” in a September 7, 2003 article. My drawing of the garden using plan view (see on the right) does not adequately capture the essential ideas or feel of the space and its multiple levels. My plan of *The Garden*, shown on the following page represents an illustrative drawing method commonly used to recording or express a landscape. I and others who had visited the site felt that it did not capture the quality of the space. I had used landscape drawing techniques to draw something that was more than a landscape.

Sketching the space was ineffective because no single sketch could capture the multiple aspects of the enclosure. Sections could capture the multiple levels, but were sterile of meaning and seemed to be misleading rather than illustrative. This is an example of a landscape space that cannot be expressed using conventional methods.

Fig 53. Plan View of the Garden by Author

Fig 54 Sketch of Site Element by Author

Fig 55 Sketch of Site by Author

What I found interesting about *The Garden* is Lutz’s process of turning architecture into landscape. To me this seemed to be a profound statement on the relationship of architecture to the landscape in the city. In a dense urban fabric, buildings fall and become unintentional landscapes.

This theme I interpreted from *The Garden* would later inform a thematic method of studying the neighborhood with a creative map.
Space Ownership and Change

An important consideration in the justification for the re-design of the Mattress Factory threshold site is the perceptual ownership of space. In light of the broader planning and neighborhood development goals revealed in the analysis of the neighborhood, the perception of space ownership of the Mattress Factory site needed to change. The map on the right details the perception of space in the neighborhood. The plan and the section show the analysis of the perceptual ownership patterns on Jacksonia Street. Jacksonia Street is used as a public space and as both the major pedestrian and vehicle thoroughfare. It is a lively street and is the major social hub of the neighborhood. Stoops, shown in red semi-circles, form semi-public spaces where people gather in public view. Stoops are small but important social hubs. I observed mainly women gathering on the stoops and watching over their children who played in the street and on the sidewalks. Voids left by buildings form intimate spaces where people might venture to see the ruins of the old building. One of these voids is an art space claimed by a mural.

The major perceptual change in space ownership proposed in the design is changing perceived ownership of the parking lot of the Mattress Factory. It would shift from a seemingly private space owned exclusively by artists and patrons to a semi-public space which has some degree of neighborhood ownership. The space would be anchored and maintained by the Mattress Factory, but would be made more open and inviting to the community. This would also serve the Mattress Factory’s goals of getting more visitors to the museum, gaining grants by having more integration with the community, hosting more Art Labs, and creating more ties with the community that could enhance the planning process.
Creative Mapping Applications

Intensity Map
The outcomes of the Lynchian analysis and the field observations revealed that although many activity nodes existed in the neighborhood, few had any cultural overlap between the community groups. Since the site design was to be an activity node which should promote cultural overlap, the first series of creative maps studied the pedestrian approach sequence to existing gathering places. With these maps I could support the findings of the traditional analysis by showing how these spaces might be perceived by a pedestrian.

The intent of the first series of creative maps is to study the approach to the nodes. These Intensity Maps chart sequences of spaces leading up to the nodes and either pass the nodes or are drawn into them. The Intensity Maps chart the perceived interest level of my walk through expansion or compression of the frames of the sequence. The graphics try to show focused vision and peripheral vision in order to call out the attractive detail. By expressing the perceived “intensity” of the sequences, one can gauge how the node would be perceived if one walked up to it.

I started the sequence a block back from the node and moved past or into the node. When comparing the Intensity maps, I noticed a pattern: few visual cues existed that indicated an approaching node. These sequences all have a similar feature; when one walks along the sidewalk, one has no indication that there is an activity node ahead until one happens upon it.

Even the major cultural institution of the Mexican War Streets, the Mattress Factory, presents this pattern. Unlike the urban gardens on Gentry Street or the Jacksonia Street Park, there is not much visual incentive to draw one into the threshold space of the Mattress Factory. Nothing of the threshold space reveals the intent of the museum. It is just a muddy parking lot. It is not a “front door,” but neither is it a back door. My field observations supported the sequence map findings. On a sunny day, Jacksonia Street is filled with neighborhood life, but only neighborhood outsiders spill into the threshold space of the Mattress Factory.

Walking down Buena Vista Street towards Jacksonia you encounter a small pocket park. From up the block you see no hint of the park. As you continue down the street, you begin to see a break in the typical street wall. Your interest grows. The edge of the building reveals a small gate with a pocket park behind it. You walk through the gates into the park. You are excited by the small enclosure of the park and move towards the tree at its center. There is nothing of note in the park and no place for people to sit and talk, you begin to grow disinterested. You move to the exit gate of the park thinking that there is something behind the gate and your curiosity is piqued. When you round the corner you see that it is just another street and you lose interest.
Walking down Gentry Street your interest is piqued when you encounter a brightly colored fence that encloses an urban garden. The space for the garden is made by a void in the urban fabric where a building fell. Vegetation along the fence offers views into the garden and your interest grows. You see no way to enter into the garden except for a door. The garden carries a sense that it is exclusively for gardeners and not for casual passers by. You move on and your attention wanes.

You walk along Jacksonia Street. From up the street you see the hint of a color and your interest grows. You encounter a mural and become very interested. The space for the mural reveals a path, which you take. You encounter a playground. Your interest could grow or wane, depending on your age and the activity of the playground.
You walk down Jacksonia Street by an overgrown fence. You see a new building that doesn’t fit with the surrounding fabric. Your interest grows. You notice a parking lot, a row of trees and a metal out-building. This is interesting, but you’re not sure if you should enter. You continue on and your interest wanes.

Walking along Jacksonia Street, you happen upon a break in the street wall. You see a large grey wall and a metal out-building. It is interesting, but you’re not sure if you should go in. You continue on down the street.
Intensity Map Conclusions

The “Intensity Maps” allowed me to think about how activity nodes are experienced within the Mexican War Streets neighborhood. The expansion and compression of the frames equates to a visual note-taking about the experiential qualities of the sequence. This method of obtaining qualitative information is subjective to the point of view of the designer/cartographer. Questions arise such as: How do much the frames expand? What is interesting? Would the expansion and compression work differently with other people? Can interest levels really be compared across nodes? What determines where a picture is taken or where it is focused? Did I capture all possible viewing angles? These questions are important considerations. As a social scientist, these questions would address the scientific validity of the tool for research. However, designers are less concerned with scientific validity and are more concerned with the utility of the visual tool. The “Intensity Map” offers a way to see the site sequentially in one glance and highlights the points the designer/cartographer feels are important.

Comparing this series of maps, I can begin to make observations about how these nodes are experienced. My conclusions are that one moves along a fairly predictable path through the tight urban fabric, then one happens upon an event: the activity node. When one encounters the node, one’s interest expands. Several nodes seem to draw you in because the design is inviting and the interest is strong. Paradoxically, when compared to other activity nodes, the Mattress Factory entrance does not elicit a strong response. Headed east on Jacksonia Street, (please turn to page 62), one sees a gravel parking lot, a blank wall and a large piece of art by James Turrell, “A Room For Viewing the Sky.” The art piece is conceptually beautiful, but physically uninteresting (a studio mate said it looked like an HVAC system). This art piece is meant to be experienced from the inside. Its outside seems not to be designed to pull one into the space.

When one looks at the piece from the Jacksonia Street, one is not sure if it is a private industrial structure or public art. Because of the perceptual qualities of the site, one is not invited to enter the space, unless one knows beforehand that it is an art museum. Headed East on Jacksonia Street, (please turn to page 62.) one experiences an overgrown cyclone fence, then the parking lot, and then the new administration building. Coming from this direction, there is even less to pull one into the space.

The “Intensity Map” allows me to see and to evaluate the paths to the Mattress Factory Site. As mentioned before it is important to the Mattress Factory to maintain a low key “underground” feel; however, there is also a need to integrate its space with the neighborhood. The “Intensity Map” is a method of viewing and evaluating how the Mattress Factory might be perceived. From this study, I can suggest design requirements that feature specific points of interest to draw the pedestrian into the site while maintaining the desired “obscured” path to the Mattress Factory entrance.

Texture Map

Knowing that an element of the future site design would be the paving of the site, I decided to study the “floor” of the Mexican War Streets. I especially noted transitions between paving patterns and old drainage devices. I went on a walk through the neighborhood and recorded sequences of the walk as experienced by my foot on the paving. I photographed my foot along with the paving for several reasons. Including my foot gave the paving a scale as related to human proportions. Alvaro Siza, whose drawings I studied in my position paper, often included his foot or other limbs within the drawing to call attention to the space between the viewer and the scene. This brought more of the experience of the viewer into the image and gave a sense of the relationship between the subject and object. I composed the map to give a sense of this “six foot tall aerial perspective” of the Mexican War Streets paving patterns. The images are arranged in square frames, which have neutral connotations compared to the compressing frames of my “Intensity map. The frames forms have a spatial sequence that describes my walk. They are superimposed on a Noli-style figure ground map to show the empty spaces of the neighborhood which people can inhabit.
This map tracks the cartographer’s passage across the “floor” of the Mexican War Streets. The Texture map shows the variety and condition of the many paving materials for the neighborhood. Conclusions drawn from this map: disintegrating asphalt reveals underlayer of stone and brick paving; runnels are built into the stone sidewalks to carry water away from the building; older paving types tend to be present in both the northern rundown end of the area and the southern gentrified area. The commercial areas tend to be completely asphalt paved and the alleys tend to have their original material. Sometimes materials have no transition and sometimes concrete divider is placed between the paving materials.
Conclusion Texture Map

The Mexican War Streets has wonderfully rich paving patterns, which my map documents. This map has inherently fewer issues with subjectivity because it doesn’t need to make a qualitative judgment about the subject. The simplicity of the map can serve a dual purpose. The Texture Map observes and thereby celebrates the rich history of paving in the Mexican War Streets. The implication of the map is that paving contributes to the unique experience of the Mexican War Streets and helps make up the sense of place. This has planning and historic preservation implications for the overall neighborhood. For my design of the Mattress Factory Threshold I can use this Texture Map as a material palette, incorporating details like drainage features and texture change into my site design.

Entropic Map

The Intensity Map shows how the site is viewed and suggests what features are important to change or keep. The Texture Map, on page 64, studies how paving works as a place-making feature of the Mexican War Streets and suggests how it might become an important site element. The Entropic Map, on the following page, studies spatial and experiential elements within the neighborhood and suggests a design concept. Buildings falling down to form landscapes are a neighborhood theme. The urban gardens studied in the Intensity Map were formed by a void left by a building. I noticed several of these less celebrated landscapes in the neighborhood, many of which I noted for their beautiful patinas and how they were evocative of memory. I had noted the 440 abandoned buildings in my Census 2000 statistical study. Winifred Lutz’s Garden is on the Mattress Factory site and would be adjacent to my threshold site. She formed The Garden, an art landscape by dissecting an abandoned factory until all that was left was a landscape. This concept fascinated me. I decided to study the dualistic relationship between architecture and landscape. This architecture-to-landscape continuum describes an important relationship in the Mexican War Streets neighborhood, but also has broader implications regarding the entropic action of natural forces on human artifacts.

Fig.63 This Diagram Shows the Architecture-to-Landscape Continuum

The Entropic Map shown on the following page describes the state of buildings on their place on the architecture-landscape continuum. There is no element of sequence, like the other maps, because each place on the continuum is viewed like a scene from afar. The composition of each vignette on the map is determined by its place on the continuum. Words are lyrically added to describe the vignette’s state. Architecture at its peak is composed in solid form, diminished only by perspective viewing. Another vignette shows that form beginning to break, through fire and decay. The edges of the image are incised to describe this erosion of form. Another image shows the complete cycle of architecture to landscape. One vignette shows how the architecture is completely eroded, but its memory is left on the adjacent walls of the remaining buildings. The final vignette shows how this architecture to landscape continuum was accelerated by a deliberate slicing of architecture by Winifred Lutz when she
ENTROPIC MAP
MEXICAN WAR STREETS

Architecture is a landscape constructed by artist Winfried Lutz over a period of ten years formed by the dissection of architecture. The garden guides the map: it is a frozen archaeology of possibility.

The architecture and landscape continuum architectures will falter, cracks form nature's scope, in walls fall, peeling grove buildings become ruins in the landscape.

Fire, wind, water, neglect and architecture begins to lose its intended form.

In cities neglected by commerce, volition and neglect and terror, the built is consumed by fire.
made the Garden. The edges of the image are also sliced into in order to describe the process Lutz used. There is an element of sequence within the composition of Lutz’s Garden. I observed people using it like a labyrinth and I made my image reflect that labyrinthine quality. The sketches that are superimposed over the photographs show two layers of graphic investigation of the site. The photos took in visual information which then had to be edited by slicing, adjusting, and then collaging to form the image. By drawing, I built the layers of information, simultaneously self-editing by including only what I thought was necessary. By drawing I could record what couldn’t be seen by the camera.

Entropic Map Conclusion

With this map, I could study the architectural decay of the neighborhood. Like the Texture Map, the Entropic Map celebrates something existing in the neighborhood that tends to be forgotten and despised. The Entropic Map observes something which tends to be thought of as negative and reframes it into something natural like the architecture to landscape continuum. This makes an aesthetic out of decay. The implications of this map on my site design were multi-fold. With this map I now had a palette of locally contextual three dimensional forms to begin to shape the space of the site design. Given the City of Pittsburgh’s policy of tearing down old buildings, I could possibly even work with the old building’s materials to recompose them into the site design. The site design would incorporate the local forms of architectural decay, possibly with local material. These would be recomposed into a site design that is consistent with the social and perceptual goals of the Mattress Factory, the needs of the neighborhood, the best practices of plaza design and my own design style.

The Entropic Map charted how landscapes are formed in the Mexican War Streets by buildings falling down. The study of the architecture-to-landscape continuum suggested a design concept that could drive a parti for the threshold site. The concept is to reverse the process charted in the Entropic Map. The concept would begin with Lutz’s Garden, where architecture has become landscape. The spaces would then continue up the continuum, becoming more architectural. The spaces in the landscape would express this continuum concept.

Site Design Application

Design Concept

The Entropic Map helped generate a design concept for the site and suggested forms, eroding walls. From my studies of the continuum of architecture and landscape in the neighborhood, I conceived of a design concept that would reverse the process. Starting from Winifred Lutz’s Garden, the design would gradually become more architectural until it became a plaza, which would house the social infrastructure of the neighborhood and the artistic endeavors of the Mattress Factory. The concept called for three zones for the space: the plaza, the enclosed garden and Lutz’s art landscape. The spaces of the design would follow the continuum concept. The concept diagram shown below describes the continuum concept. It also charts the experiential, spatial, and environmental and programatic aspects of the emerging three zones of the design.
The Plaza could be used by the neighborhood for community meetings, events, or parties which could help develop a sense of solidarity within the neighborhood. Artists at the Mattress Factory could assist with these events and could project art or movies onto the “green screen.” The artists could use their connections to bring in high quality bands to the neighborhood to play on the stage. On a typical day in the Plaza, the smaller spaces of the plaza, like the steps around the stage and the seating/planter walls, would host groups of friends and family who would go to the plaza to view the life of the street and the visitors to the Mattress Factory. Art Labs, with the neighborhood children and school groups, would take place in the amphitheater and on the stage. The Art Labs could now be viewed by community members and reveal the work that goes on in the Mattress Factory. The Plaza would be a place to see and be seen.

The intention behind the design is to concentrate some of the life of the Mexican War Streets into a focal point and to integrate some of the art functions of the Mattress Factory into public space. The Mattress Factory would form the anchor for the major public activity node for the Mexican War Streets. This design addresses the neighborhood need identified in the perceptual mapping analysis for a major node where user groups can overlap. The overall design serves the neighborhood by providing a space where neighbors can interact around both programmed activities and spontaneous daily life. The design also serves the functions of the Mattress Factory by providing another venue for their art, a place for their community outreach and respecting the “no front door” mystery of their entry sequence.

The Enclosed Garden would host smaller gatherings for either the community or the Mattress Factory’s needs. The walls would block views from the street, but the cuts through the walls would be windows to and from the plaza. The Enclosed Garden could host solo or quartet concerts or more intimate Art Labs. This area could host smaller fundraising events. People would be drawn into the Enclosed Garden, wind their way through its spaces and find the existing “window wall” which looks over Winifred Lutz’s art landscape. They would make their way to Lutz’s art landscape and encounter the entrance of the Mattress Factory.

Program Development Evaluation

Although the program of spaces is consistent with the design concept, which was derived from the Entropic Map, many programmatic ideas for the space came from newspaper articles about the site and discussions with residents and artists. I spoke with several neighborhood residents about their perception of the neighborhood and the Mattress Factory. The people I spoke with seemed to me to form a fairly representative sample of the ethnicities, incomes and lifestyles of the neighborhood. I also walked around the neighborhood with a volunteer artist from the Mattress factory. These discussions were informal, but assisted in developing my ideas about program for the site. Ideally, these informal discussions could be the starting points for a participatory mapping exercise in the neighborhood. These sorts of exercises with the neighborhood could be developed into a map to inform the program of the spaces. In my position paper, I examined how Halprin developed similar participatory mapping exercises to inform his designs.
Paving and Vegetation

Paving patterns, drawn from the study of the neighborhood with the Texture Map, will support the spaces of the concept. The Texture Map will inform the “floor” and material usage of the spaces of the design. The plaza will feature hot colors of brick and the enclosed garden will feature cool colored pavers of stone. Vegetation will also support the concept. In Luzt’s Art Landscape, vegetation grows over the ruins of the building. In the design of the Enclosed Garden, vegetation interrupts the paving patterns, but is contained by them.

Paving in this area undulates, within ADA limits, to represent the action of natural forces on architectural planes. The vegetation of the Enclosed Garden will tend to be purple in color to support and accent its mysterious qualities. Vegetation will also be chosen for its sweet scents. The trees will feature interesting forms and bark for winter enjoyment. The Plaza will have little vegetation. Grasses and flower plantings will be completely enclosed and elevated in raised beds and seating walls.

Major Site Elements

The Intensity Map study, shown on page 64, shows the major perceptual points of the site that should be altered to draw people into the space. One point is the large blank wall which faced the Mattress Factory. The other is the middle of the parking lot space and the third is the existing “window”, shown on the Site Analysis on page 58 and the Intensity Map on page 64. The blank wall is treated with a sculptural element, “the green screen, the parking lot is moved down the street as shown in the concept plan and the “window” is framed by walls. One is led to the “window” by a drainage element. The first point was addressed in the design by installing a large sculptural screen shown on the right. This screen would be created by bisecting a structural steel truss. This truss would form a “green screen” for the blank wall and flowering vines would crawl up the upright trusses. A movie screen is suspended between the two trusses. This outdoor cinema has several functions. It can help extend the plaza’s use into the nighttime by showing movies. Free movies can be a draw and bring in people who normally are not attracted to the plaza. The movies are one of the last public spaces where people feel comfortable sitting in the dark next to strangers. Since the screen is opposite the large window of the Mattress Factory administration building, the building can house the expensive projector. The Mattress Factory could also use the screen to project art images and extend their presence out into the public space.

The screen is placed on a stage, which can host live performances. The stage, which terraces to the ground, is conceived as a community scale stoop for gathering in the plaza and observing the street and plaza activity. Minor stoops form amphitheaters for Art Labs, smaller scale community gatherings or small concerts. The planters and seating walls function as inviting gateways to the space. The planters at the end of the Plaza contain medium sized trees and function as a gateway to the Enclosed Garden. The plan of the site design is shown on the following page. The drainage element, shown on the plan and in the graphic on the following page, is both a decorative and functional element. It is derived from a drainage element discovered in the neighborhood and recorded by the Texture Map, (see page 66). This linear element, shown on the following page, carries the eye through a cut through the wall and to the “window” of the old existing ruin, which overlooks the art landscape. The drainage element is on the same axis as the concrete runnel of the art landscape. The terracotta drain can be seen as a functional extension of the art landscape’s runnel fountain. This linear element siphons the storm-water from the plaza to the fountain in the art landscape. The storm-water infiltrates through the art landscape.

Figure 66: Undulating paving of the Enclosed Garden, See 1A on Plan

Figure 67, The Green Screen and Stage, See 1-B on Plan
along with the fountain water.

The plan view on the far right shows where general elements are placed, but is less effective in showing the life of the place. The amphitheater is shown above and below. These drawings capture a frozen moment, but it is difficult to represent movement or sequence through the space with these illustrations.

The “memory walls”, shown on plan, to the right and below, structure the spaces of the landscape. They can also be seen on the axonometric projection on the following page. The “memory walls” enclose the garden from the back wall of the amphitheater. The forms of the walls follow the architecture to landscape continuum concept and erode into the planter/seating walls. Cuts through the walls frame scenes between the Enclosed Garden and the Plaza.
The axonometric projection shown above is valuable in showing the three dimensional spaces of the site design. Because it is a drawing, I could choose to make the walls of the Mattress Factory building transparent in order to show the spaces of the landscape, while showing the general volume of the Mattress Factory. The axonometric can show the three-dimensionality of the spaces I am proposing, but it is difficult to represent how the spaces might be used.
The model photographed to the right shows several views of the three-dimensional representation of the site design. Emphasized in the model are the textures of the materials. The “floor,” of the site is especially emphasized by painting and texturizing the surface of the model to further represent the change in perceptual quality of the spaces. The model is also important in showing the spatial context formed by the surrounding buildings, some of which are very large and perceptually important. Wire trees also add to the sense of volume. Because of the spatial enclosure created by the buildings and walls, the model was the best way to represent the spatial and textural qualities of the site and design.
Plan drawings, sketch, model and axonometric of the site design showed important and different aspects of the spaces. However, they could not capture some of the important perceptual qualities which I had mapped in the neighborhood. Aspects like the sequence of passing through the site, scenes encountered in the space, and the sensations of the material experience were yet to be fully captured and composed. I had explored sequence with the Intensity Map, sensation with the Texture Map and scenes of architecture with the Entropic Map. The goal became to represent an imaginary space existing in the design of the site by mapping sequence, scene and sensation on one map.

The Rhizomatic Design Map, shown on the following page, is composed using a spatial diagram of the space made from images of materials found in the neighborhood: brick, concrete and plants. This imparts an aspect of the sensation of materials and also sets the boundaries for the map. Sequence is created using a technique developed in the Cartography of Mind. Rather than use the linear and compressing frames of the Intensity Map, I chose to use a sequential technique from the Cartography of Mind, the Rhizomatic Map. I chose this technique in order to develop a non-linear connectable sequence that could encompass the entire site. This technique can also help me express scenes through the size of the frame and its arrangement. The Rhizomatic Map helps me show the life of the space by arranging the details into a whole picture. Experience is mapped by showing material details with a frame equally weighted with frames for scenes. Scenes are developed by drawing the spaces and imaging the life within them. This is intermixed with photos from the neighborhood of scenes that could occur in the space, like a volunteer leading an art lab. They are layered onto the plan like a mosaic. This seems to me to be a closer representation of how we perceive space—by moving back and forth between detail and scene.
Fig 73. Rhizomatic Map of Site Design

Rhizomatic Map: Mattress Factory Threshold Site
Evaluation of Process

This entire thesis was conceived as a map which charts the exploration of the *terra incognita* of perception and representation of urban life. The study was both an exploration of some of the tools we use to investigate the subtler nuances of the perception of urban space and a quest for new tools. The traditional graphic tools used in urban design proved insufficient for capturing the subtler features of my observations of the neighborhood. These graphic tools lose some of their power when they are used to chart the particular or unique aspects of the neighborhood. Traditional tools also are not capable of expressing how the information is viewed or the philosophical position of the viewer. It became necessary to develop new tools in order to express my perception and build a vocabulary for my design.

This process of studying the neighborhood through both traditional and personal maps led me to many of the design features of my plaza design. Traditional urban design tools like the Lynchian Analysis assisted me with neighborhood planning concepts and with some of the site’s programmatic aspects. The creative mapping helped with both concrete site elements such as paving, and abstract concepts, such as sequence to the site and the design concept.

The early part of this thesis, the position paper, took an active exploration approach. Not content to just study mapping methods of designers, I also interpreted their methods of exploring spaces by filtering them through my drawing style and view of spaces. I called this collection of my drawings *A Cartography of Mind*, because I felt that I was engaged in a closer communication with the designers I was studying by using their media. I also felt the Cartography of Mind drawings raised further questions and observations about my own processes of perception and representation. The process in the position paper could be summed up by the phrase “learn by doing.” This method led to questions of media and spaces that were beyond the original intent of the project, but vital to my understanding of mapping.

The design portion of the thesis offered new challenges that were only resolved by doing the drawings. The choice of media shifted to a combination of photography and drawing. This was different from the *Cartography of Mind*, which consisted entirely of drawings. The media choice arose out of several reasons. First, a friend of mine, Mark Dixon, then an MFA student at Carnegie Mellon, critiqued my drawings by asking why I used a photographic “frozen moment” perspective while drawing. This made me question the nature of the medium of drawing and the media of photography. The Mexican War Streets themselves offered incredible street life and finger stiffening cold. This made photography an important tool. New meanings and expressions of perceptions of spaces were brought out by using collage of these photographic images. Drawing became a tool to express the unseen that was present on sites but could not be photographically captured. Drawings were a collaged into the photos to bring the two layers of understanding into a single map.

A tension in this process was between established social science-based methods like those of Kevin Lynch, traditional design methods, and creative methods. Part of this tension is because of my undergraduate background in anthropology, which ethically frowns on studying a culture in order to change it. Lynch saw the value of anthropology in designing physical spaces and relying on design ethics to justify the anthropological research. During my thesis I had to explore how each method could assist my knowledge and design application or whether they were contradictory. I found that the different types of understanding site could be compatible. Lynchian methods were useful in compiling data about the neighborhood and quantifying it to make it comparable to other neighborhoods. His method provides a universal system for understanding urban neighborhoods. The application of this method was especially useful in planning concepts for the neighborhood. It helped to find the location of the site design, some of the program requirements and the justification for the design. If the scope of the project extended to city planning, Lynchian perceptual mapping would allow a comparison between the Mexican War Streets and other neighborhoods. This combined with other traditional methods could show some of the important features to map in the neighborhood.
This would assist in deciding what features should be mapped creatively. The Lynchian study identified activity nodes as an important design consideration of the neighborhood; the creative *Intensity Map* could study the particular features such as approaches to the nodes.

I found that Lynchian mapping was useful in establishing the “universal” traits of the neighborhood; the creative maps studied the “particular” aspects of site. The logic of the *Texture Map* acknowledged that all site designs have “floors,” and so studied the experience of the unique paving patterns of the neighborhood. The *Entropy Map*, which was driving the design concept and the forms of the site design, came from a less clear cut, more intuitive position. My sense of aesthetics, attraction to mystery and memory contributed to the need to make the *Entropy Map*. The spaces and feelings formed by the eroding buildings attracted my interest. I charted them with feeling. The spaces were a particular aspect of the neighborhood and spoke of the story of the place. Residents of the neighborhood were attracted to the neighborhood by more than economics. Aesthetics becomes a finger in the “invisible hand,” to counterpoint Keynesian economic theory.

Architectural entropy forms an unusual subject for a landscape, but it seems to fit with the aesthetic of the neighborhood and the aesthetic of the Mattress Factory. The design had to respond to Winifred Lutz’s *Garden*. The architecture to landscape continuum expands the story of the garden back to the neighborhood.

Throughout the process of this thesis, there was always a huge temptation to start designing before the mapping process was complete. Time, deadlines, and fear contributed to the temptation. When a designer sees a site one begins to engage in the art of the possible and theirs to design. Recognizing my position as a designer/cartographer, I resisted the temptation to design out of sequence and squelched the possible designs as I began to envision them. This restraint led to the design that emerged from the mapping process. It also gave me a feel for the materials, experiences, events, human interaction and spatial and perceptual qualities I wanted to imbue in the site. The limited time for design was no obstacle, because a major element of the site’s story had been put in place by the maps.

The limited design time however did force me to rely on traditional site design techniques; plan, section, model and axonometric. The exploration of these traditional techniques allowed me to see their strengths and weaknesses in representation. Each of the projections showed different aspects of the site. Any good craftsperson knows that to try to make a tool do more than it was intended for is to invite harm to both the tool and to the craft. In the research phase of the design, I tried to used traditional tools for their strengths and then to develop tools to capture aspects that the traditional tools could not. The tools of expression for the design had similar issues. The plan, axonometric, model, and sketches could only tell part of the story. Creative maps had to be developed to tell a more complete version of what the space could be. The *Rhizomatic Map* tells a different spatial and perceptual story than do the traditional maps, because it speaks to the potential for the life of the space, different ways of viewing it, and the design position of the designer/cartographer.
Relevance of Project

This project has relevance in both expected and unanticipated areas. Creative mapping scales the wall that designers tend to erect between scientific analysis of site and creative site design. The inclusion of creativity into the analytical process should have an impact on the way designers look at site. Including creative mapping into the site analysis process frees designer’s to record their perceptions of site using their own methods, yet presents them in a format from which others can benefit. A designer who employs this process will be more sensitive to their subjective view of the site and have a better understanding about the perceptions of others.

This exploration has relevance to both practice and pedagogy for it calls for an examination of the impact of perceptual tools on design. This is especially important in the contemporary era where new tools like the computer programs Sketch up, Pirenesi, Photoshop and Rhino are introduced to design studios like computer viruses. Professors are often unfamiliar with the technologies and cannot guide or frame their use. Programs tend to be passed from student to student without an understanding about how the program is shaping their perception of site. When students graduate the technology is introduced to firms with similar disconnects between the reality and the tools’ limitations. By asking students to make creative maps of site we are simultaneously asking them to understand the limitations and prejudices of their perceptual tools. They must develop their “intent” to map and their “operations” to guide the tools they use. In this way they can craft the right map for the unique site.

This thesis has brought me into contact with many people trying to understand the city through creative mapping, both in and outside of the field of landscape architecture and urban design. I met several people in Pittsburgh trying to map the city in creative and completely different ways. One had a public policy background and was creating an open-source GIS map, so that people could map their own city. I attended on MFA show at Carnegie Mellon University where the artist had assistants, dressed in costumes from the movie Flashdance, ask audience members questions about Pittsburgh and recorded their responses on a city map. The audience members, who stood behind a blue screen were projected and superimposed onto a city block in Pittsburgh. I could talk to these cartographers and be inspired by their mapping techniques and share my own mapping methods.

I have also shared my findings with my Landscape Architecture studio and challenged them to make their own maps. Several of my studio members have produced creative maps of their own as part of their studio and class work. I have assigned my studio the mapping of “human spaces” of a public building, with very interesting and thoughtful results.

The process of mapping city spaces has allowed me to more thoughtfully and rigorously engage the life of the city. Creative mapping forces me not only to observe unusual and often hidden qualities of the city, but to think about how I observe. The process of recording these observations forces me to think about how others can share my perceptions or articulate their own perceptions. For me the end of this thesis is the beginning of an uncharted world to be mapped.
Bibliography


Dietz, Paula April 7, 2000 "Buttressing and old city with new artistic girders," *The New York Times*


Frascari, Marco 1998 *Implementing Architecture*. Atlanta Nexus Presss


Halprin, Lawrence 1969 *RSVP Cycles*. New York, NY, Rheinhold Publiching Company


Massie, Michelle K. September 15, 2003 “Dedication today for a new mural on the North Side,” Pittsburgh Post Gazetette


O’Toole, Christine H. Fall 2001, “Mattress Maven,” H Magazine


Rouvalis, Christine August 18, 2002 “The woman behind the museum,” Pittsburgh Post Gazette


Shaw, Kurt October 26, 2003 “Mattress Factory exhibit opens up different worlds of art,” Pittsburgh Tribune Review


www.citypittsburgh.pa.us

www.mattress.org
Acknowledgements

There are many people who helped guide this thesis. The Mattress Factory and the Mexican War Street provided a wonderful site to work in and their people were helpful and friendly, providing good conversation and refreshments. This experience has been rewarding, fulfilling and fun because of the people and their land.

I would like to thank my wife Sarah for her love and support, her action photography work in Pittsburgh, her will for me to finish, and her razor sharp edits.

I would like to thank my thesis committee, Wendy Jacobson, Dave Dugas and Brian Katen, for their intellectual daring, academic rigor, support and for giving me enough rope to hang myself (if so required).

When I started this expedition, I had no friends, family or place to stay: a stranger in a strange city. The citizens of Pittsburgh fed me, “made palettes on their floor” (as the Woody Guthrie song goes), bandaged my wounds, entertained and enlightened me with their art, music and wisdom. I’d like to thank: Kirsten Strayer and Ignazio, urban philosophers and film theorists, for their brilliant discussions, food, and for letting me stay at their house. Cassandra Jones for sharing her food, apartment and blowing me away with her photography exhibition. Scott for letting me crash at his apartment and his intellectual networking assistance. I’d like to thank Sharbari Sarkar for sharing her wonderful Indian cuisine, and apartment. I’d like to thank Maggie for her tour of the Mattress Factory and Mexican War Streets. I’d like to acknowledge Mark Dixon for sharing derives in Pittsburgh, for his critiques of maps and for being a constant source of inspiration of mapping, method and life.

I’d like to thank the glorious City of Pittsburgh for its haunted alleys, stunning bridges and crazy topography.

I’d like to acknowledge the valuable critical and inspirational contributions of my studio especially CL Bohannon, my comrade in thesis and many other projects, Shane Rundall, Bill Mauzy, Uday, Julia Brown, Emily Houston, Matt Johnston and Nanda Raghunathan who shared some of my experiences in Pittsburgh and drove us both through hideous road conditions.