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**ABSTRACT**  
**TRANSFORMING NATURE OF PLACE AND ROUTE 280**

by  
**Peteris Ratas**

This thesis studies the nature of place, which is a specific, identified location in space, in the conditions of driving in a car on a highway. This study opposes the common opinion that highways destroy identity of a specific location and they have only utilitarian role. This thesis wants to prove that on Route 280 exist a possibility for an identity of a location and that the highway is a place, but the traditional dimensions of a place are modified by high-speed travel in a car. It will analyze actual observations on Route 280.

Traditionally, space was inhabited at slow speeds that had a traditional means of identifying a specific place. The invention of a car created new high-speed conditions of experiencing space that transformed the nature of a specific location.

The issue is to reconsider the dimensions and arrangement of a place on Route 280, which could be applicable for architecture in the space of high-speed travel and communication.

**TRANSFORMING NATURE OF PLACE AND ROUTE 280**

**by  
Peteris Ratas**

**A Master's Thesis  
Submitted to the Faculty of  
New Jersey Institute of Technology  
in Partial Fulfillment of the Requirements for the Degree of  
Master of Architecture**

**School of Architecture**

**August 1999**

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To the explorers of the earth in the twenty-first century



## ACKNOWLEDGMENT

The most sincere inspiration for this work comes from the unforgettable nocturnal road-trip sometime in the winter. Through the mystery of unknown terrain, through labyrinth of endless highways, I discovered Route 280, which then appeared dynamic and somehow enigmatic, warped in darkness. It was truly a voyage guided by surrealistic and dreamlike striving for exploration. That story gave the energy to animate recognition of a place on this highway.

The Faculty of the School of Architecture at NJIT played an essential role in a development of this thesis. Firstly, the guidance of Peter Lang was an important for establishing a conceptual basis. The entire body of work profited from critical view of Professor Donald Wall. I have to mention Craig Konyk under whose instruction I started to proceed towards the subject of this research. Professor Peter Papademetriou provided his valuable assistance during perplexing moments. At different stages, I received helpful critique and assistance from Karen Franck, David Elwell, Irene Ayad, Darius Sollohub, Jim Robertson, and Timothy Wood.

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## PREFACE

*The question of architecture is in fact that of the place, of the taking place in space. The establishing of a place which didn't exist until then and is in keeping with what will take place there one day, that is a place. ... The setting up of a place is an event and obviously the setting up is always something technical.*

Jacques Derrida

To create a place, it is a task for architecture. Can architecture achieve this task if everything is in motion, and where existence in the world becomes a movement in space, like it is on a freeway?

## TABLE OF CONTENTS

Chapter	Page
1 INTRODUCTION .....	1
2 PLACE ?.....	7
2.1 Introduction.....	7
2.2 What Does the Word ‘Place’ Mean?.....	7
2.3 The Nature of a Place.....	8
2.3.1 Observer’s Body.....	11
2.3.2 Interaction with a Place.....	12
2.3.3 Structure of a Place.....	12
2.4 Place in the Slow-Speed Conditions.....	13
2.4.1 Observer’s Body.....	14
2.4.2 Interaction with a Place .....	15
2.4.3 Structure of a Place .....	16
2.5 Place in the High-Speed Conditions.....	17
2.5.1 Observer’s Body.....	18
2.5.2 Interaction with a Place .....	20
2.5.3 Structure of a Place .....	20
2.6 Summary.....	22
2.6.1 Observer in a Car.....	22
2.6.2 Motion and Vision.....	23
2.6.3 Path and Sequence .....	25

## TABLE OF CONTENTS (continued)

Chapter	Page
3 DESCRIBING PLACE IN HIGH-SPEED MOVEMENT .....	28
3.1 Introduction.....	28
3.2 Existing Methods of Analyzing Highways as Applied to Route 280.....	28
3.2.1 The View from the Road.....	28
3.2.2 Freeways .....	35
3.2.3 Learning form Las Vegas.....	38
3.3 Program for the Analysis of Route 280.....	42
3.3.1 Observer in a Car.....	42
3.3.2 Motion and Vision.....	42
3.3.3 Path and Sequence .....	43
3.4 System of Graphic Notation.....	44
4 HISTORICAL BACKGROUND OF ROUTE 280 .....	47
5 ANALYSIS OF ROUTE 280.....	56
5.1 Introduction.....	56
5.2 Observer in a Car.....	56
5.3 Motion and Vision.....	59
5.3.1 Dynamic Character of Motion and Traffic Flow .....	59
5.3.2 Animated View.....	69

## TABLE OF CONTENTS (continued)

Chapter	Page
5.4 Path and Sequence.....	71
5.4.1 Distance.....	71
5.4.2 Interval of Time.....	74
5.4.3 Signs.....	77
5.4.4 Interchanges.....	79
5.5 Diagrams of Route 280.....	81
6 CONCLUSION.....	86
6.1 Conclusion about the Analysis of Route 280.....	86
6.2 Transformation in the Nature of a Place in the High-speed Condition.....	87
6.3 Architecture of a Place in the High-speed Conditions .....	90
APPENDIX A - MEANING OF THE WORD ‘PLACE’ .....	94
APPENDIX B - HISTORY OF TRAVEL AND TRANSFORMING PERCEPTION OF SPACE.....	100
APPENDIX C - REPRESENTATIONS OF ROUTE 280.....	119
SOURCES OF FIGURES.....	122
NOTES .....	124
BIBLIOGRAPHY.....	127

## LIST OF FIGURES

Figure	Page
1. Map of Route 280. The route goes diagonally from the top left, point A, to the bottom right, point B, where it merges with the NJ turnpike, Route 95.....	6
2. Relationship between the structure of a place, the interaction with a place, and the observer's body.....	11
3. Body of an observer in the slow-speed conditions.....	15
4. Interaction with a place in the slow-speed conditions.....	15
5. Structure of a place in the slow-speed conditions.....	16
6. Space of high-speed travel—Route 280.....	18
7. Body of an observer in the high-speed conditions.....	19
8. Interaction with a place in the high-speed conditions.....	20
9. Structure of a place in the high-speed conditions.....	21
10. Interior of a van .....	22
11. Plan and elevation of a typical car .....	23
12. A place of a driver in relation to other vehicles that compose a flow of traffic...	24
13. Highway network between New Haven, New York, and Philadelphia.....	27
14. Space and motion diagram of Route 280.....	31
15. Orientation diagram of Route 280.....	32
16. Locus of attention on Route 280.....	33
17. Objects that are remembered during travel on Route 280-West.....	34
18. Motation diagram of Route 280-West.....	37

# **LIST OF FIGURES** **(continued)**

<b>Figure</b>	<b>Page</b>
19. Space, speed, and symbol.....	40
20. Highway.....	40
21. Signs, symbols, and architecture on Route 280.....	41
22. Route 280 has two directions of travel – west and east.....	44
23. An activist attaches a sticker to a bumper of a car.....	50
24. Gov. William T. Cahill opens Route 280 in West Orange as East Orange Mayor William Hart, right, applauds.....	51
25. The elevated section of Route 280 in Newark .....	52
26. Chronology of the construction of Route 280.....	54
27. Route 280 in relation to the administrative territories.....	55
28. Inside a car at night.....	57
29. Driver and a view through the window at daytime .....	57
30. Detail of the interior of a car.....	57
31. Motionless position of an observer in a car while changing location in space.....	58
32. Dynamic character of Route 280 when driving west.....	62
33. Dynamic character of Route 280 when driving east.....	63
34. View on traffic from a stationary position .....	64
35. View on traffic from a stationary position.....	64
36. View on the sunken section of Route 280 from a stationary position.....	65
37. Appearance of traffic from a slowly moving position.....	65
38. View on traffic from a slowly moving position above Route 280.....	66



## LIST OF FIGURES (continued)

Figure	Page
39. Appearance of traffic from a moving car on Route 280.....	66
40. Traffic density (middle line) and speed limit (right) on Route 280.....	67
41. Rhythm of background sounds when passing under bridges.....	68
42. Changing visual scene in relation to movement on Route 280-West.....	70
43. Distances to the end of Route 280, Interchange 47, when driving west.....	72
44. Distances between highway interchanges on Route 280 when driving east.....	73
45. Time intervals in relation to Route 280 when driving west.....	75
46. Time intervals in relation to Route 280 when driving east.....	76
47. Road signs on the Passaic River bridge.....	77
48. Portal with road signs at the eastern end of Route 280.....	77
49. Cantilevered road sign between exits 15 and 14.....	77
50. Sequence of road-signs on Route 280-West.....	78
51. Sequence of highway interchanges on Route 280 when going west.....	79
52. Sequence of highway interchanges on Route 280 when going east.....	80
53. Aerial view of Route 280.....	82
54. Motion and vision—a dynamic character of motion and a sequence of views on Route 280.....	83
55. Path and sequence—spatial structure of Route 280.....	84
56. Architecture of a place in the high-speed conditions on Route 280.....	85
57. The relationship between an observer and space.....	88

## LIST OF FIGURES (continued)

Figure	Page
58. Observer in a fast moving car on a highway and the surrounding environment...	89
59. Structure of a place in the slow-speed conditions.....	91
60. Structure of a place in the high-speed conditions.....	92
61. Chronological development of the word ‘place’ .....	99
62. Road and bridge over the Mohawk in an early nineteenth century lithograph.....	103
63. One of the first scenes with train is naïve and prophetic. The walking person in the front and coal train coming from behind suggests the transformation of our mode of traveling in space.....	105
64. Terminal in Paris, 1830.....	108
65. Passenger in a First-class train, 1900.....	111
66. In early years of the twentieth century, in the countryside, the road conditions were an obstacle for car travel outside of the paved streets of a city.....	113
67. Car driver in a small town.....	114
68. Curved and unpaved roads limited travel speed. Routes were widened and straightened. Exactly this condition gave cars the possibility of high-speed movement that consequently changed our perception of space.....	115
69. Legislative hearing on highways.....	116
70. Aerial view of Route 280 around interchange 12 .....	119
71. USGS Topographic Map (scale 1:24000) .....	120
72. Straight Line Diagram developed by New Jersey Department of Transportation.....	121

## LIST OF TABLES

Table	Page
1. Meanings of the word ‘place’ .....	8
2. Relationship between general criteria and specific attributes of a place in different conditions.....	22
3. Abstract notation of motion in space.....	30
4. Notation of orientation.....	30
5. Motation.....	36
6. A system of notation from the book - <i>Learning from Las Vegas</i> .....	40
7. Notation describing an observer in a car.....	45
8. Notation describing motion and vision.....	45
9. Notation describing path and sequence.....	46
10. Senses of the word ‘place’ .....	94

# CHAPTER 1

## INTRODUCTION

### Prologue

Every day 112,400 cars pass over Route 280 in East Orange, New Jersey, <sup>1</sup> which is probably about 150,000-200,000 drivers and passengers - the entire population of a large town. During rush hours there are as many people on Route 280 as on a pedestrian street in the city. Isn't it obvious that highways like Route 280 have become an important place in public life? The majority of people who pass this highway rarely imagine it to be a specific place and they hardly consider a freeway beyond its utilitarian purpose and actual ugliness, because the highway lacks an identity. Considering the number of people that are on this highway, one could say that Route 280 is the Champs-Élysées of suburban New Jersey. Only the nature of this place is new, strange, and animated by a race of automobiles. It represents a different perception of space and a transformation in the general concept of location in space. Instead, people are used to thinking that a highway is an empty utility, that it is not a place of habitation, that it destroys our habitat, and creates a so-called non-place. This further study will try to explore more particularly Route 280, where high speed and space intersect.

### Hypothesis

*Opposite to the dominating attitude that highways are a non-place, and destroy identity of a specific location, this thesis wants to prove that on Route 280 exist a possibility for an identity of a location and that the highway is a place, but a place whose traditional dimensions are modified by high-speed travel in a car.*

The issue is to reconsider the dimensions that define place when interaction with space occurs at high speed. Traditionally, place has been understood in terms of static setting or placement in a surrounding landscape. Under the new conditions, place has lost its previous interpretation when we alienate ourselves from the surrounding environment in our fast moving cars. The increasing time people spend driving is gradually outgrowing the traditional slow-speed mode of experiencing space without a car. This study is based on the understanding of interaction with space caused by this changing mode of travel, which is applied to the analysis of an actual example – Route 280.

On a highway, there is no room for a conventional edifice, such as a building. The space experienced at high-speed is left outside the reach of traditional vision of architecture, which can't extend beyond traditional "materials" - walls, windows, doors, roofs, trees, etc. Can these "materials" identify a place observed at human speed? What would happen if one thinks of place on a highway that has no traditional elements identifying it? How could we describe the transformed nature of place on a highway, for example on Route 280? It is a challenge for architecture to create a place on a highway and to impose its arrangement and order on animated character of space experienced by driving. How does architecture of place respond to those conditions? There should be new means to address a location when geometric and physical location moves at high speed.

### **Route 280**

Roughly 18 miles long and six lanes wide Route 280 is a linear stretch of asphalt curving through a suburban fabric. It traverses the hills and valleys of the New Jersey Highlands

and passes through areas of vast and bushy wetlands. The route crosses three counties: Hudson, Essex, and Morris. It connects the towns of Parsippany-Troy Hills, East Hanover, Roseland, Livingston, West Orange, Orange, East Orange, Newark, Harrison, and Kearny. Its profile ranges from an elevated viaduct in Newark, to a sunken highway in the Oranges. It has two short sections that go through an impressive cut in rock. Its geometry accommodates cars regularly traveling at 60-75 miles per hour.

The flow of cars has its own pulse of life. During the morning hours, the swarm of traffic resembles a viscous liquid. At night, sleepless drivers and halogen headlights combined with the high speeds turn this into a fascinating spectacle. Then everything – each vehicle: truck, sedan, bus, or police car – is in fast motion. All notion of “being somewhere” is animated. Although the route passes through the material world (forests, hills, rocks, clusters of houses, and bridges) those things are rarely noticed when the driver can only glimpse them for a second.

### **Main Definition - Place**

When we speak about a place, we mean a specific location in space. For this study we will speak from the perspective of an educated passenger in the front seat of a typical passenger car (for example Toyota Corolla, Volkswagen Passat, etc.) driving at 55-70 miles per hour (about twenty times faster than a pedestrian). This setting creates a specific frame of encounter with a freeway, an observer’s eye-level, intensity of sound, size of a window, etc. It is also the most common means of observing a road. The interaction between space and a passenger defines the nature and the dimensions of place.

The increased velocity changes the interpretation of place. When one is walking, the locality in space appears as actual physical objects and forms – sidewalks, walls, lawns, streetlights, etc. With the advent of automobile travel around the turn of the twentieth century, people could travel at higher speeds that had not been previously experienced. Travelers in a car lost their direct encounter with surrounding space by experience of actual physical objects. They were alienated from traditional experiences and were thrown into a new and unknown kinetic dimension. The interpretation of a place became abstract and alienated by the increasing speed and intimate enclosure of an automobile.

A sense of place is created by our interaction with space. On a highway this interaction is established by driving in a car. In contemporary North American society highways provide opportunities to move at high speeds. Route 280 is a very typical highway, a channel of vehicular traffic and nothing more. Because of intense motion, the driver does not pay much attention to the surrounding landscape, but rather to a limited range of objects. If this is so, the sense of locality is defined by new means and new dimensions that need to be determined in this study.

### **Structure of this Study**

The following work starts with more general study about the nature of a place, which then is applied to an analysis of particular site—Route 280.

The chapter, *Place?*, overviews a question about the nature of place, determines criteria according to which a place can be studied. From the general criteria, the chapter

defines specific attributes that characterize a place in the slow-speed and high-speed conditions.

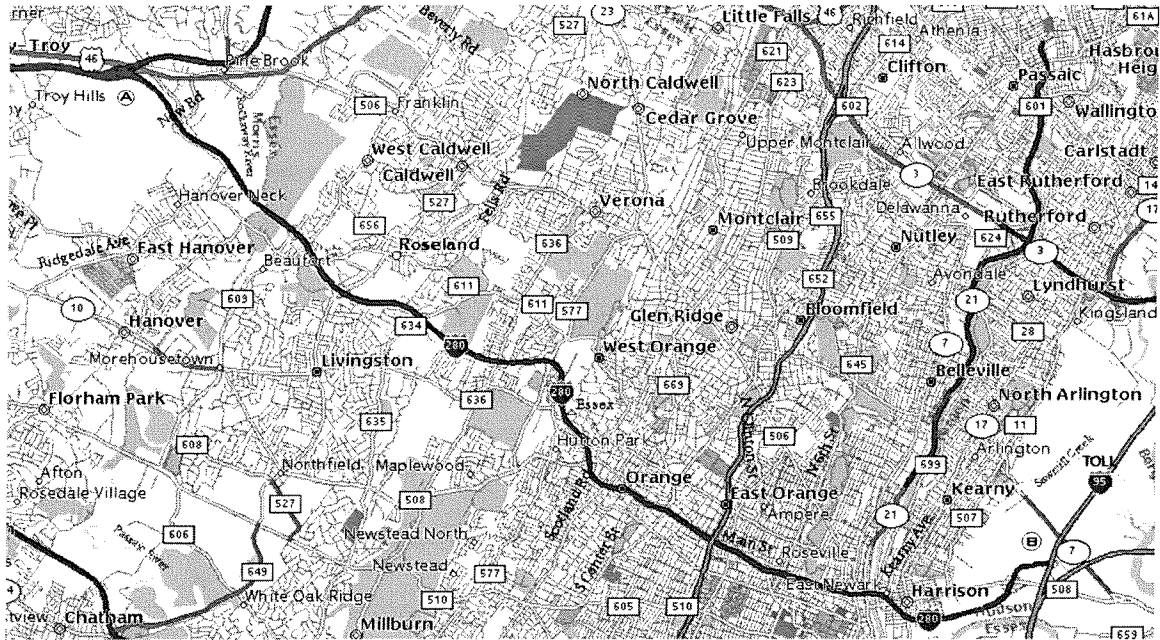
The chapter, *Describing Place in High-speed Movement*, determines parameters and elements according to which Route 280 can be studied. It determines specific properties that can be quantified and recorded in a diagram. The chapter starts with an overview of previous analyses of freeways by Kevin Lynch, Robert Venturi and Lawrence Halprin. In the end, the chapter lists parameters that will be examined and graphically analyzed on Route 280. Later, this system could also be used not only to analyze highways, but also to design places as a progression in time and space.

The chapter, *Historical Background of Route 280*, gives an insight in the development of Route 280. It is important to know an origin of the subject of the further analysis. The building of the route correlates with an overall urban transformation from a traditional city to a suburban city, and then to a x-urban city.<sup>2</sup>

The chapter, *Analysis of Route 280*, applies the previously determined parameters to analysis of Route 280. The main focus is to record what represents the attributes of a place in the conditions of high-speed movement on a highway. In the end, all results of these analyses are collected in diagrams interpreting a place on Route 280.

This study leads to the conclusion about the transformation in the nature of place in the new conditions of a high-speed movement on Route 280. Because of those conditions, new properties of a place emerged. Those properties were not experienced before people could travel at high speeds. The conclusion tries to show correlation between the new interpretation of place on Route 280 and possibility to create a place in such conditions.





**Figure 1.** Map of Route 280. The route goes diagonally from the top left, point A, to the bottom right, point B, where it merges with the NJ turnpike, Route 95.

## **CHAPTER 2**

### **PLACE?**

#### **2.1 Introduction**

The purpose of this chapter is to define criteria of a place and its attributes from the position of an observer traveling in a car that can later be applied to the analysis of a real site—Route 280. A place gives a sense of orientation in space and it is experienced through a particular intimate environment or space encountered by a living body. The nature of a place can be revealed through the complex of relationships between a living body (observer) and surrounding space. Space, such as a highway, is experienced in a particular form of interaction--walking, driving in a car, sitting in a chair, etc.--that produces different interpretation of a place. A living body is immersed in experiences of surrounding space and objects and this interaction becomes intimate and specific. If one thinks about objects in the surrounding world, they are “somewhere” and not “nowhere”; they are placed in the image of the surrounding space. This is also true of a highway, where the interaction between a place and a living body is transformed by new conditions of inhabiting space – driving a car.

#### **2.2 What Does the Word ‘Place’ Mean?**

The word ‘place’ has many interpretations. The apparent existence of any substance has its specific place in the world, but the diversity of those existing substances is responsible for multiple meanings of the noun ‘place’. (Table 1) These meanings can be classified in four categories: open space in a city, extension in space, position, and status of a person. (For more detailed analysis see appendix A)

**Table 1.** Meanings of the word ‘place’. <sup>3</sup> (source: Guralnik)

1. Open space in a city.
<ul style="list-style-type: none"> <li>a) a square or court in a city, for example, ‘Astor Place’</li> <li>b) a short, usually narrow, street</li> </ul>
2. A material place, an extension in space, a particular part of space in which people dwell together; a particular part of a surface.
<ul style="list-style-type: none"> <li>a) space, room</li> <li>b) a particular area or locality, region</li> <li>c) the part or space occupied by a person or thing, situation or state</li> <li>d) a city, town, or village</li> <li>e) a residence, dwelling, house and grounds</li> <li>f) a building or space devoted to a special purpose (a place of amusement)</li> <li>g) a particular spot on (or part of) the body or a surface</li> <li>h) a particular passage or page in a book, magazine, etc.,</li> </ul>
3. A position in some scale, order, series, or in any kind of dimension--in space, in series of numbers, in rank or station, in social class or standing, and in order of progression.
<ul style="list-style-type: none"> <li>a) position or standing, especially one of importance</li> <li>b) a step or point in a sequence</li> <li>c) In arithmetic, the position of an integer, as in noting decimals</li> <li>d) In racing, the first, second, or third position at the finish.</li> </ul>
4. A position or situation with reference to a person’s occupation: position according to one’s purpose instead of mere position in space.
<ul style="list-style-type: none"> <li>a) the customary, proper, or natural position, time, or character</li> <li>b) a space used, reserved, or customarily occupied by a person.</li> <li>c) an office, employment, position</li> <li>d) official position</li> <li>e) the duties of any person or business</li> </ul>

### 2.3 The Nature of a Place

The nature of a place is the character of a particular locality that is a product of a specific interpretation. The question about the nature of a place is eventually the question of how one interprets a certain location. The nature of a place makes a location in space specific

and distinguishable from another place. The sole fact of being in a location does not describe the character of a place. It is natural that things have to be “somewhere” in order to exist. It is possible to assume that existing things have a place just because they exist. The fact of having a place, in this situation, is less important than the character that describes it.

A place or location for an observer moving in a car is not a fixed position in space. It can move, disappear, and reappear. “[Open] space provides room for vagabondage, for wandering and drifting between regions” (Casey, p. 304). The nomadic character of a place is embodied in the experience of travel and surrounds an observer traveling on a highway. Wherever one is driving is his or her current locality in space. A location of travel can’t be affixed to any point in space; it occupies the region of the movement. Static objects themselves do not create a place. An observer traveling in a car has to recognize it, but, while moving, he or she has no static location in space except in a car. In these conditions, a description of a place can not solely rely on a determination of a fixed position. It opens a possibility for new typology of objects and events that establish a relationship between those objects and a specific locality.

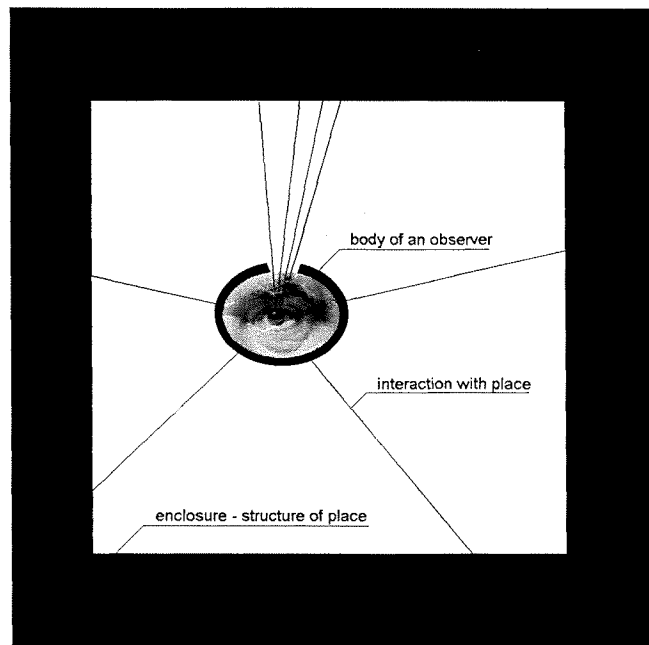
For Martin Heidegger, a place is a “room” for Being-in-the-World. The “room” gives space a localized and intimate sense and it is never general or undefined. One can find a direction and orientation because of a familiar spot or the character of space. One can recognize a place from its specific character. What is Heidegger’s “room” when space is experienced during fast and continuous movement? It is not a mere container.

To describe what the nature of a place is for a moving observer and the mechanism that establishes it, let’s imagine the following example that is borrowed from Kobo Abe’s

novel *The Box Man* (it is a story of a man walking with a cardboard box over his head). There is an enclosure of a surrounding space and the body of an observer, a “box man”, who is enclosed in a large corrugated cardboard box with a small opening in the front. The box is four feet high and about two feet wide, like one used to pack refrigerators. The opening is about 17 inches wide, 4 inches high and is covered with a small vinyl curtain. The experience of the surrounding space is limited and defined by the properties of the box enclosing the “box man”. He can only see his toes and a small area around him. He can look through the opening what is in front of him. He walks through a town and describes it the way he can see it. The box affects the nature of his interaction with the surrounding world. For example, the size of the opening regulates how much he can see through, the form and weight of the box determines his mobility, and its acoustic properties regulate experiencing surrounding sounds. The observer has his own interpretation of a place and its nature derived from his perceptions of the world.

In this example, there are three essential elements that define the observer’s interpretation of a place and its nature--the observer with his box, the outer enclosure, and the interaction between them. The box and the observer’s body compose a system from which the world is observed. Let’s call the system the observer’s body. Walking, running, looking through the opening in the box, and listening to sounds is the interaction with the outside world. The outer enclosure, a street, a river, and the wall of a building, all belong to an organization of the surrounding world in which the observer moves; the outer enclosure is a structure of his place. (Figure 2) It is easy to see that these three elements—the observer’s body, the outer enclosure, and the interaction between them--could be found in almost any situation. A passenger in a car is somehow similar to the

“box man” except that instead of a cardboard box there is a car, which also determines the observer’s perception of the surrounding world in a certain way. This scheme makes the relationships between things simple and comparable to different situations. These three general elements – structure of a place, interaction, and observer’s body – need to be more concretized, and will be a guideline for the further study of Route 280.



**Figure 2.** Relationship between the structure of a place, the interaction with a place, and the observer’s body.

### 2.3.1 Observer’s Body

Maurice Merleau-Ponty wrote that our body is “our general medium for having a world” (Merleau-Ponty (1) p. 146). It is true that our apprehension of the surrounding environment comes through the experiences of a body that lives in the world—living body. There has to be a body with eyes, ears, skin, etc. that give an ability to see, hear, or touch in order to create an image of the space, about things that surround it. The living body is in the center of all experiences and scenes, sounds, objects, etc surrounding it. In

reality the living body is never by itself, it is not alone. The body is restricted by its dimensions, clothing, and tools. It forms an assemblage with its tools that modifies an interaction with an environment. A car, for example, also is a tool that extends the body's capabilities—opens access to new distances and speeds that were impossible before. Therefore, when describing the observer's body, it also has to include all sets of tools and defenses that compose an integrated system, the observer's body.

### **2.3.2 Interaction with a Place**

Between a living body and space enclosing it, there is communication. The body encounters a particular part of space where it can distinguish its location. Properties of the observer's body define the ways in which it can interact with surrounding space and determines a specific relationship with the world. For example, the speed of driving determines perception of roadside landscape and the length of time that an object is visible. If there were no such interaction, one would have neither a relationship with surrounding space nor any idea of a locality in the space. The encounter with space is caused by the body's actions, such as walking, listening to sounds, seeing, etc. The question about interaction with a place includes forms and media. The body's abilities together with its tools determine possible forms of interaction. The media establish connection between the body and its surroundings.

### **2.3.3 Structure of a Place**

The outer enclosure or space creates an arrangement of things that an observer perceives as a place. The arrangement or organization of things is a structure of surrounding

environment, which eventually becomes a base for structure of a place that is a specific part of the space. Having a place means to be in a certain relationship with surrounding places that means to be within the structure of this a place. The structure of a place can be given in many ways, by directions—north, south, east, west, backward and forward, in and out, by arrangement of objects, by distances, by sequence or order, by form of the enclosure, etc.

Knowing the general attributes of a place, one can study them in an actual situation. In order to distinguish a transformation in the nature of a place experienced under conditions of slow speed movement and at high-speed travel on a highway, the study has to compare the attributes in both those conditions. The study has to determine the structure of a place when walking and driving. Consequently, the slow-speed conditions of a place then can be compared with the new conditions of a place on a freeway.

## **2.4 Place in the Slow-Speed Conditions**

By slow-speed conditions we will presuppose, the experience of surrounding space when walking. This character of inhabiting space can be named as slow-speed. The character of inhabiting space refers to specific elements that define a place. In slow-speed conditions, the nature of a place is usually associated with images of a home, street, fireplace, room, monument, etc. that were viewed from a walking speed. There were no isolation from outside environment as there is when sitting in a car.

James Howard Kunstler, in his book *The Geography of Nowhere*, writes about a place in the slow-speed conditions, from the point of view of a pedestrian that moves at walking pace. He pictures the historic New England town – Lebanon, New Hampshire,



“Big trees lined the streets and their branches made a canopy over it like the vaults inside a church. In the soft purple twilight with the porch lamps glowing... these quite residential streets made quite an impression” (Kunstler, p. 13). This place is described by objects such as big trees, branches, canopy, vaults, church, streets, and porch lamps. The description consists of detailed notions about particular objects that can only be noticed when moving slowly.

For architecture a place is understood predominantly in the slow-speed conditions, where it is pictured as a facade of a building, an interior room, a streetscape, etc. These individual elements cannot be accurately analyzed when passing in a car. In their book *Body, Memory, and Architecture*, Kent Bloomer and Charles Moore classify three types of places in architecture: objects in a void, voids in a solid, and the edge between void and solid. In architecture, solids, voids, and surfaces define spatial relationships of a particular location.

#### **2.4.1 Observer's Body**

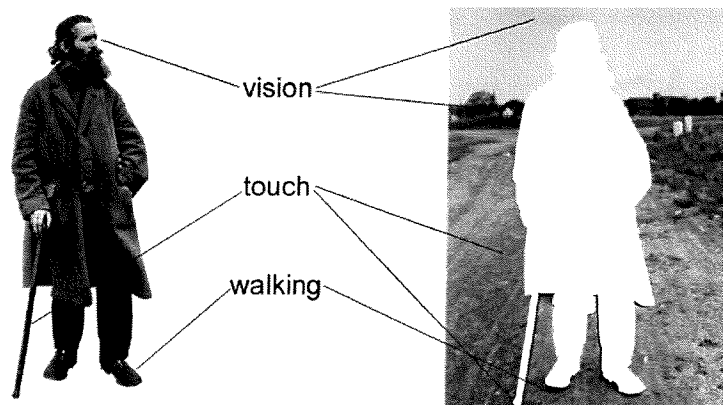
When walking, the body moves under its own power. The speed of walking is 2-5 miles an hour. There is only clothing between the body and its surroundings. (Figure 3) Because the body has almost no protection from its environment, therefore, it is more sensitive to the properties of surrounding objects. In this situation, one pays more attention to details, nuances, characters, when his or her body is more sensitive to its environment, but they would be unnoticed at higher speeds when being enclosed in a vehicle.



**Figure 3.** Body of an observer in the slow-speed conditions.

#### 2.4.2 Interaction with a Place

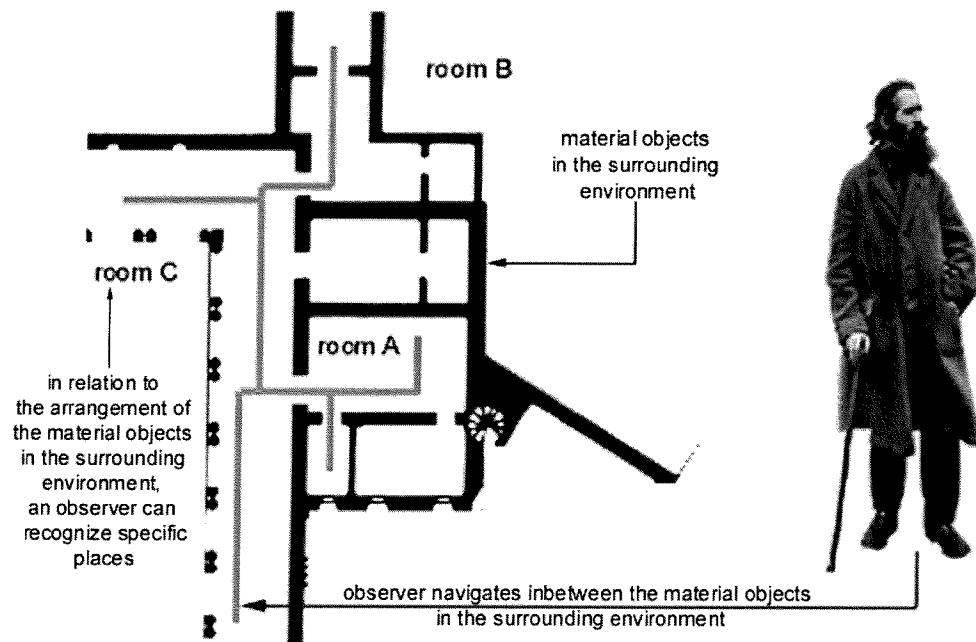
In the case of slow-speed conditions an interaction between the observer's body and its surrounding environment is very diverse. (Figure 4) An observer is exposed to the influence of surrounding environment: an observer hears sounds with his or her ears, sees views with his or her eyes, smells odors with his or her nose, touches textures with his or her hand, and walks around with his or her feet. And there is almost nothing that isolates or conceals an observer from the surrounding environment.



**Figure 4.** Interaction with a place in the slow-speed conditions.

### 2.4.3 Structure of a Place

At walking speed, space is organized by objects that can be touched and seen. Walls, trees, rivers, or views of a landscape surround the observer's body, which navigates between these objects. (Figure 5) In their structure of positions, forms, and proportions, the body recognizes a place. The layout of rooms and streets defines the order in which one can penetrate through space and get from one point to another. The place enclosed in the built structure follows a layout of walls, openings, etc. A living body in the slow-speed conditions cannot move fast for long distances, therefore the structure is restricted in extent and to a horizontal plane so that the body can walk through.



**Figure 5.** Structure of a place in the slow-speed conditions.

## 2.5 Place in the High-Speed Conditions

The new conditions of a place refer to driving on a highway at 50-70 miles per hour in a car. It is also the most common form of traveling in space at the end of the twentieth century. (Figure 6) Under these new conditions the bodies of a driver and passenger comprises an integrated system with the vehicle that cannot operate without a driver. Similarly, the outer enclosure changes. The medium between a body and space—the car—transforms their interaction. “Modern car interposes a filter between the driver and the world he is moving through. Sounds smells, sensations of touch and weather are all diluted in comparison with what the pedestrian experiences. Vision is framed and limited; the driver is relatively inactive” (Appleyard, p. 9).

This experience of high-speed movement has a prelude—train-travel that preexisted automobile travel for nearly a century and allowed people experience speeds impossible to reach by the human or horse-power. Train-travel created conditions that were further inherited by the dyad of the car and the highway. In a train people are passengers sitting in a compartment with a window through which they can see a moving landscape. The train follows restricted routes and fixed schedules. The interaction with space during train-travel consists of two elements—a static (in relation to an observer) physical enclosure in a railroad car that moves on tracks and a vision of a moving landscape through the window. Train-travel changed notions of the distances between different locations in space. The speed diminished the travel time between different locations; distant regions became closer and started to merge with each other as the network of railways grew. High-speed travel intensified visual experience. The scenes changed rapidly, each bringing something new to surprise a traveler.

The invention of the automobile with an internal combustion engine in 1885 continued to transform the nature of a place. Automobile-travel brought with it one significant difference from train-travel: movement became individualized; a driver could go with his or her car anywhere and at any time. There were no restrictions of schedules and railway networks. The conditions that characterize automobile-travel further transformed human interaction with space. A trip in an automobile combined the speed of train-travel with the freedom of walking (one can go wherever he or she chooses). The car and road changed the traveler's experience of a place, and the building of wide and straight roads made fast movement possible.



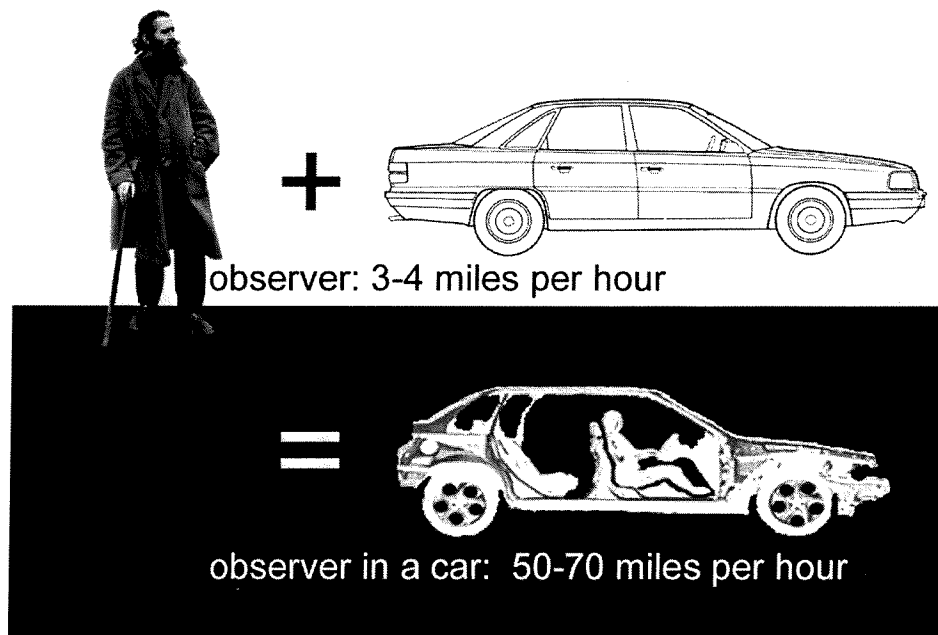
**Figure 6.** Space of high-speed travel—Route 280.

### **2.5.1 Observer's Body**

It is a system consisting of an observer and an automobile. The interface between an observer and a car that consists of a dashboard, steer-wheel, and many more devices that

make a car controllable and somewhat integrated with an observer's body. This integration with a car modifies abilities to interact with the surrounding environment. (Figure 7) In an automobile, the observer can move at least ten times faster and for much longer distances than on foot. There is a protocol of behavior between them, which means, for example, that in order for a car to turn, a driver has to rotate a steering wheel. Besides, in the car a driver is highly isolated from the surrounding environment.

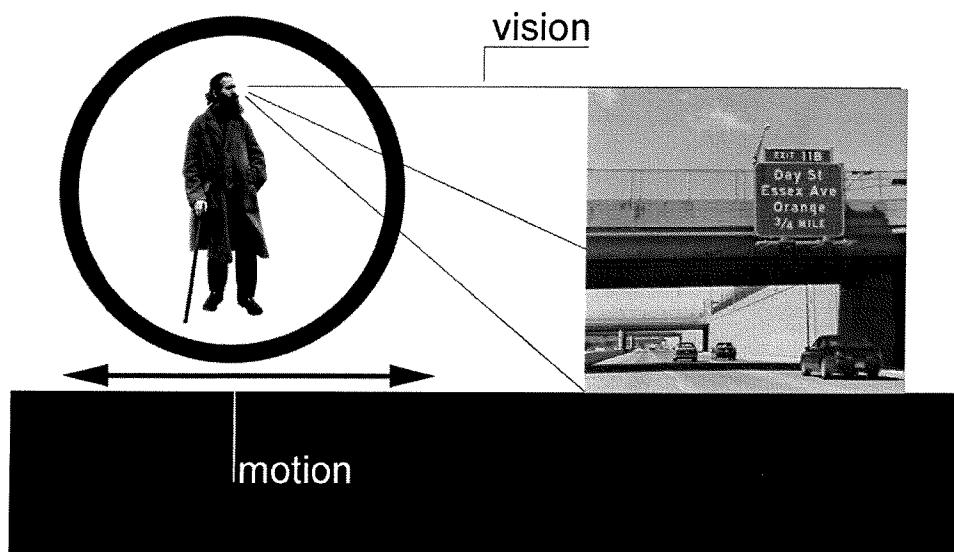
The enclosure, which separates travelers from the outside, has a structure of its own and it contains a room inside. Because of the increasing duration of time that people spend in cars, the room inside becomes a portion of their dwelling. In response to an increased usage of a car, Paul Virilio raises the question, "Has the car not become a room that is separated from the floor plan of the house, the necessary condition for the appearance on the second residence, a separate habitat for the main dwelling?" (Virilio).



**Figure 7.** Body of an observer in the high-speed conditions.

### 2.5.2 Interaction with a Place

A driver or a passenger in a car is moving at high-speed in relation to the road and sees surrounding objects quickly in passing. There are two important attributes of interaction—motion and vision. (Figure 8) A static position at a certain moment in time has no duration because it is changed instantly by the motion of a vehicle. Dynamic characteristics of movement—turns, ascents, and descents—mark observers reaction to the configuration of a road and its specific locations. Glazing of a car lets see outside a car and protects an observer from penetration of sounds, climate conditions, and smells. The vision really becomes major and almost only way to recognize location in the surrounding environment.



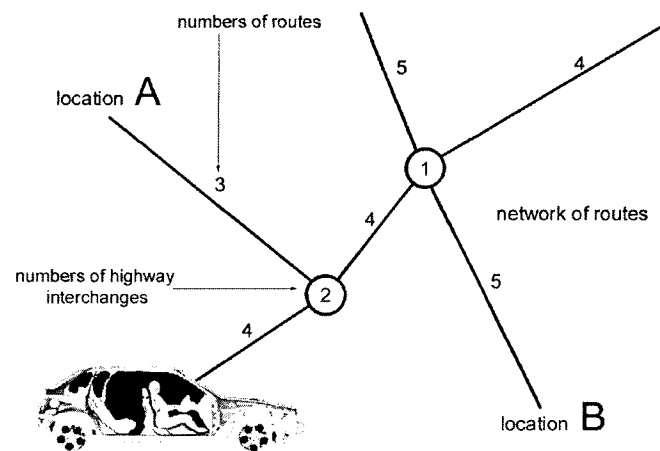
**Figure 8.** Interaction with a place in the high-speed conditions.

### 2.5.3 Structure of a Place

When traveling in a car, one can move in space following a system of routes. (Figure 9) One is eventually restricted within the network of routes because cars cannot drive off the

road. Cars have to follow certain directions and traffic rules, and they are enclosed in squeezed in narrow channels of paved roads that connect various locations in space. The order of places is defined by the structure of the connecting roads and objects that orient a driver or a passenger in space. During travel, the events and objects on a highway are encountered in the order that is defined by the specific path that one travels. It is a sequence in which those sites are passed.

Highways create a network, within which cars can move. Creating this network gave people the ability to drive faster. The network of freeways is a recent phenomenon. Interstates are major high-speed arteries whose construction started in 1956, when the U.S. Congress enacted legislation to create the Interstate Highway System that links the country from east to west, and from north to south. Such highways modified our understanding of the organization of space by changing the sense of distance between locations. Also orientation in space relied more on abstract road signs because of the speed and complexity of highway interchanges.



**Figure 9.** Structure of a place in the high-speed conditions.



## 2.6 Summary

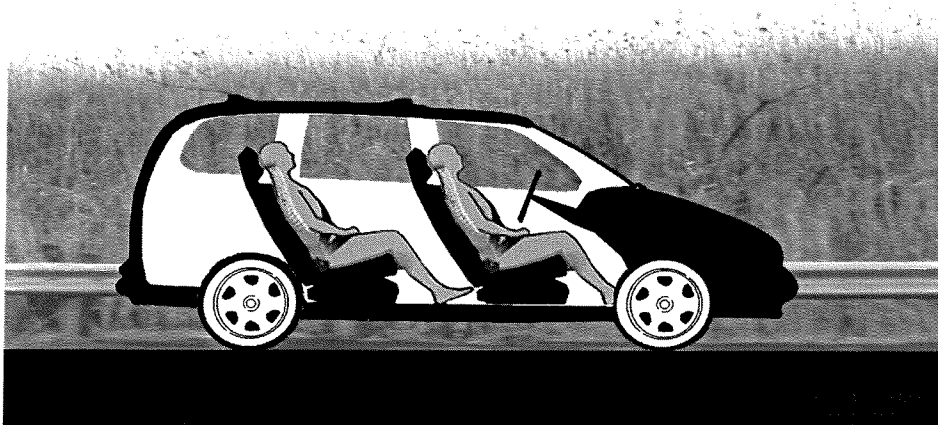
This table (Table 2) summarizes the relationship between the criteria of a place and its implications for the slow-speed conditions and for the conditions of high-speed movement on a highway. The diagram lists specific attributes that describe a place.

**Table 2.** Relationship between the criteria and specific attributes of a place in various conditions.

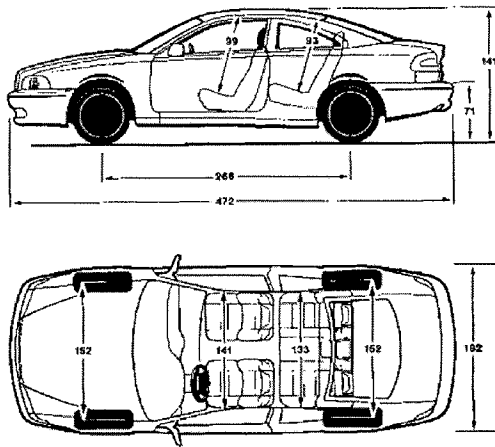
Criteria	Attributes	
	Slow-speed conditions	High-speed conditions on a highway
Observer's body	Observer's body that can walk and see	<i>Observer in a car</i>
Interaction with a place	Walking, direct encounter with a surrounding space	High-speed <i>motion</i> in a car <i>and vision</i>
Structure of a place	Arrangement of material bodies, buildings, and voids	<i>Path and sequence</i> of routes and intervals in space

### 2.6.1 Observer in a Car

'Observer in a car' stays for the integrated system of a vehicle and an observer inside that inhabits a freeway. (Figure 10-11) It is an attribute general observer's body on a highway who observes a place.



**Figure 10.** Interior of a van.



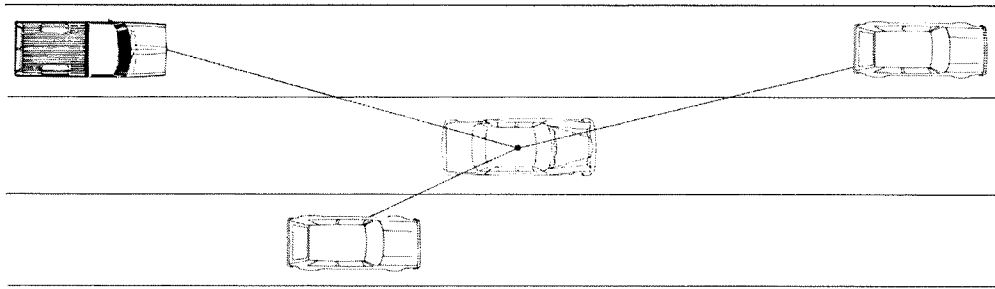
**Figure 11.** Plan and elevation of a typical car.

### 2.6.2 Motion and Vision

Motion and vision are attributes of interactions between a driver or a passenger and the surrounding environment in the conditions of high-speed travel. Motion means passing from one position to another in a continuous motion. Vision interacts with moving objects outside a car and creates a continuously changing scene.

In order to describe more exactly what is the nature of vision in a moving car, it can be opposed to a stationary condition. When one stands still, he or she observes surrounding objects for as long as he or she wants. The moment a car starts moving, surrounding objects begin to slide across the observer's view. When the speed is high, one can perceive only glimpse these objects briefly unless he or she slows down. Also, there are many more objects passing into view, and the observer starts to recognize only larger, more conspicuous objects that can be instantly distinguished. Movement is the condition that causes this transformation, which becomes even more evident as the speed

increases. When driving, the observer's relationship with surrounding objects is in motion perceived by vision.



**Figure 12.** A place of a driver in relation to other vehicles that compose a flow of traffic.

The observer sees and a continuously moving perspective of a road in the front of a car. The view is animated and ‘zooms’ into the forward perspective. It is an animated view that continuously changes and its transformation is more important than its fixed scene at some moment. The animated view lets the observer memorize only approximate images of significant and large objects in motion. This view before the car is like a movie. The diverse urban character and topography make this view especially alive. The changing views create a strong character of space. The sequence of scenes should be understood not as separate views but rather as one continuous experience. If one can imagine this entire succession of images as one single experience then the effect would be similar to watching a movie—continuous flux of scenes.

On highways, drivers are surrounded by traffic that is in fluid motion. Dynamic flow of traffic appears as a fast stream of vehicles, but this image has a dualistic nature. On one hand it is an image of continuous chaotic flow, but on the other, the cars moving

in front or in adjacent lanes become locales (for example, when a driver follows a car). (Figure 12) Every element in the flow of traffic is in motion.

### **2.6.3 Path and Sequence**

“Paths are the lines in the mental image of the environment along which the observer feels he can move” (Appleyard, p.24).

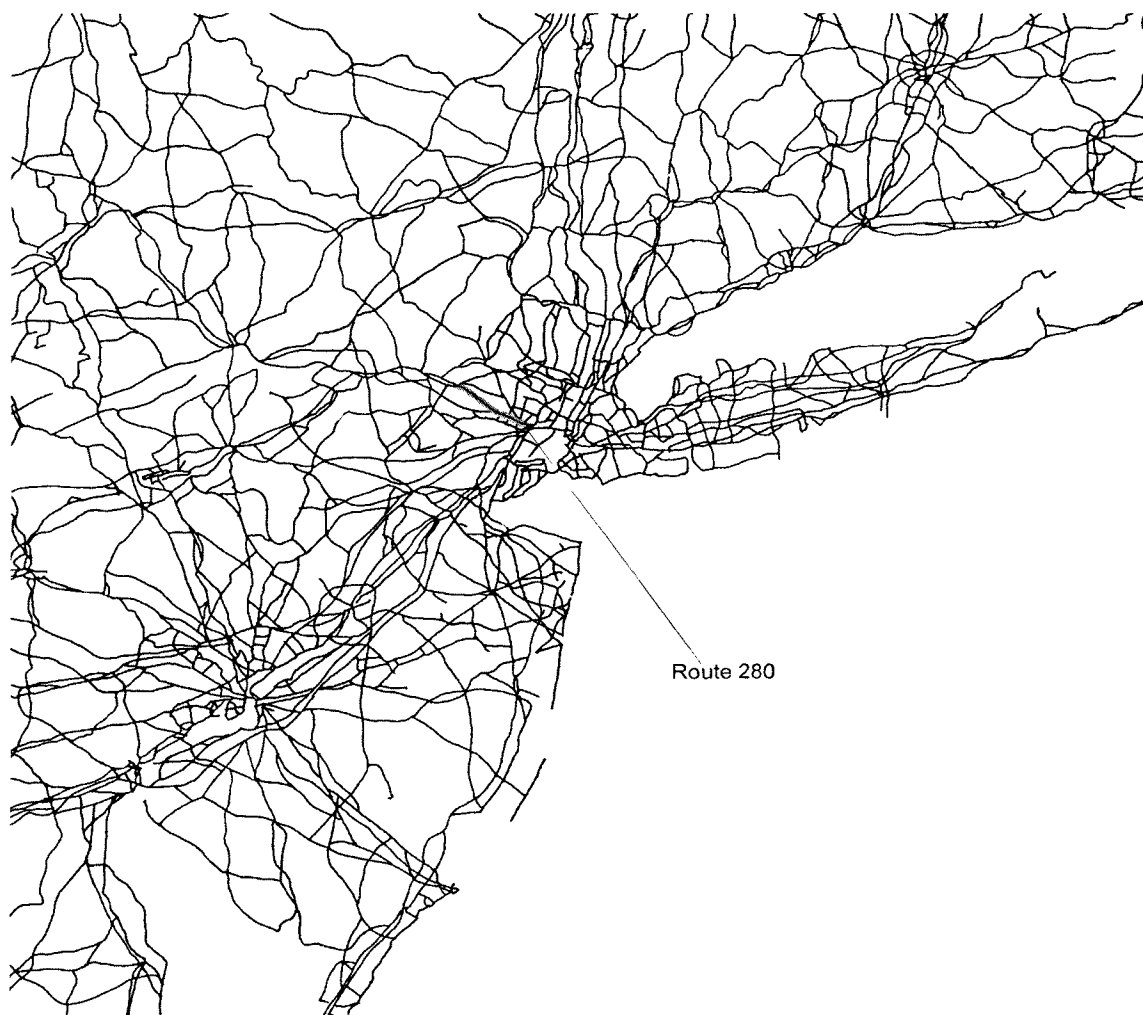
A path is an interval between points of origin and destination. It can be an interval of time or space or both. It is not only a geometric trajectory, but also a sequence of actions, signs, and views. A path is linear. The sequential procession on a highway describes a path. A driver finds a path in the network of routes, passes through highway interchanges, and finally arrives at a destination. During the procession to the destination, the path becomes the element locating this movement. The route provides a link connecting people traveling in cars and their destinations. It establishes relationships among the objects located on the route. The path is a complex sequence of distance, time, road signs, and interchanges that moves through territories and joins them in sequential order.

The distance of travel occupies an interval of space between views, traffic interchanges, events, and landmarks. The duration of travel occupies an interval of time. The time used to travel a distance depends on speed. Thinking about a location when traveling on a highway frequently refers to the travel-time. The objects approached by movement are separated by the time interval needed to reach them.

Road signs compose a sequence of messages. On a freeway, the ‘signs’ can be either information signs or billboards for advertisement. The information signs are

usually called road-signs that regulate traffic and inform drivers about directions. The sequence of signs gives reference points on a path. The signs let drivers absorb information much faster to accommodate high-speed movement. When walking one can obtain detailed information by actually observing objects in the surrounding environment, but a driver cannot pay much attention to the surroundings. “When ... the driver has no time to ponder paradoxical subtleties within a dangerous, sinuous maze. He or she relies on signs for guidance – enormous signs in vast spaces at high speeds” (Venturi, p. 9). Therefore road signs inform drivers with very short messages that can be perceived and understood instantly. It makes detailed observations, characteristic to the slow-speed observer, unnecessary because the information about a site is derived from the signs and at much faster rate. By reading information from the signs, a driver can recognize a location on a highway without recognizing the actual surrounding landscape. When looking for a direction at 55 miles an hour, a driver perceives almost only the signs instead of the landscape. The signs help to define a location in space. Guidance signs specifically inform about exits, routes, and directions. The exits and roads are numbered for easy and fast identification. They create a sequence of numbers, which refer to specific positions and highway intersections. The path to a desired destination can be simply given by such a sequence. “They [signs] make verbal and symbolic connections through space, communicating a complexity of meanings through hundreds of associations in a few seconds from far away” (Venturi, p. 13). The sequence of signs with messages is also like a text. It is a narrative that describes the space of travel. If the distance is an interval in space, then road-signs are an interval in what Derrida would call Text. Then reading or recognizing a sign would be an event.

Highway interchanges compose a sequence of connections between routes that connects them into one large network (Figure 13). These connections between routes create the structure of routes in which people can travel. By the number of a specific interchange, a driver or a passenger can think about what is beyond this particular fragment of a highway and about the region connected by the intersecting route. It gives a reference to a larger regional scale.



**Figure 13.** Highway network between New Haven, New York, and Philadelphia.

## **CHAPTER 3**

### **DESCRIBING PLACE IN HIGH-SPEED MOVEMENT**

#### **3.1 Introduction**

The purpose of this chapter is to determine the method of an analysis of a place observed from the position of a passenger in a moving car on a highway. The method will be applied to the study of Route 280. There are three essential elements that define the nature of a place—the structure of a place, observer’s body, and the interaction between them. On a freeway the structure appears as a path or a sequence of objects, the interaction as a motion and a vision, and the observer’s body as an observer enclosed in a car. High-speed movement on a highway brings new spatial experiences and changes perception of space and location. There are already existing studies of highways by Donald Appleyard, Kevin Lynch, Robert Venturi, and others, whose experience can help to determine a method that describes a place on a high-speed freeway.

#### **3.2 Existing Methods of Analyzing Highways as Applied to Route 280**











##### **3.2.1 The View from the Road**

*The View from the Road* is one of the first extensive studies of highways in early sixties. The authors—Donald Appleyard, Kevin Lynch, and John R. Myer—raised the argument that the highway can be an object of art, that it can be aesthetic besides its utilitarian purpose. “If the highway is a work of art, what are the raw materials of the art, and what are its principles? (Appleyard, p. 4). There has to be a method that could describe a highway in a new way, as a sequence and as motion rather than a static object.


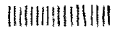


The highway experience has two components: immediate sense of space and motion, and conceptual sense of orientation. The first describes the dynamic experience of driving through a freeway. The second describes means of orientation during movement on the road. The perception of dynamic motion in space could be analyzed as apparent motion of the self, apparent motion of the visual field, and spatial characteristics. From the experience of space and motion, one can derive more complex ideas about orientation. The major elements that orient a car passenger in space are the relationship between a path and significant objects such as bordering edges, nodes, and landmarks. The objects have to be evident enough to be seen from a moving car. It could be a city skyline, an over-passing bridge, a tower, a mountain, etc. The authors proposed a system of graphic notation that could be used in designing the new highway landscapes. (Tables 3-4) “Driving experience can now be described as being a sequence played to the eyes of a captive, somewhat fearful, but partially inattentive audience, whose vision is filtered and directed forward” (Appleyard, p. 10). There are three main diagrams that describes the landscape of a road—a space and motion diagram that shows the sequence of dynamic experiences, an orientation diagram that shows the sequence of objects orienting car passengers in space, and a locus of attention diagram that describes which direction takes attention at a given moment. They also used a film sequence to show movement through a highway and sketches of landmarks. Here these diagrams describe Route 280 (Figures 14-17). Note that in all diagrams, movement is from bottom to top.

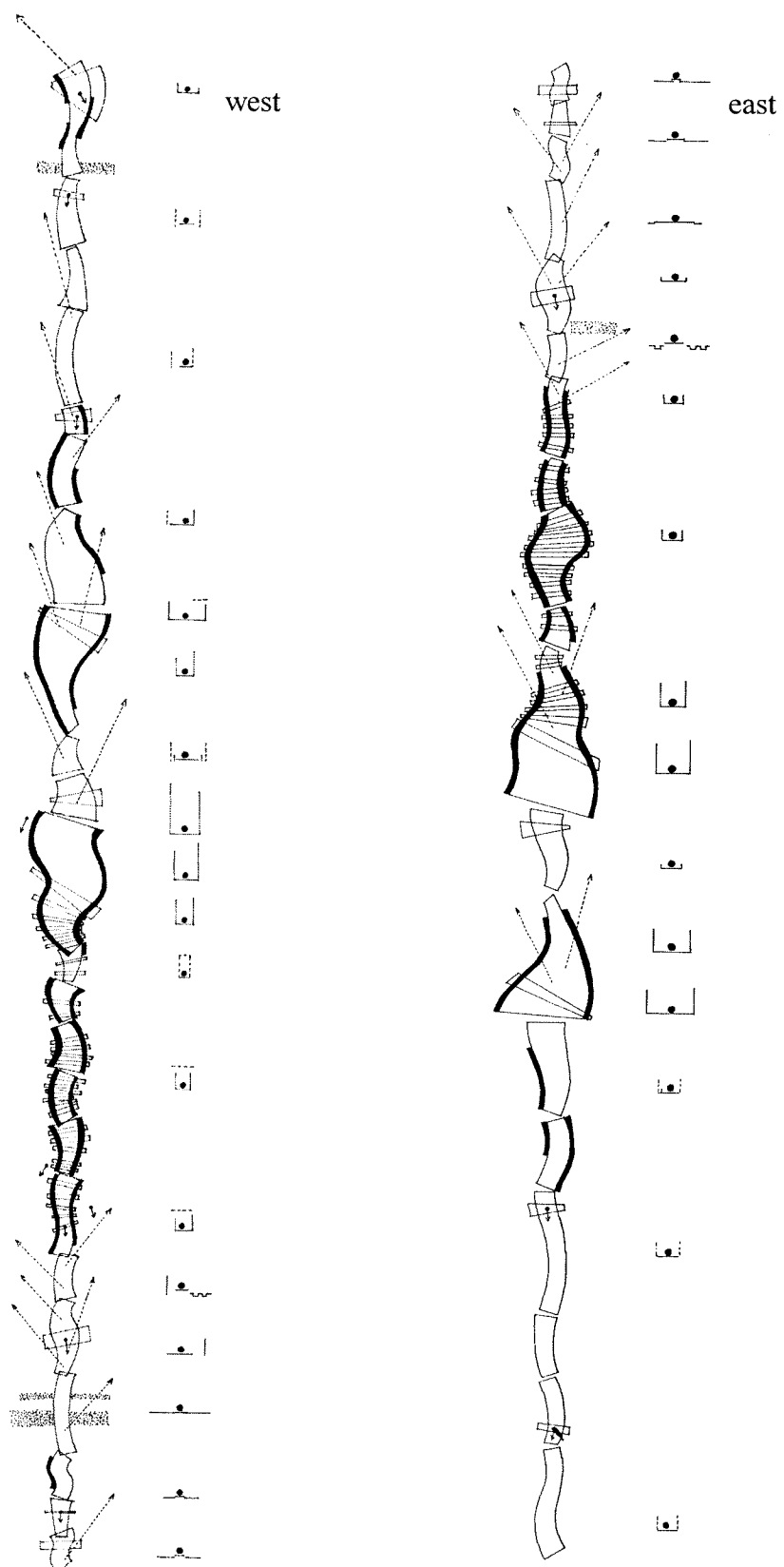


**Table 3.** Abstract notation of motion in space. (source: Appleyard, p. 22-23)

Apparent self-motion	Ascent Descent Turning	
	Apparent velocity – shown by horizontal lines whose density represent speed	
Apparent motion of the visual field	Moving alongside or overhead	
	Apparent sidewise movement	
	Apparent rotation	
	Apparent immobility	
Spatial characteristics	Enclosure: Solid floor and wall, screen over; Solid floor, screen ahead.	
	Scale: Large enclosure; Small enclosure.	
	Quality of light: Backlit; Frontlit; Crosslit.	
	Change of spaces: Gradual merging; Intervening portal; An abrupt shift; Dissolution and chaos.	

**Table 4.** Notation of orientation. (source: Appleyard, p. 24)

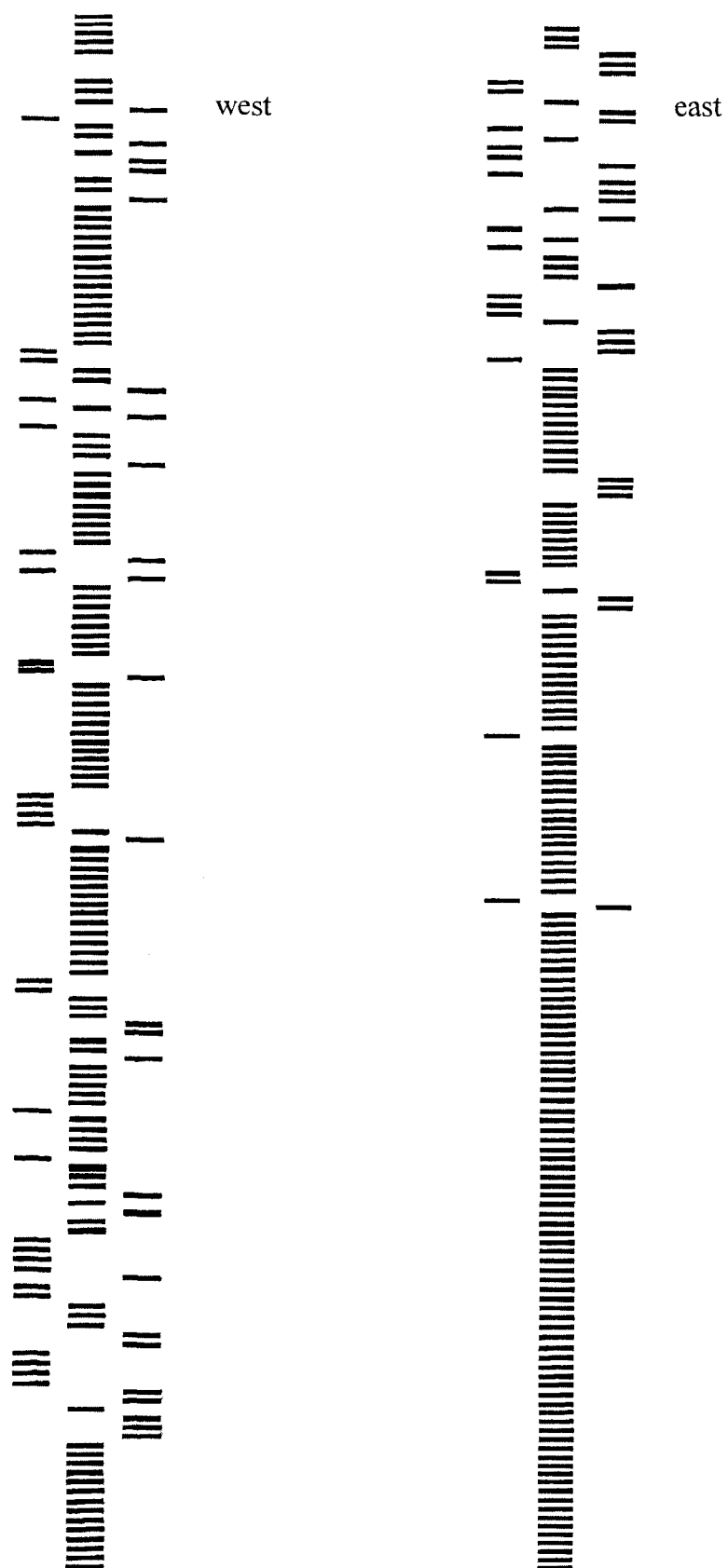
Path	Path of driving – line of the road	
Edge	It can be edge of a water, or façade of buildings.	
Node	Objets that gives a direction	
Landmark	Important objects that give a character to a space.	



**Figure 14.** Space and motion diagram of Route 280.



**Figure 15.** Orientation diagram of Route 280.



**Figure 16.** Locus of attention on Route 280.

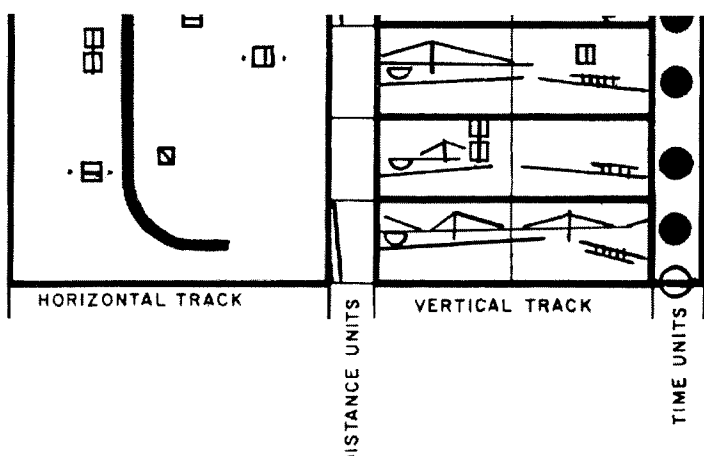


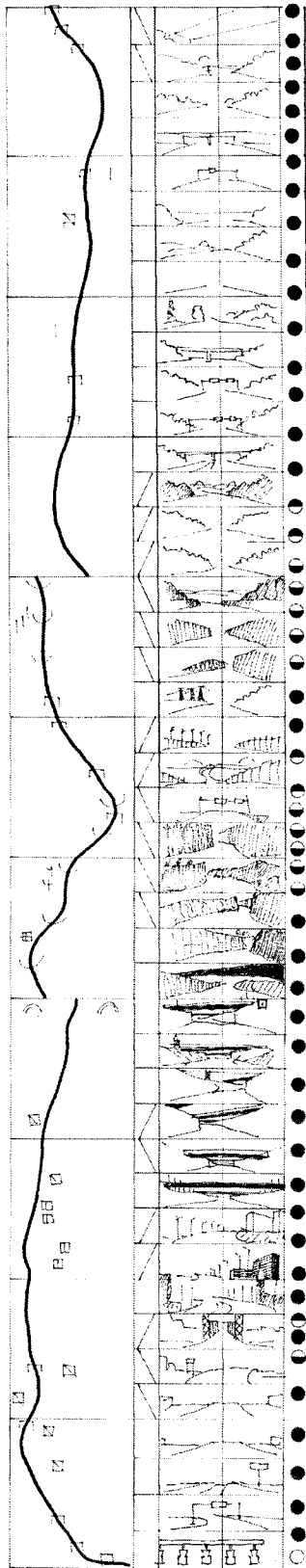
This analysis has two problems. First, it considers route only as a visible landscape versus more complex phenomena of a place like in Norman Schultz's *Genius Loci*. Secondly, it does not include textual information of road signs that also accompanies drivers. The study was based on experience of passengers while drivers would have a different interpretation because they pay much less attention to landscape and objects, but they rather look for surrounding cars, directions, and signs. The main achievement is that the spatial description was organized according to movement (procession) on a highway, and it started to classify those experiences.

### **3.2.2 Freeways**

This work by Lawrence Halprin makes it possible to represent motion on a freeway as a choreographic motion. The author derives his method, “motation”, from choreographic notation and recording the sequence of dance movements. The diagram consists of two main sequences—horizontal track and vertical track (Table 5). The horizontal track shows a road as a plan. The vertical track is a sequence of sketches that show views from a car. The frame-height of a single sketch is equal to a distance unit. It uses a system of symbols to specify elements of a landscape. Besides there are two minor sequences that show distance and time units. A higher density of time units indicates that speed is slower.

**Table 5.** Motation. (source: Halprin)

<p>Symbols of landscape elements:</p>	<p><b>MOTATION SYMBOLS</b></p> <p><u>SYMBOLS IN GENERAL</u></p> <p>1   VERTICAL ELEMENT</p> <p>2 — HORIZONTAL ELEMENT</p> <p>3 \ DIAGONAL ELEMENT</p> <p>4 / CURVED ELEMENT</p> <p><u>SYMBOLS FOR STRUCTURE</u></p> <p>5 ■ HIGH BUILDING</p> <p>6 □ LOW BUILDING</p> <p>7 ▣ MEDIUM BUILDING</p> <p>8 ▤ GROUP OF BUILDINGS</p> <p>9 ▥ TOWER</p> <p>10 □ DOOR OR GATE</p> <p>11 ▤ UNDERPASS</p> <p><u>SYMBOLS FOR LANDSCAPE</u></p> <p>12 ⤿ HILL</p> <p>13 ⤿ MOUNTAIN</p> <p>14 ⤿ VALLEY</p> <p>15 ⤿ BODY OF WATER</p> <p>16 ⤿ RUNNING WATER</p> <p>17 ⤿ FOUNTAIN</p> <p>18 ♀ TREE</p> <p>19 ♀ SHRUB</p> <p><u>SYMBOLS FOR MOVING THINGS</u></p> <p>20 ● HUMAN</p> <p>21 ⊙ CAR</p> <p>22 □ TRAIN</p> <p>23 ⊕ BIKE</p> <p><u>SYMBOLS FOR DIRECTION</u></p> <p>24 &gt; DIRECTION OF MOVEMENT</p> <p>25 L BELOW EYE LEVEL RIGHT</p> <p>26 7 ABOVE EYE LEVEL LEFT</p> <p><u>OTHER SYMBOLS</u></p> <p>      FENCE</p> <p>      RAILING</p> <p>T = TABLE</p> <p>DOT ON BOTH SIDES OF SYM. BOL INDICATES PLURAL</p>
<p>Indications of ascent or descent:</p>	<p>\ INDICATES GOING UP</p> <p>/ INDICATES GOING DOWN</p> <p>⤿ INDICATES GOING UPSTAIRS</p> <p>⤿ INDICATES GOING DOWNSTAIRS</p>
<p>Units of time:</p>	<p>● INDICATES UNIT OF ELAPSED TIME</p> <p>● INDICATES ACCELERATION</p> <p>● INDICATES DECELERATION</p> <p>○ INDICATES STOP</p>
<p>Sample of a graph:</p>	 <p>HORIZONTAL TRACK</p> <p>VERTICAL TRACK</p> <p>DISTANCE UNITS</p> <p>TIME UNITS</p>



**Figure 18.** Motation diagram of Route 280-West.



The diagram does not include signs and other elements observed while driving on a highway. The landscape is shown as a series of static images when it actually is in motion. The size of a frame is constant in relation to a distance. It means that if the speed is slower than for a certain period of time there will be fewer images. Actually, vision perceives more details of a scene at slower speed, but when moving faster the observation of things is more superficial and fewer images are memorized. Further, this method is applied to describe Route 280 (Figure 18).

### **3.2.3 Learning from Las Vegas**






The book *Learning from Las Vegas* is a comprehensive study of symbolism in architecture. It studies the commercial roadside landscape and especially the unique and extravagant example of Las Vegas. In their work Robert Venturi, Denise Scott Brown, and Steven Izenour insisted that architecture has to reconsider the role of commercial signs in the organization of space. “The communication dominates space as an element in architecture and in the landscape” (Venturi, p.8) Their main argument is that under the conditions in which people drive cars on wide highways surrounded by vast parking lots, space is organized by signs that communicate faster and across larger distances. In this situation, an architectural form becomes less significant, and a building is almost a utility attached to a sign that is perceived from inside of a car.

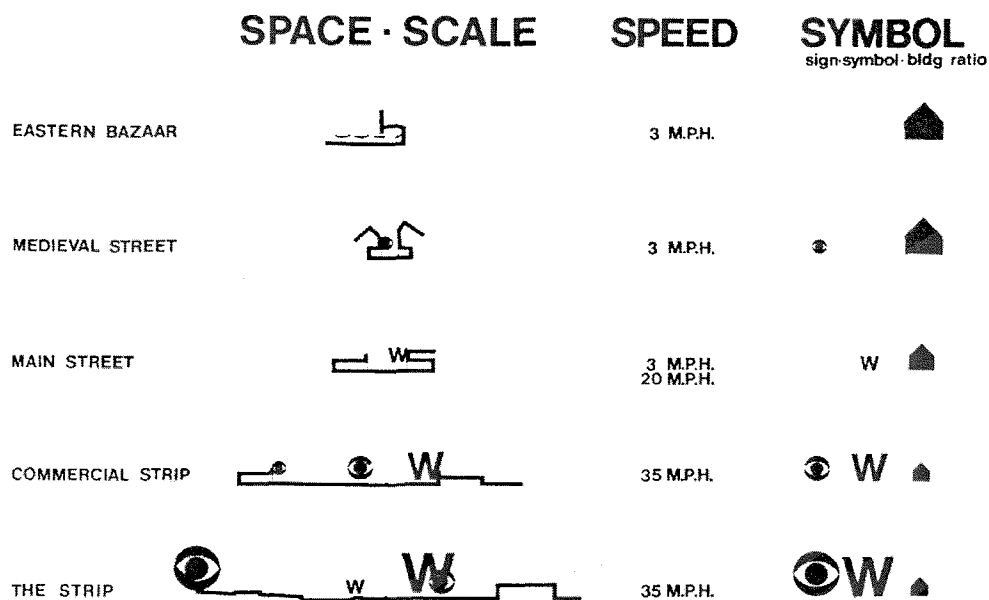
They developed a simple system of notation (Table 6) and diagrams that can represent relationships of space, speed, and sign. With this method one can show a sequence of symbols and words versus speed, scale and built forms. This system was used to analyze the main street of Las Vegas and can be applied to analysis of any type of

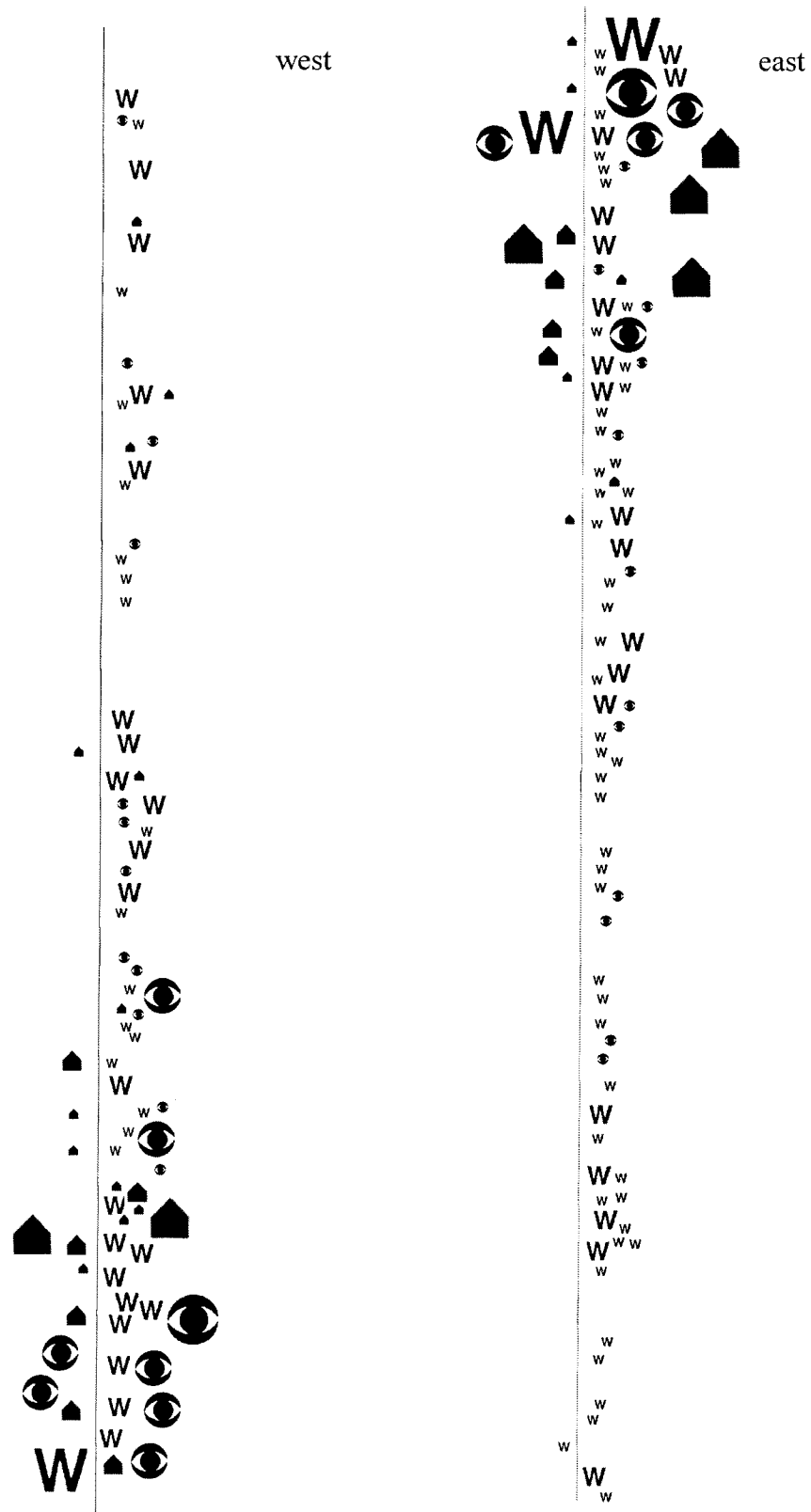
space. They oppose speed versus signs, and compare their proportion in different situations. (Figure 19) The comparisons explicitly shows difference roles that sign plays in each situation, either a traditional walking environment or a highway. At a high speed of travel, signs become more important medium of communication in space. The road signs are one of the most important elements that tell about a location and give a sense of orientation. (Figure 20) The diagram shows that while a highway is flat and dominated by words, and 'green' road signs, a medieval street is dominated by architecture—buildings, and by small symbols. On Route 280 this diagram shows the saturation of signs in its eastern end, (Figure 21) Buildings are noticed only occasionally in the Newark section of the route, were observer could see the downtown skyline and several prominent buildings.

All three examples have their own advantages that could be combined in one diagram. From Harplin's diagram one could borrow juxtaposition of distance in space and travel time. In an orientation diagram by Appleyard and Lynch, there is a simple system showing a sequence of landmarks and other objects that give a structure to a long linear route. The study by Venturi has symbolic simplicity of representing a sequence of signs that become and important part of spatial experience on a highway at high speeds.

**Table 6.** System of notation from the book - *Learning from Las Vegas*. (source: Venturi)

Sign	Symbol	
	Word	<b>W</b>
Scale of Space		
Speed	Walking speed	
	High-speed (driving)	
Architecture		

**Figure 19.** Space, speed, and symbol.**Figure 20.** Highway.



**Figure 21.** Sings, symbols, and architecture on Route 280.

### **3.3 Program for the Analysis of Route 280**

The purpose of this part is to specify elements of Route 280 that are going to be analyzed. These elements refer to the attributes of a place on a highway that were defined in the previous chapter – observer in a car, motion and vision, and path and sequence. For each of the attributes, there need to be found a set of parameters or elements that can be examined on Route 280. Departing from the analysis of the existing studies on highways, this part will specify a method of representing graphically the elements that define Route 280. Each paragraph - observer in a car, motion and vision, and path and sequence - deals with each of these attributes and specifies particular elements that can be found during observations of Route 280 and represented in diagrams. The elements will be studied in two directions: east and west.

#### **3.3.1 Observer in a Car**

In the beginning, the study has to describe in what conditions the observations were made. It essentially describes the observer who studied Route 280 and the mode of travel from which the route was observed. It is important because each person in each situation will navigate differently in space of a freeway. For the observer on a freeway, the moving car becomes a frame through which the route is observed. This description includes definition of a person who is observing, and the car that frames the vision.

#### **3.3.2 Motion and Vision**

Motion could be described as a dynamic character of movement: sequence of turns, ascends, and descends, and as an image of a traffic flow. Vision can be described by a sequence of animated view in the front of the car.

**Dynamic motion and traffic.** The image of traffic flow could be studied with by night-photography. During night hours the route's surroundings disappear in darkness, and only the headlights of cars remain visible. Their movement can be recorded on a photo-print. The speed and long exposure time make the headlights appear as traces instead of fixed dots. The photographs show the traffic from a stationary position and from a moving car in various locations.

**Animated view.** It can be shown as a sequence of images that are perceived during travel on it. This sequence has to be referred to a diagram of a highway that would establish reference between a fixed point and an image.

### 3.3.3 Path and Sequence

Path can be described as intervals of space and time and as a graph that show the sequence of elements or events connected in a continuous experience when traveling on the road. The interval in space is a distance. Elements of the sequence could include arrangement of signs, interchanges, and important views or landmarks.

**Distances** are the spatial intervals between reference points on Route 280. They are expressed in dimensions of length such as miles, feet, kilometers, meters, between views, traffic interchanges, signs etc. Actually, when driving the distance is measured by a car's mileage meter or by the observer's inner sense of distance.

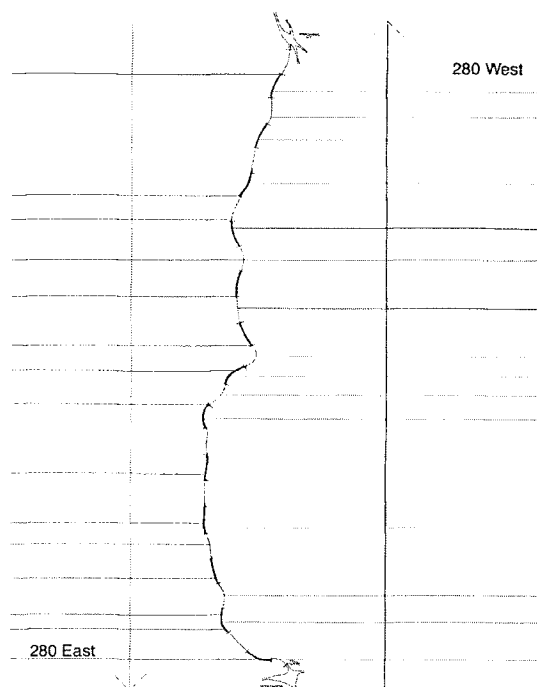
**Time intervals.** A path can be given as increments of travel-time between reference points or it can be represented as units of time in relation to specific events. The time can be segmented according to reference points.

**Signs.** The signs consist of a sequence of messages or symbols. The study of a highway has to record the most important messages and specify their sequence and relative importance.

**Interchanges.** The highway interchanges must be shown as reference points to other routes and sites.







### 3.4 System of Graphic Notation

Route 280 is analyzed in both driving directions. (Figure 22) Diagrams are drawn parallel to the line of the route, each on its own side. On smaller diagrams east and west directions are shown separately and the eastern direction is rotated 180 degrees, which means that all diagrams represent the route in direction from the bottom to the top of a page. Following tables contain notations that will be used in the diagrams of Route 280.










**Figure 22.** Route 280 has two directions of travel – west and east.

**Table 7.** Notation describing an observer in a car.


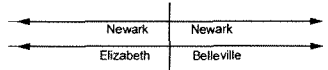
Intimate enclosure in a car	Sounds (artificial)	Player	
		Radio	
		None: silence	
	Interior	Style (any name that describes interior size and form)	
		People in a car (number and position)	
		Action: Phone (cell-phone) conversation	

**Table 8.** Notation describing motion and vision.

Motion and Vision	Vision - Animated view	West (sequence)	
		East (sequence)	
	Motion - Dynamic experience	Right	 
		Left	 
		Straight	



**Table 9.** Notation describing path and sequence.

Path	Distance	Intervals	<b>17.5 miles</b>
	Time interval	Intervals	<b>00:10:35</b>
	Signs	Messages: sequential list of messages, letter size varies according to importance of text.	 <b>EXIT 11B</b> <b>Day St</b> ...
		Road sign (general)	<b>W</b>
	Interchanges	Number	<b>14</b>
		Directions	

## **CHAPTER 4**

### **HISTORICAL BACKGROUND OF ROUTE 280**

The origins of Route 280 date back to the arrival of automobiles and the development of suburbs. "The first plans for a new east-west freeway through Essex County arrived not long after the first cars; a 1924 proposal by the Scenic Highway Committee had recommended extending Route 10 from Livingston to Newark" (Coyne, p. 64). These plans remained unrealized. In 1947, the new design of a conceptual path for an East-West freeway for Essex County (currently known as Route 280) had been proposed to local authorities. Because of a lack of funding, realization of the concept was continuously postponed. For ten years the idea of the route remained in the minds of local authorities in Newark.

The turning point was on July 1, 1956, when the President of the United States signed the Interstate Highway Act. Each state was asked to submit its interests and proposals for building highways. The program evaluated needs of each state before deciding what roads to build first and where to build. In the first proposal, submitted by the State of New Jersey in 1956, the Essex East-West Freeway (Route 280) was excluded.<sup>4</sup> This situation created opposition from Essex County officials. The State Highway Department resubmitted its proposal in 1957 with the East-West Freeway included. Later, in October of the same year, the proposal was approved.<sup>5</sup> The road became a part of the Interstate and Defense Highway program. This date is one of the most important moments in the history of this highway. "In 1957, Washington finally opened its wallet, designating the proposed Freeway as part of the Interstate Highway System" (Coyne, p. 64). Since then Route 280 has become a part of a larger scale

ideology and national development. In the initial plans, the route was expected to be completed by 1963.

During the design phase, the highway concept was caught between two opposing interests. On the one hand, there were residents commuting to and from Western New Jersey suburbs seeking reductions in their daily commuting time. On the other hand, there was a large group who had to leave their properties when land was acquired for the right of way. This latter group would also include people whose businesses were weakened by the influence of Route 280.

Initially, the state proposed to build Route 280 on elevated landfill with tunnels underneath for local roads, which would eventually have created a physical barrier. Local activists, who saw a threat in this monstrous mass cutting straight through their neighborhoods, demanded that the highway be depressed into the ground in order to reduce its possible negative impact. At that time, this option was about \$13 million more expensive than to have the road built above ground.<sup>6</sup> A compromise on depressing the highway was found between authorities and local communities. In 1961, the Garden State Parkway started to collect tolls on the Essex County section that previously was free. The tolls would provide the additional funds needed to depress the highway.

The right-of-way for Route 280 was laid out on already developed land. It caused a confrontation between new and old, between new perspectives and already existing places. Who would survive? "In all, about 255 buildings had been demolished and 400 families relocated to make way for the road", which uprooted "thousands of people who stood in its way" (Coyne, p. 48). East Orange Mayor William S. Hart was no exception. His home was among those erased by the Transportation Department.<sup>7</sup> In shaping the

route, the East Orange community played the most important role, when the people started to protest against the state acquiring the houses they had lived in all their lives.

The construction of the highway was delayed. The lack of funds and technical difficulties made the work slower than it had been scheduled in the beginning.<sup>8</sup> The never-ending construction was criticized by the people who were waiting for its opening. It created losses for businesses that could not function properly because of the construction. East Orange Mayor William S. Hart threatened to sue the state of New Jersey for \$50 million to recover estimated losses during the 10 years of delay.<sup>9</sup> In 1964, “the East-West was underlined by a State Senate committee as a glaring example of the Highway Department’s failures” (Gregory, p. 4). The long construction time affected also the price of Route 280. “The cost of the 18.1 mile freeway has jumped from the original estimate of \$109 million to almost \$160 million. The cost is borne 90 per cent by the federal government as part of its interstate highway program, and ten per cent by the state” (Young (1) p. 31).

The reaction of ordinary citizens of nearby towns who were waiting for the opening of the route was important. *The Star Ledger*—the daily newspaper—gives an interesting insight into the spirit of that time. The most famous public actions were those where bumper stickers were distributed. Several desperate commuters started to devote their time and to giving out hundreds of stickers reading “Please Open 280” to commuters delayed in traffic. (Figure 23)<sup>10</sup> Because of local pressure,<sup>11</sup> the Department of Transportation decided to open the part of Route 280 from Newark to the Garden State Parkway before completing the entire construction.<sup>12</sup>



**Figure 23.** An activist attaches a sticker to a bumper of a car.

In the spring of 1973, most of the route was completed. People could not understand why the major part of the route, which was already finished, remained off limits to drivers waiting during rush hours on congested side roads. Local residents crossed the barriers and used parts of the highway for playing golf, recreation, bike riding, etc. The most impatient commuters had already started to drive on the closed highway. A report in *The Star Ledger* noted: "Reaching the road was no problem, since wooden barriers in a number of areas have been moved aside by motorists who have braved no trespassing signs to use the highway for brief stretches" (Young (2) p. 31).



**Figure 24.** Gov. William T. Cahill opens Route 280 in West Orange as East Orange Mayor William Hart, right, applauds.

*Friday, June 22, 1973 was the date of the opening ceremony. (Figure 24) The Star Ledger* reported: “Route 280, the long-delayed highway linking Morris County suburbs with Newark, was officially opened to traffic yesterday by Gov. William T. Cahill at a ceremony on the eastbound side of the road in West Orange” (Fisher, p. 1). Some 200 people attended the ceremony; they included local residents, officials, State Department of Transportation executives, and Essex County legislators. The construction was completed more than a month before the latest deadline—August 31. It was a responsibility of Transportation Commissioner John C. Kohl who was also at the ceremony. Still, one thing really deserves admiration—the construction of the road itself. The pamphlet provided by DOT at the ceremony noted: “During construction on the freeway, four separate projects involved rock cuts through First and Second Mountains in

West Orange. The deepest cut is about 100 feet.... Approximately four million cubic yards of rock were removed from the sites and transported to low areas to provide an acceptable grade for the route” (Fisher, p. 7). Route 280 cost residents much more than had been promised at any time: “The total cost of construction for that distance will be more than \$186 million, including up to some \$250,000 extra for the recent intensive construction” (Fisher, p. 7). After 50 years of debates, Route 280 was open to the public, but even then not along its complete length. A 1.1-mile stretch, which was under the management of Turnpike Authority, was still in design phase.

(Figure 26) This diagram shows the chronology in which Route 280 was constructed. The white line on the left represents the route itself. In the middle, the segmented line show the phases of construction, and each segment is placed according to the year in which that section was completed. The scale of years is on the bottom. Exact dates are also shown on the right side.



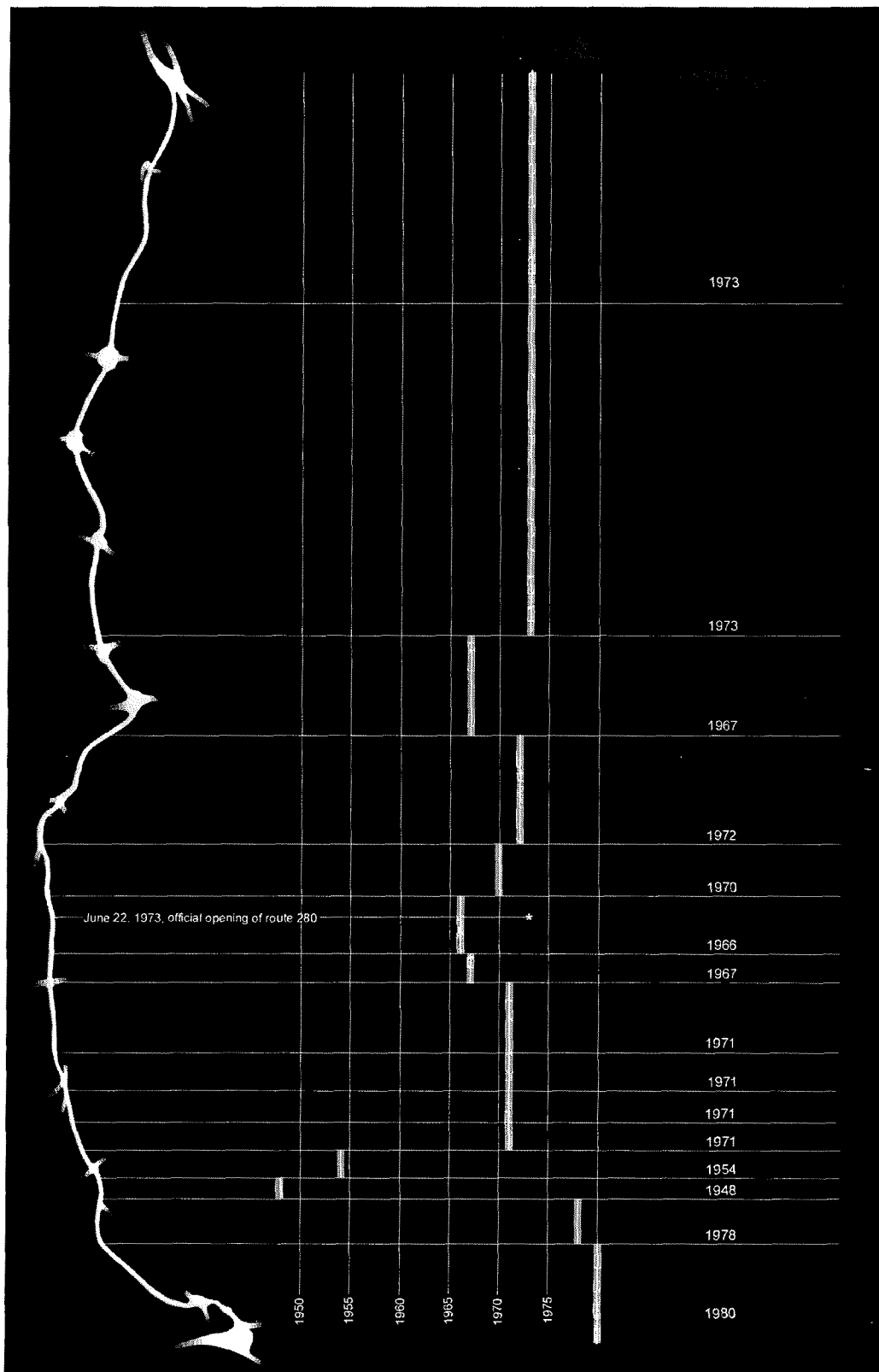
**Figure 25.** The elevated section of Route 280 in Newark.

The building of Route 280 certainly was an enormous effort. At the same time it transformed thinking about space and the arrangement of places along the route. The increase of speed and mobility affected the sense of distance between existing towns

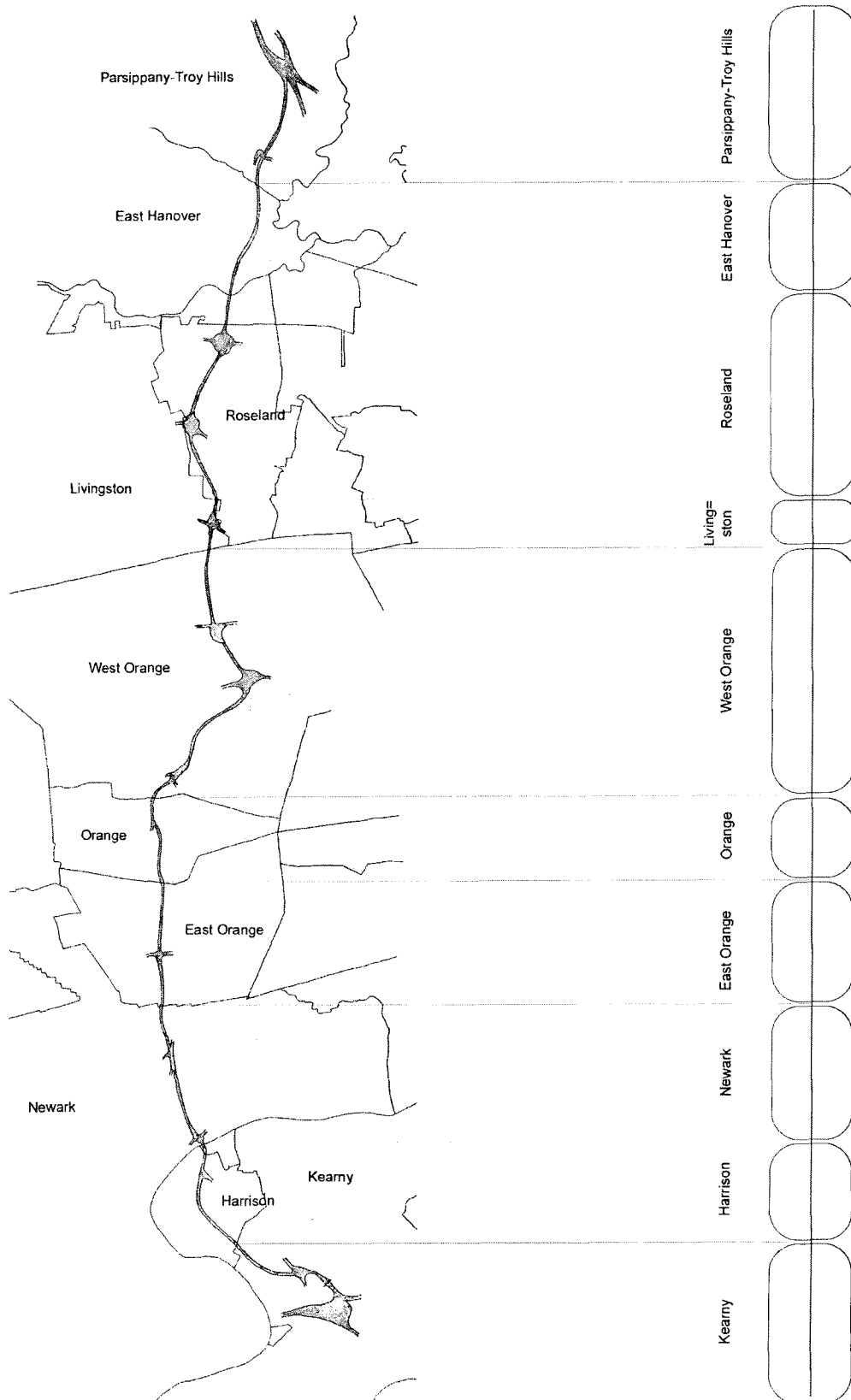
(Figure 27) and changed the traditional urban landscape, a characteristic impact of highways everywhere. "Drivers could now climb one side of the Watchung Mountains, coast down the other, and zip through a densely populated swath of New Jersey in no more than fifteen minutes, never stopping until they reached the Turnpike tollbooths. ...cities like West Orange, East Orange, and even the great, gray bulk of Newark would be reduced to a blur—places to be passed through, not seen" (Coyne, p. 48). The highways made high-speed travel possible.

In the beginning, the road had a very pragmatic purpose. In reality, its influence extended far beyond what anyone had anticipated. There emerged a conceptual duality between the route as a pure traffic facility and as a place for people. The duality expressed itself in the long lasting construction of the highway, starting with futuristic visions of speeding cars and ending with the "exodus" of population into the remote suburbs associated with Route 280 in the seventies.





**Figure 26.** Chronology of the construction of Route 280. (The construction dates are based on contract dates in the straight line diagrams, DOT NJ internet site)



**Figure 27.** Route 280 in relation to the administrative territories.

## **CHAPTER 5**

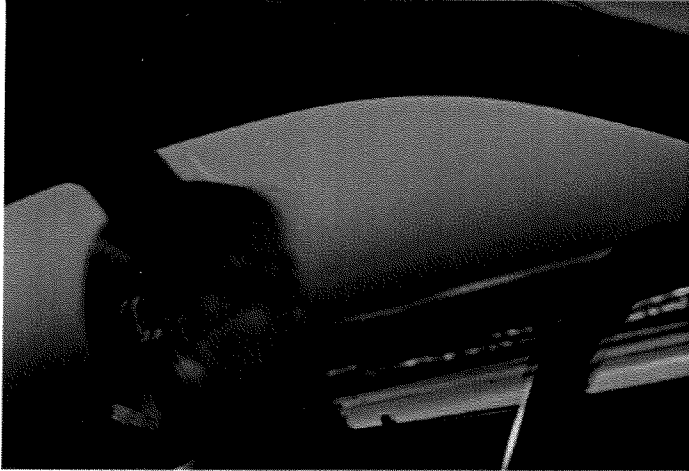
### **ANALYSIS OF ROUTE 280**

#### **5.1 Introduction**

This chapter is a study of Route 280 as a place. The observations are focused on elements that define the nature of this place. The analysis needs to examine Route 280 according to the time and sequence of moving through a space. The following diagrams are based on responses of people commuting on Route 280 and on my personal observations.

#### **5.2 Observer in a Car**

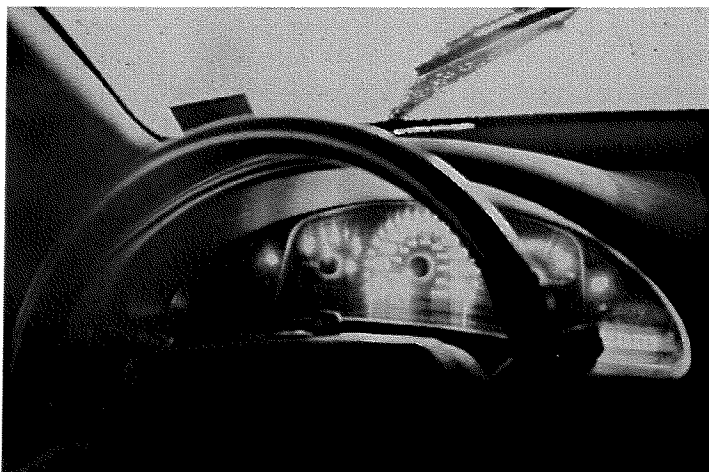
Here the study describes a typical condition under which Route 280 was observed. Besides several occasions of walking on the highway, it was explored while traveling in a car in the front passenger seat. (Figure 28-30) The cars used for observations on Route 280, were standard sedan-type vehicles with eye-level around four feet above the ground. The speed of travel was between 50-70 miles per hour with occasional stopping down on the shoulder. The environment inside a car was quite and apparently safe unless someone opened a window wind blow through the car. Travel could pass several miles but inside is the same sound the same radio station. It is almost like two separate realms—one is outside, dynamic, exposed to the weather, and changing, and other realm is inside, where traveler has complete control over it. (Figure 31) The interior is isolated from the weather conditions, from noise, from other people, from any physical encounter with the surrounding environment.



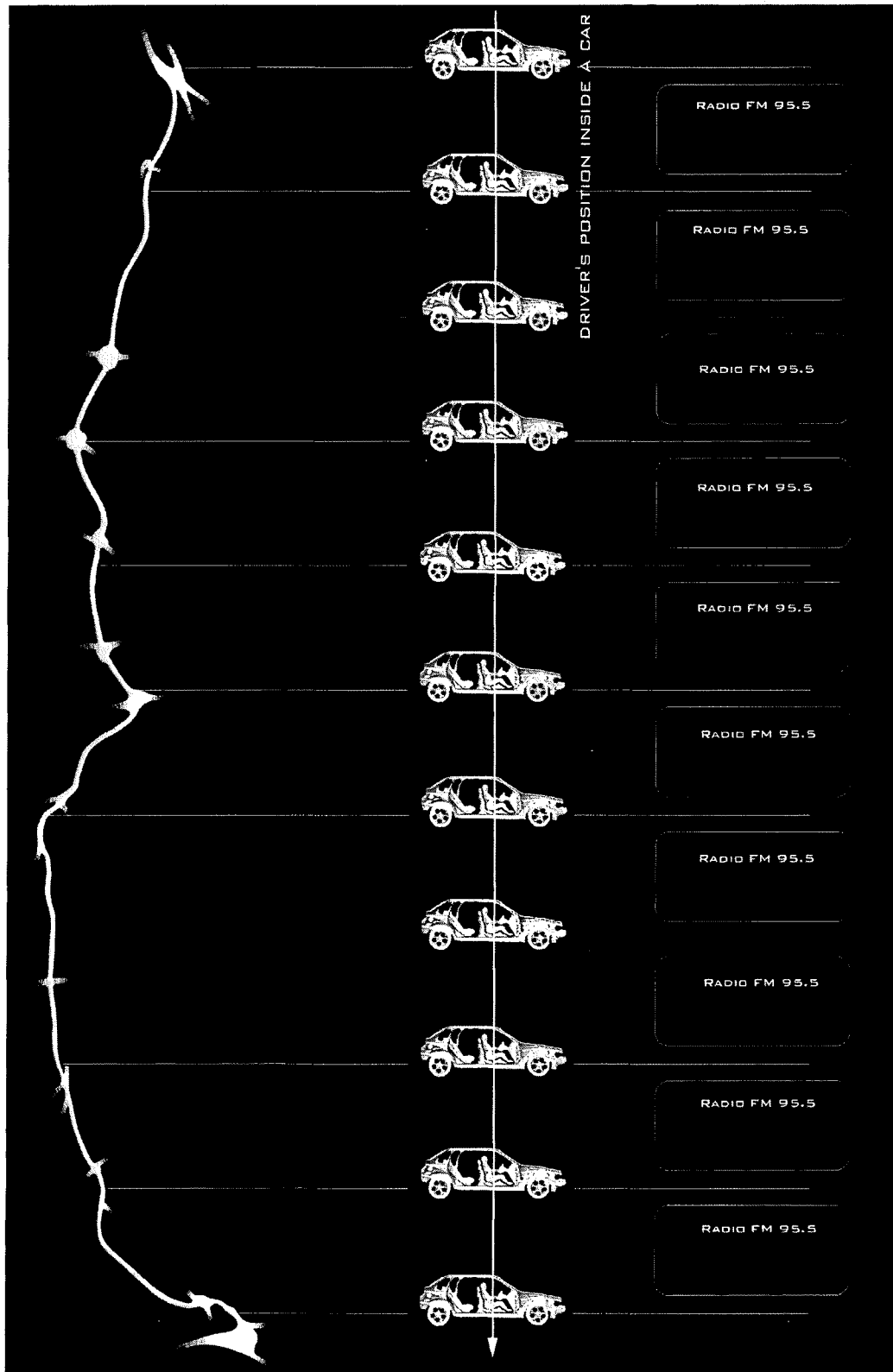
**Figure 28.** Inside a car at night.



**Figure 29.** Driver and a view through the window at daytime.



**Figure 30.** Detail of the interior of a car.



**Figure 31.** Motionless position of an observer in a car while the location is changing. (recorded during travel on Route 280 in March, 1999)

The observer was in a car and could look on the route through windows. He saw Route 280 with pre-established interest. He relied on a driver to operate the vehicle and navigate through the traffic. He was freed from actually driving the vehicle. Other tools he was using were a notebook, a pencil, a map of Route 280, a camera, and a portable tape recorder. The vibration of the car does not allow many written notes, therefore he relies also on memorizing things and writing them down after the trip.

### **5.3 Motion and Vision**

#### **5.3.1 Dynamic Character of Motion and Traffic Flow**

As Route 280 passes the hills and curves through the urban areas, the motion has a specific, dynamic character. The driver is almost continuously turning left or right, following the winding route. Route 280 has a continuity of slow interchanging turns, inclines and declines. (Figures 32-33) It creates an interesting play of curving views. The diagram showing the dynamic character of Route 280 lists the directions of major turns.

**The flow of traffic.** On Route 280, drifting in the flow of traffic is an important part of the spatial experience. There is not a single space to stop and rest. There is nothing except the three lanes in each direction that creates the spatial image of this freeway. When one drives in the middle lane, the other moving cars literally obstruct one's view. Driver and passenger are immersed in a roaring river of automobiles racing at 60 miles per hour or more, which is typically exceeding the speed limit (Figure 40). During nighttime and on the western part of the route, the speed tends to increase even more. This means that the

real speed can sometimes reach 70 – 80 miles per hour. During rush hours the speed might be well under the limit because of congestion.

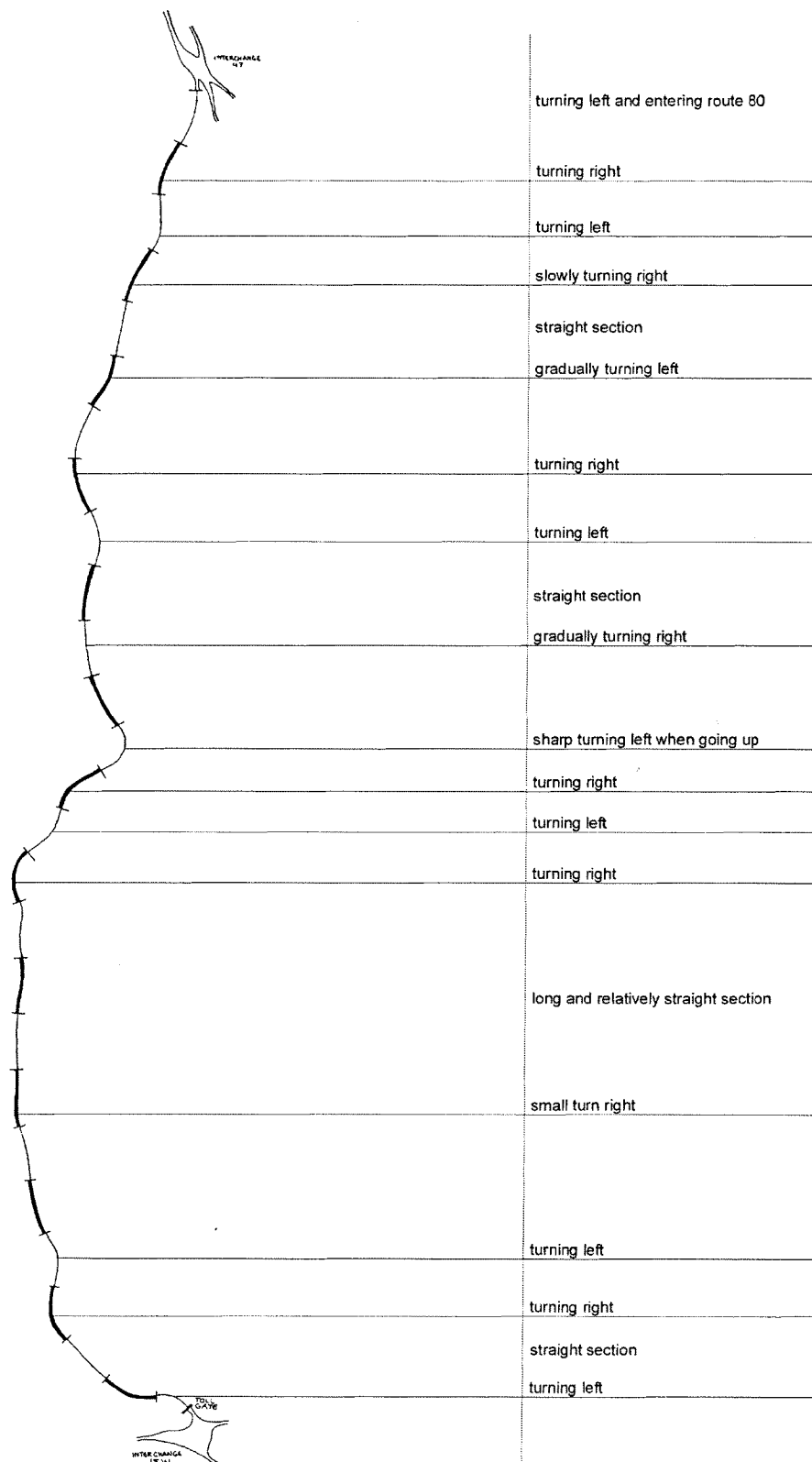
The intensity of traffic on Route 280 has a specific character. It changes throughout the length of the route, and it has its own daily and weekly pulsation. There are moments when the traffic swells. Especially during the morning rush hours the route cannot carry as much traffic as the demand requires. Speeds typically slow down during this period, turning the entire scene into a procession of drivers anxious to move forward faster. The air is buzzing with stress. On weekends traffic is much less dense. In contrast to daytime crowds, during late night hours on Route 280 there are only random passing flashes of headlights. The density of traffic varies also along the length of the route. There are sections of higher and lower traffic volumes. (Figure 40) The diagram represents speed limits in different sections and traffic density (number of cars per week) as proportionally varied thickness of the line. The east and middle sections of Route 280 are more heavily used than the western part.

The nighttime images represent visual experiences of moving traffic. (Figure 34-39) The lines are traces of lights left by passing cars. They are bending as the cars follow the curvilinear highway. The images record only traces of movement and their vibration. In a stationary position, the moving cars leave straight lines of light and appear as a monotonous flow of lights. When movement starts, the image of traffic starts to blur. (Figure 37) When the speed increases, the concrete appearance of surroundings vanishes into a dark background leaving visible only dynamic lines representing the movement. Those lines are bending as they follow the dynamic and turbulent character. At first

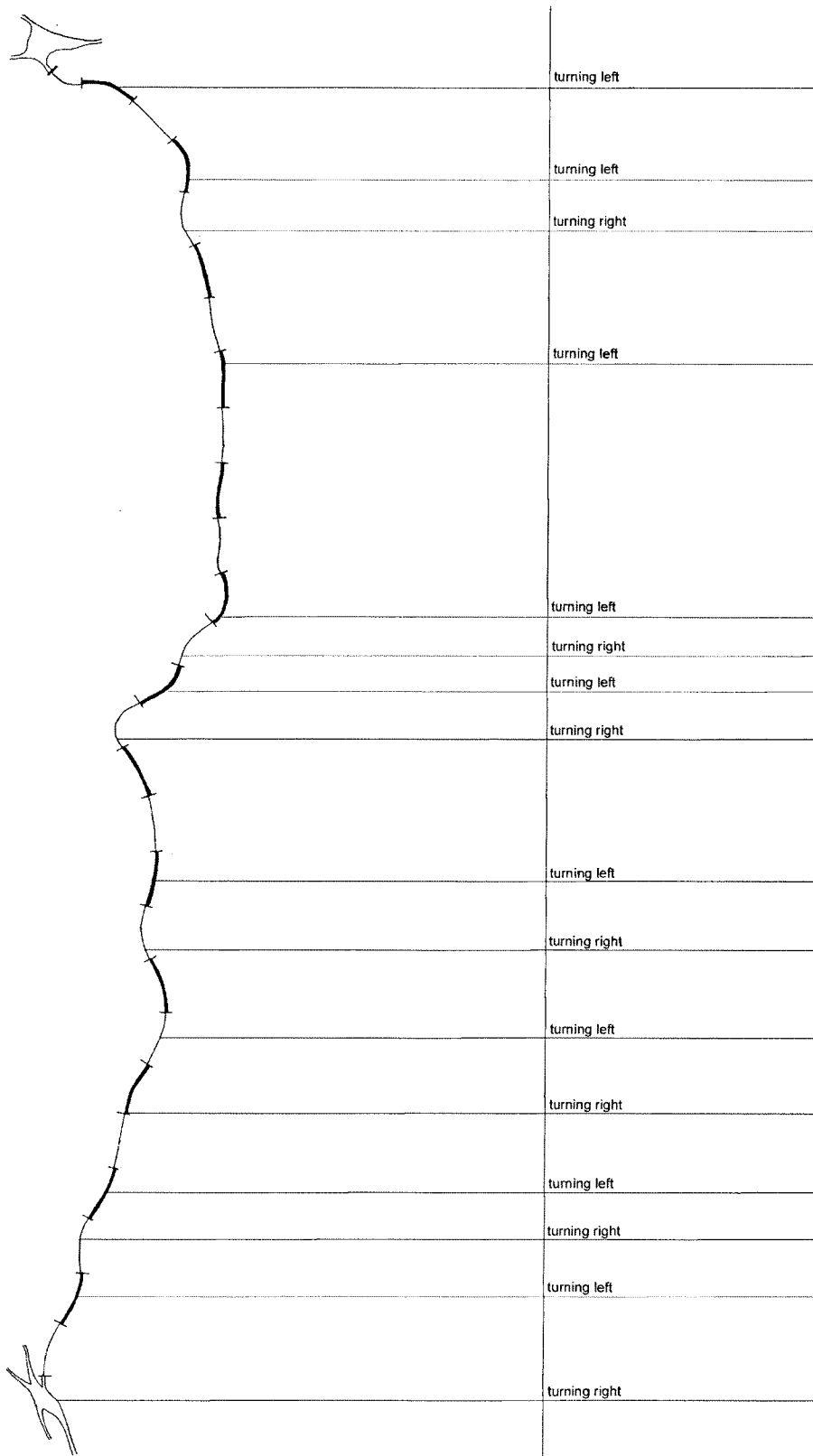
glance, this example might seem to be overly dramatic, but it shows fairly that there are no fixed relationships when being immersed in traffic flow, everything is in flux.

**Sounds.** When traveling on Route 280 background sound has a rhythmic character in Orange and East Orange. (Figure 41) This sound vividly distinguishes the route. The sound level increases and then decreases when passing under a bridge. It is lower when going on sections that are on elevated sections, and when there is lesser traffic density. The rides at night have the least intensity of background sound.





**Figure 32.** Dynamic character of Route 280 when driving west.



**Figure 33.** Dynamic character of Route 280 when driving east.



**Figure 34.** View on traffic from a stationary position.



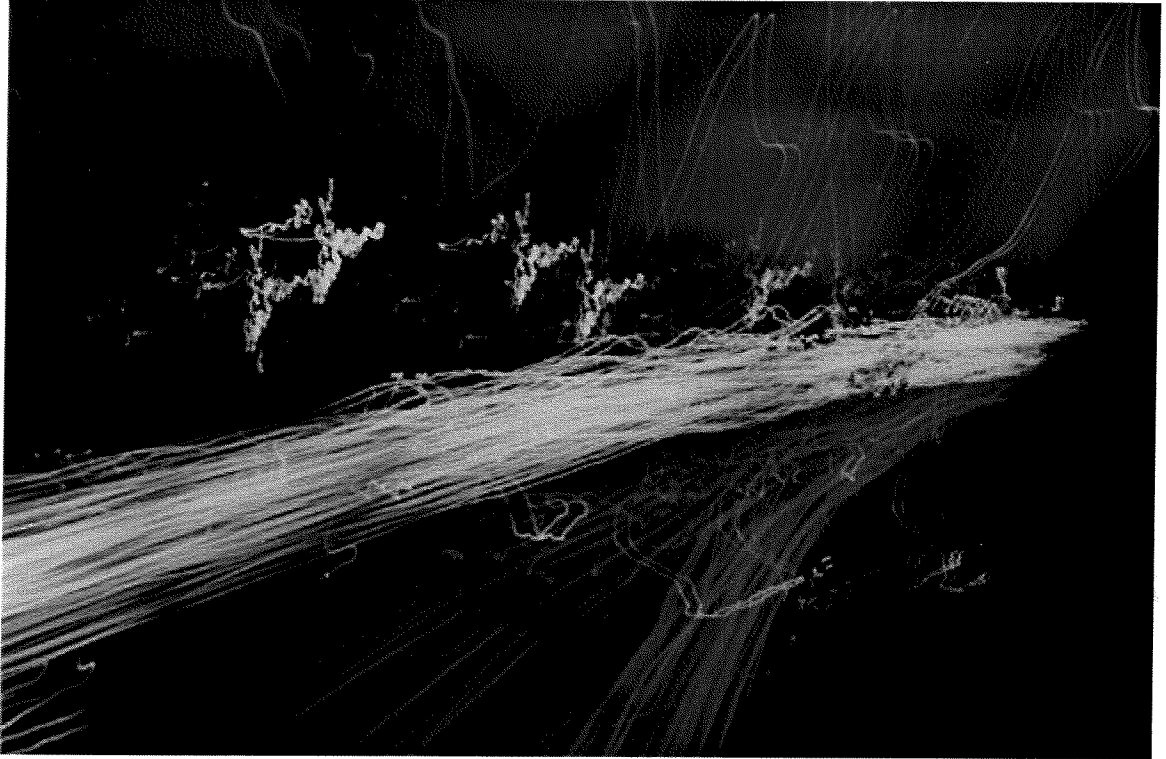
**Figure 35.** View on traffic from a stationary position.



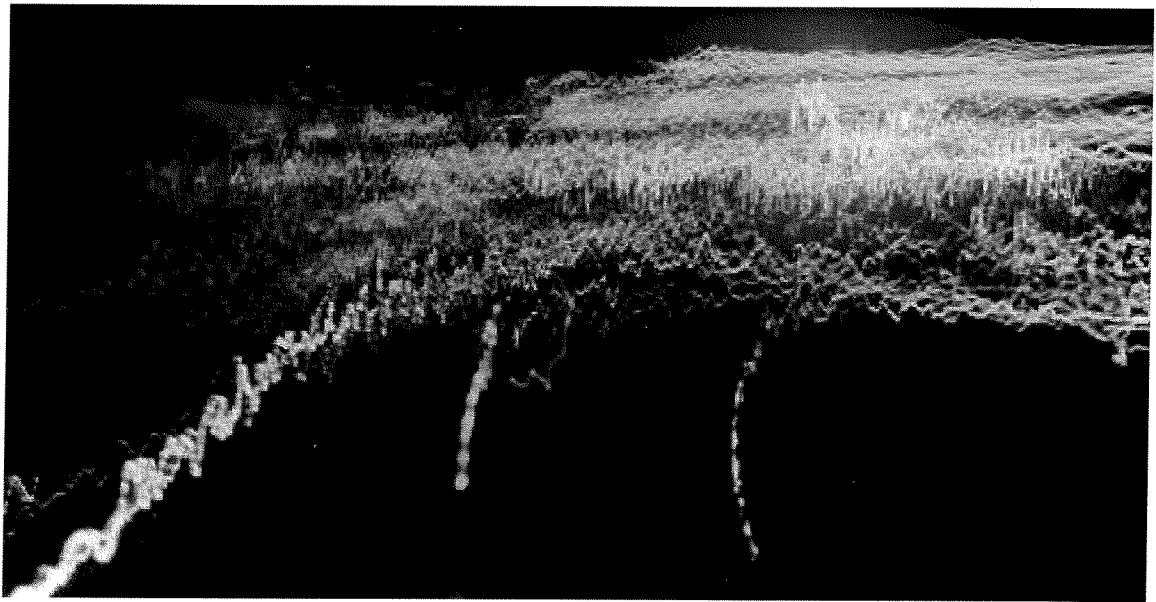
**Figure 36.** View on the sunken section of Route 280 from a stationary position.



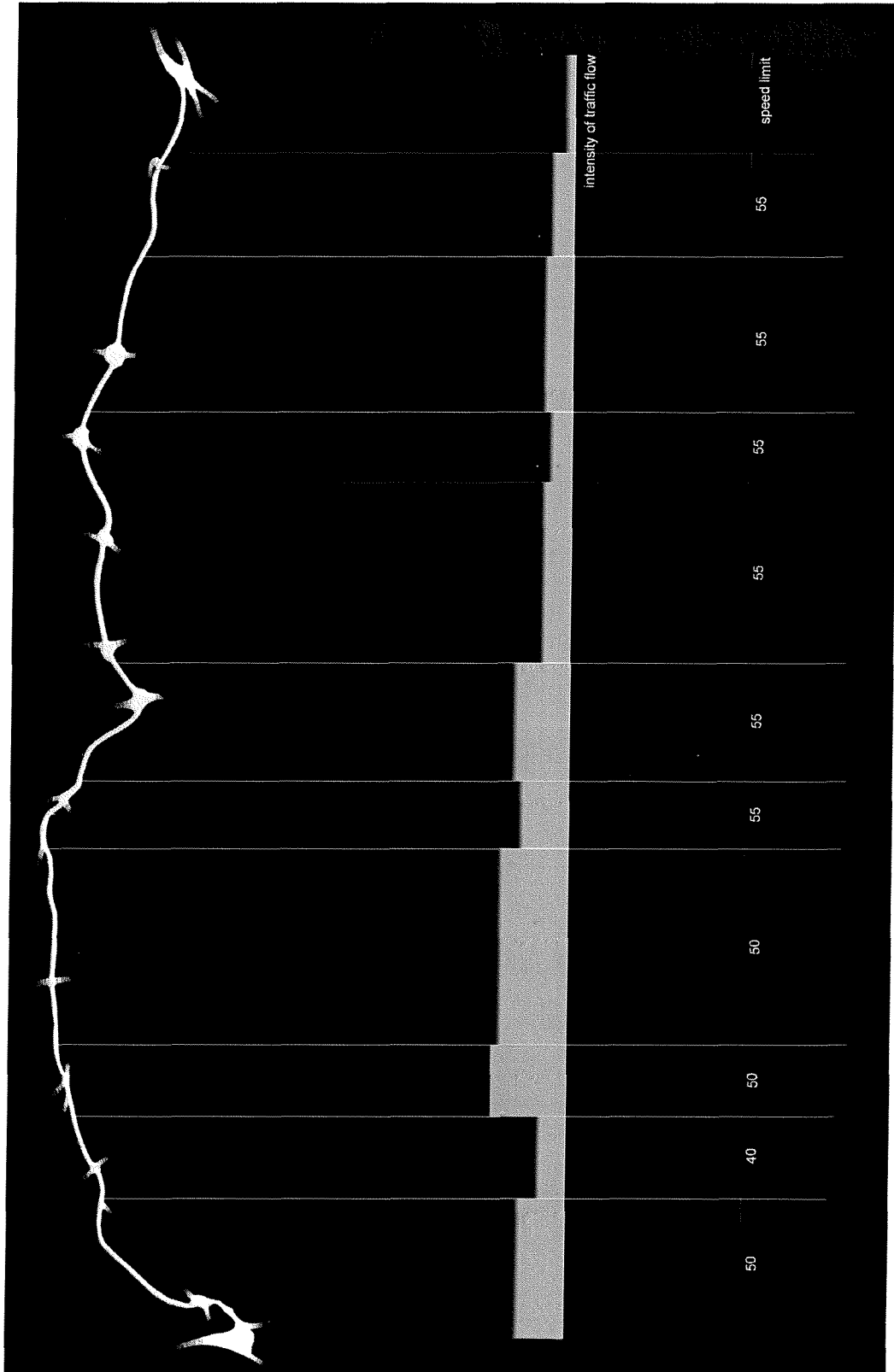
**Figure 37.** Appearance of traffic from a slowly moving position.



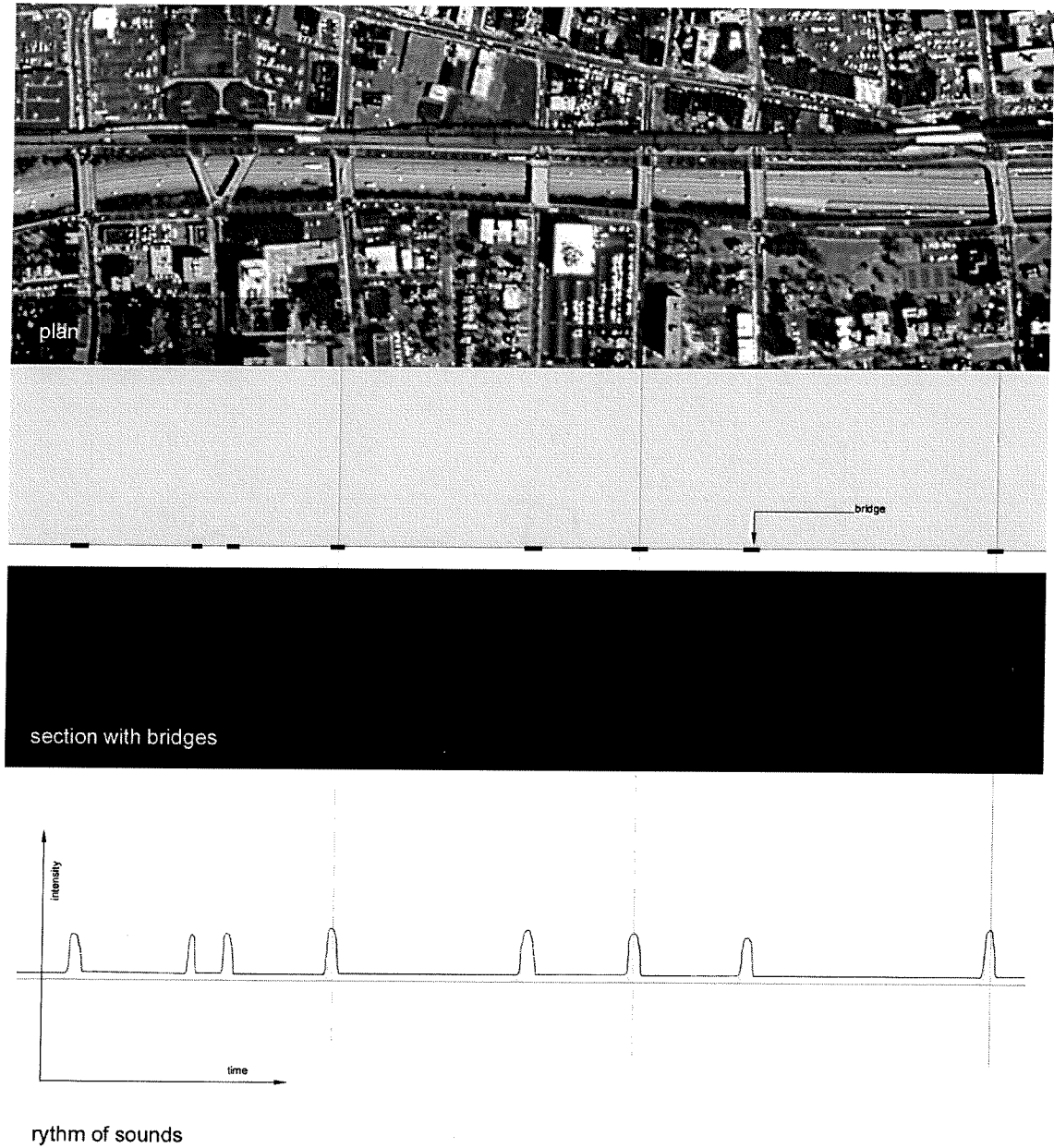
**Figure 38.** View on traffic from a slowly moving position above Route 280.



**Figure 39.** Appearance of traffic from a moving car on Route 280.



**Figure 40.** Traffic density (middle line) and speed limit (right) on Route 280. (Diagram is based on references about traffic volumes and straight line diagrams from DOT NJ internet site)

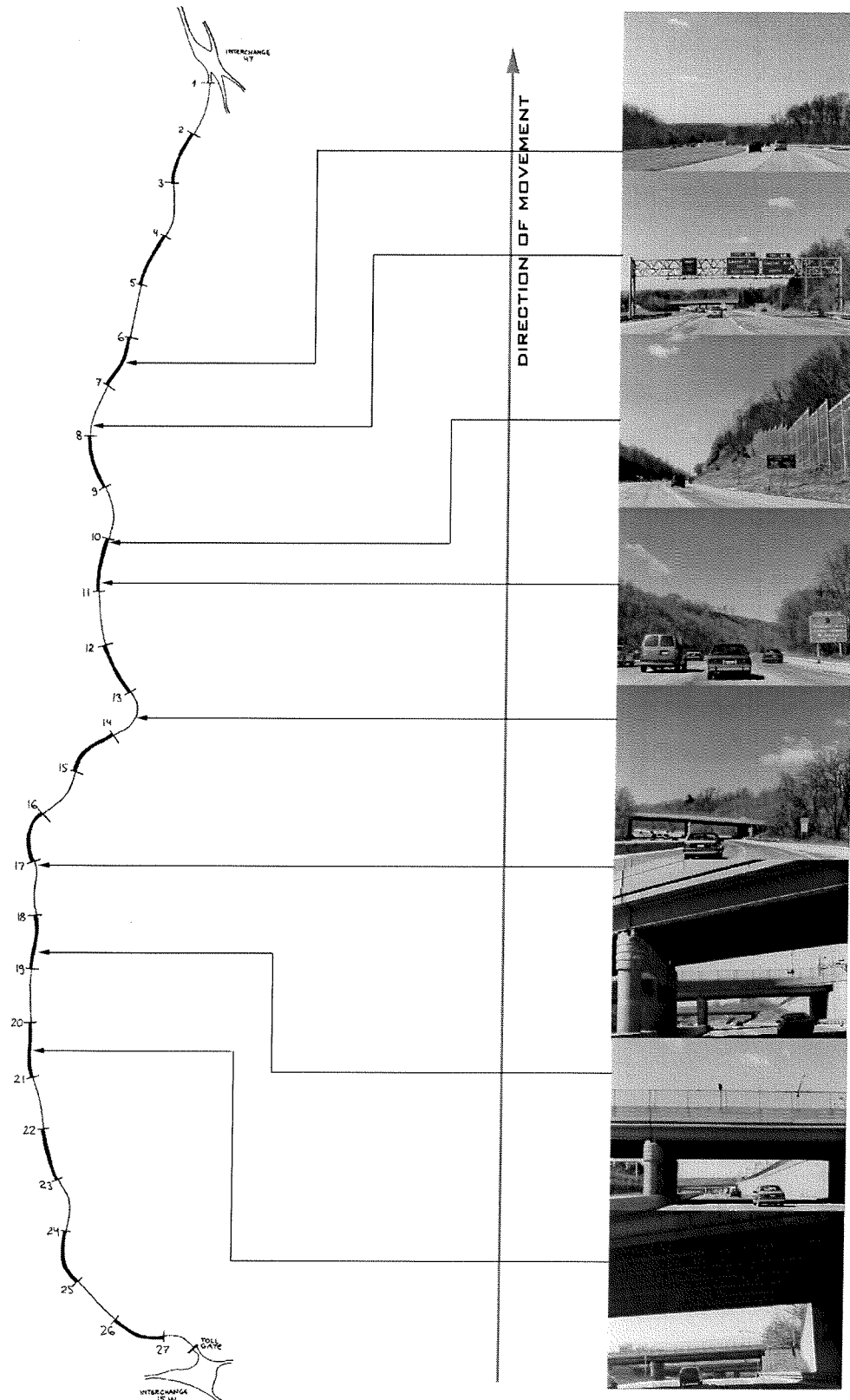


**Figure 41.** Rhythm of background sounds when passing under bridges.

### **5.3.2 Animated View**

(Figure 42). This particular diagram follows the route from East Orange to Roseland. The three views on the bottom represent a sunken section of the route. The bridges create a distinct rhythm. Further on, the route is freed from its concrete walls. At times, it cuts through the rocks and then again is on top of a hill. Here the view consists of passing clusters of trees, office buildings, fragments of sound barriers. At its western end, the route goes through a hilly and forested terrain that occasionally opens toward more distant views. (for a full sequence of views in the both directions of travel see Figure 54)



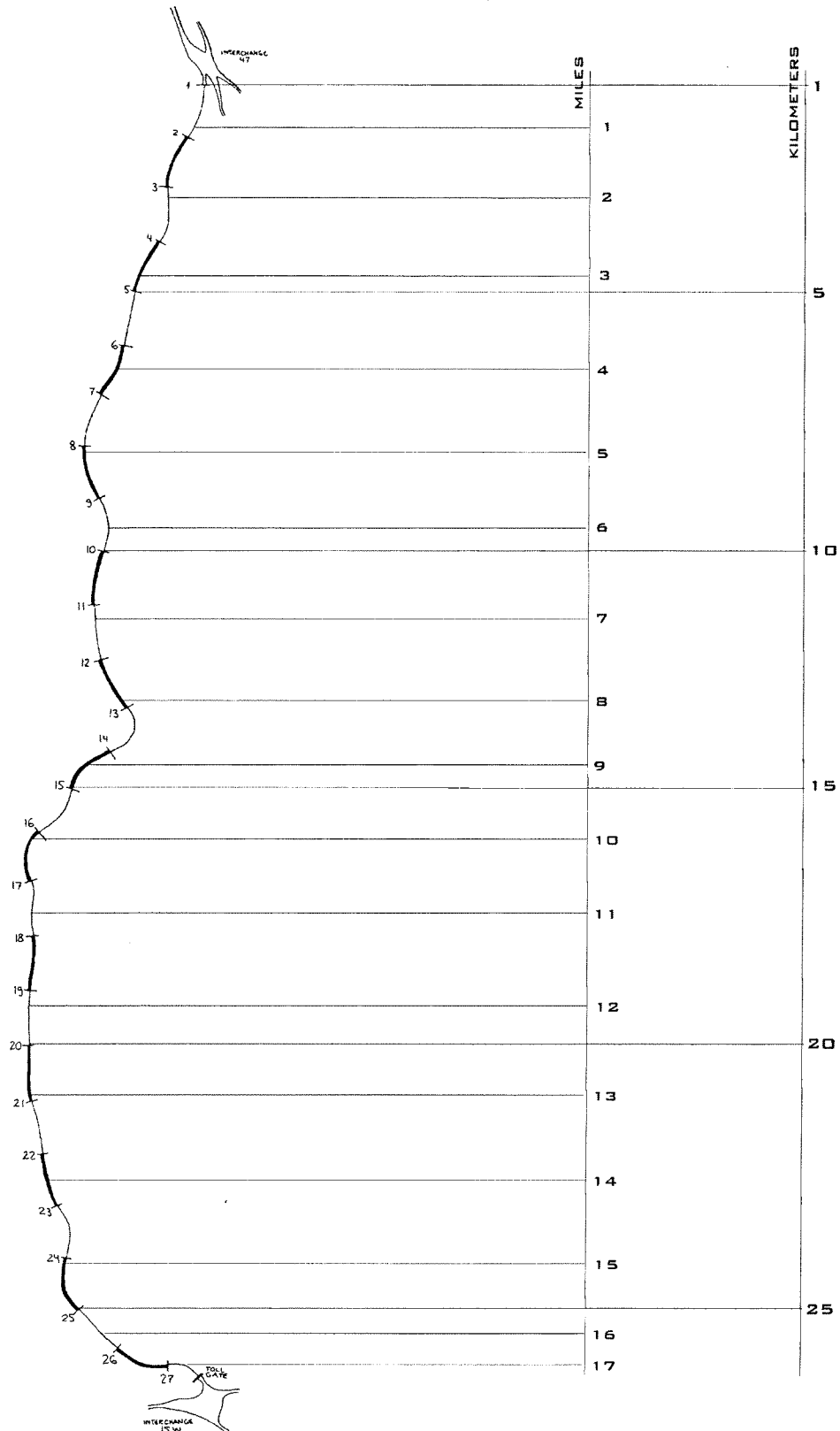


**Figure 42.** Changing visual scene in relation to movement on Route 280-West.

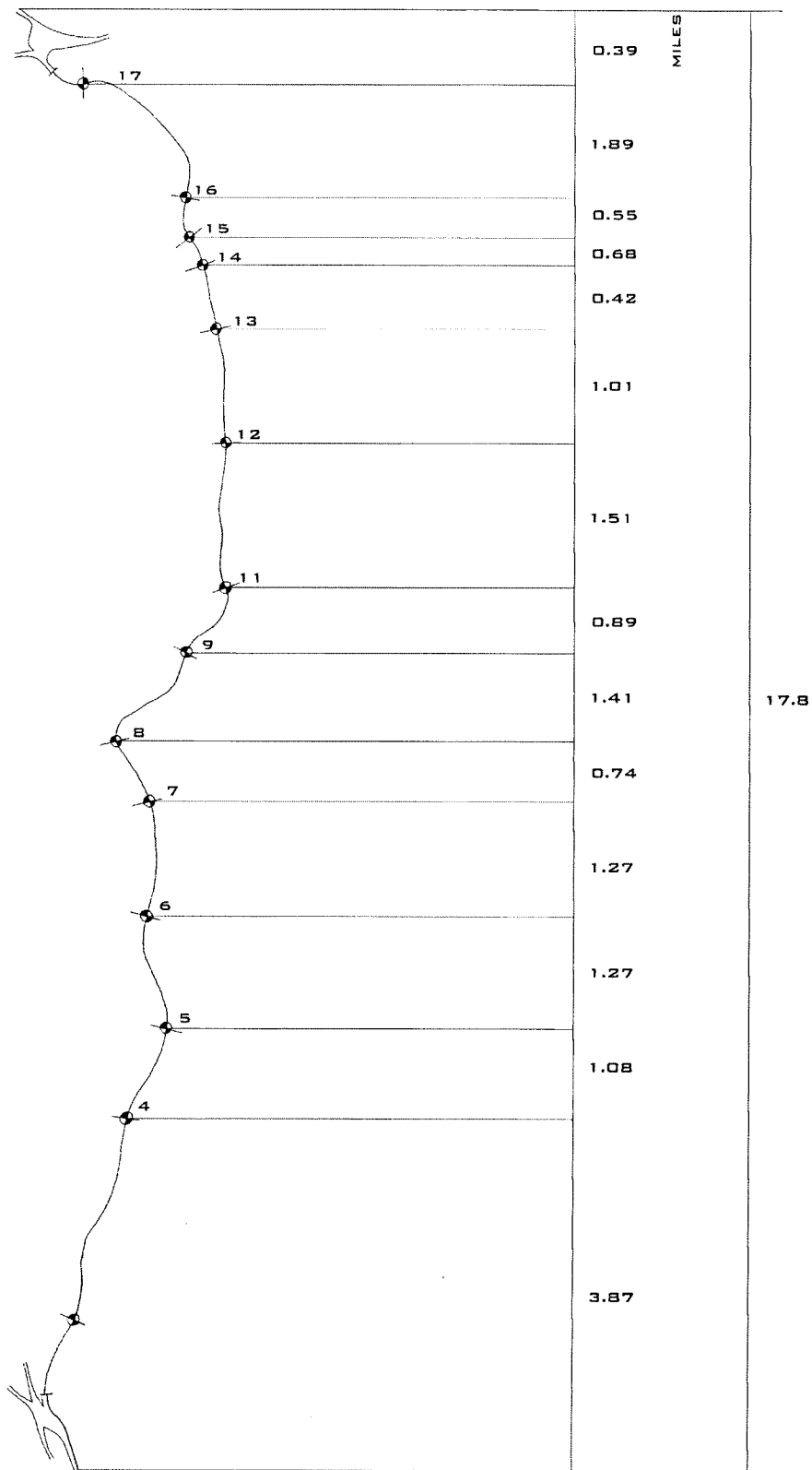
## **5.4 Path and Sequence**

### **5.4.1 Distances**

(Figure 43-44). The entire length of Route 280 is about 18 miles. Distances between the traffic interchanges are close to one mile that is a short interval for car travel. The longest distances between the interchanges are around 2 miles the western part. The shortest intervals between interchanges are in Orange, some are less than a third of a mile. There is no other significant reference objects, besides traffic interchanges and overpasses, the sunken section of the highway, the Passaic River bridge, and the New Jersey Turnpike toll-booths, in relation to which one can determine or remember a distances to other locations. Route 280 is short and distances, therefore, are not so critical determinations of space as on longer freeways.



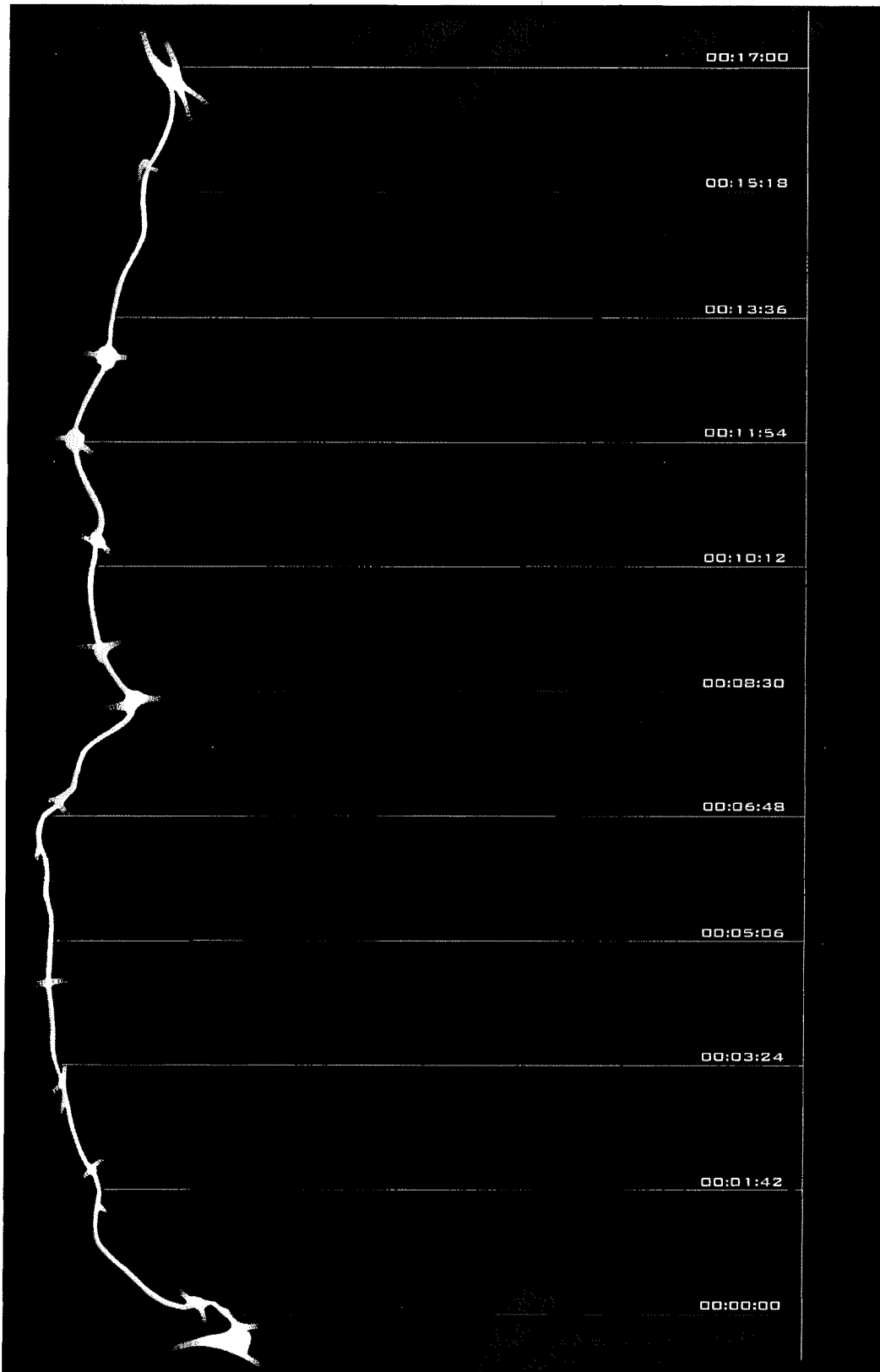
**Figure 43.** Distances to the end of Route 280, interchange 47, when driving west.



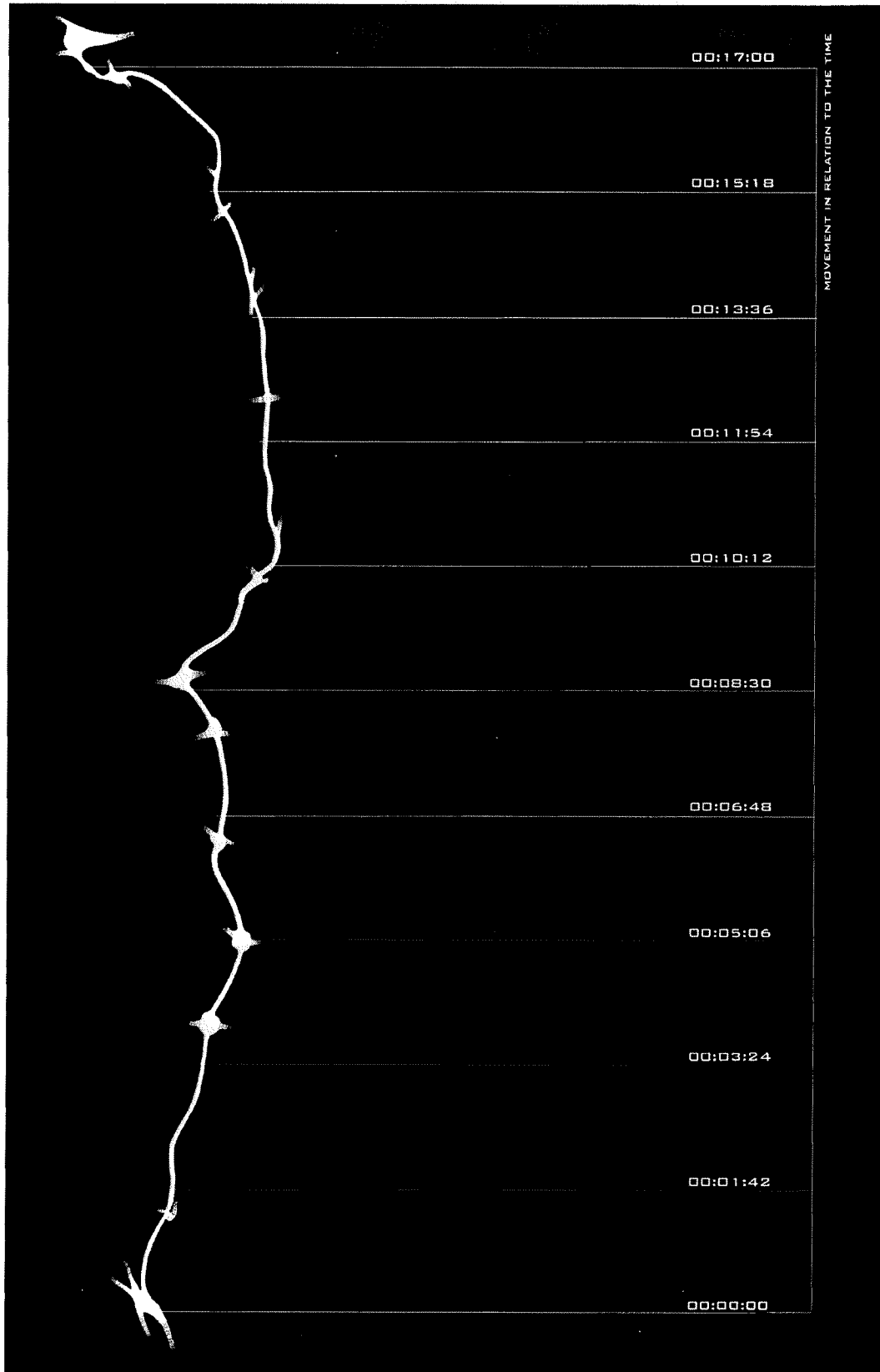
**Figure 44.** Distances between highway interchanges on Route 280 when driving east.

### **5.4.2 Time Intervals**

The diagram represents intervals of time from the eastern end of Route 280 to a certain position (Figure 45-46). It shows the scale of time in relation to the length of the route. 17 minutes is only a possible interval of time, which can be different under various driving conditions. Sometimes it can reach even 30 minutes, when the traffic is going slower. Intervals of time between various points on this route are relatively short, although, during the morning hours, when people rush to their work, they certainly sense the difference in time, especially if it is a delay.

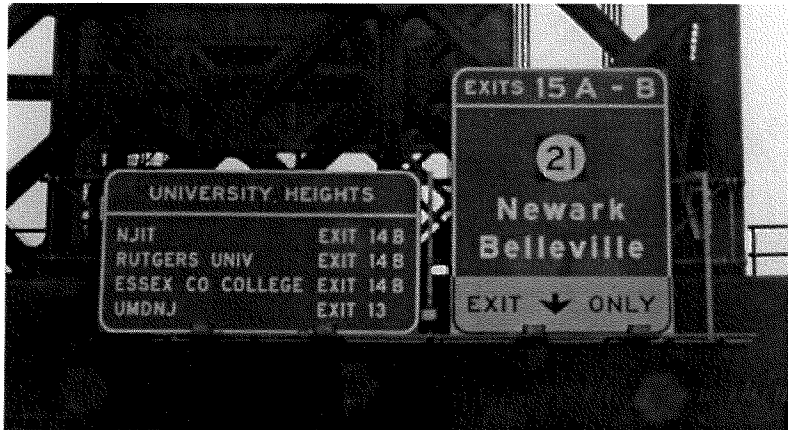


**Figure 45.** Time intervals in relation to Route 280 when driving west.



**Figure 46.** Time intervals in relation to Route 280 when driving east.

### 5.4.3 Signs



**Figure 47.** Road signs on the Passaic River bridge.



**Figure 48.** Portal with road signs at the eastern end of Route 280.

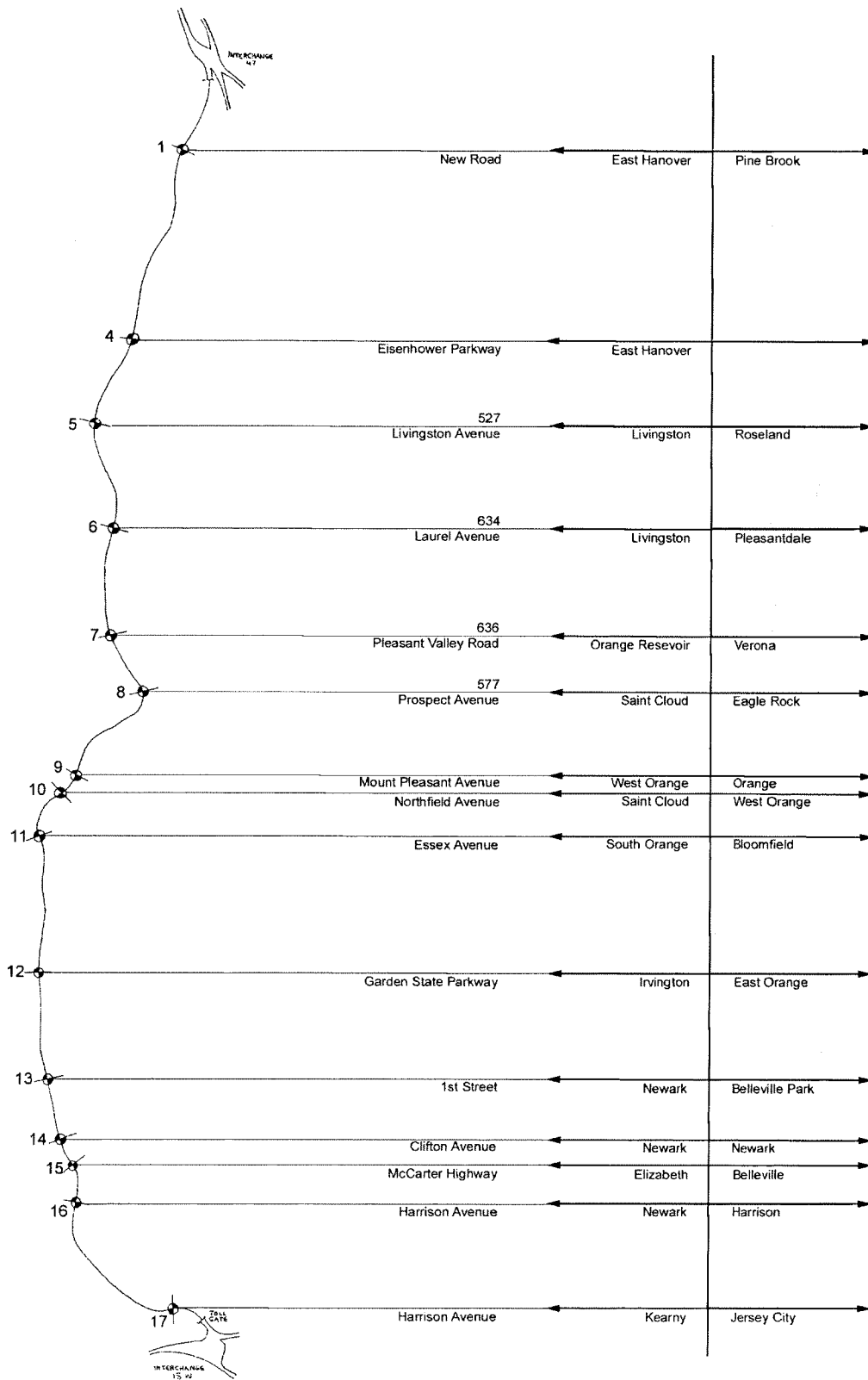


**Figure 49.** Cantilevered road sign between exits 15 and 14.

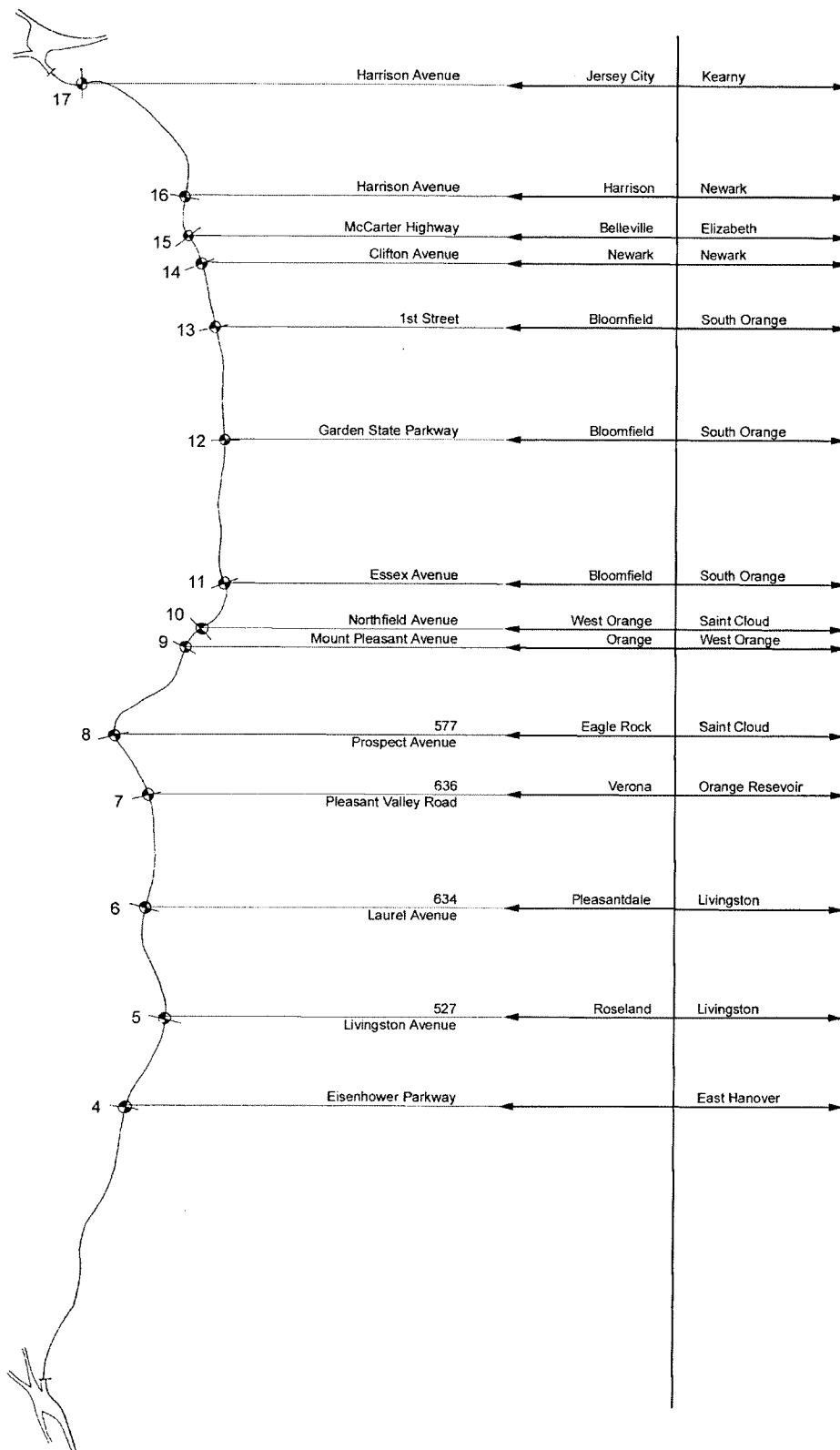




### 5.4.4 Interchanges



**Figure 51.** Sequence of highway interchanges on Route 280 when going west.



**Figure 52.** Sequence of highway interchanges on Route 280 when going east.

### 5.5 Diagrams of Route 280

The following are four diagrams that summarize the analysis. The aerial view of Route 280 (Figure 53) shows the physical body of the route—structure of a place in the slow-speed experience of space. It there is agglomeration of material bodies that observer encounters and passes by when walking on the route. The next diagram (Figure 54) shows the attributes of an interaction with a place in the high-speed conditions—motion and vision. There is a sequence of view in the front of a car when driving on Route 280. These views compose an animated view that is seen uninterrupted (like a movie) during movement in a car. The symbols on the both sides show the dynamic character of motion that consists of continuous interchanging turns. Path and sequence (Figure 55) are attributes of a structure of a place. It is an organization of directions to different locations that are organized by a path between them and a sequential order of interchanges, where the access routes to those locations are connected to Route 280. There is shown also a sequence of signs and messages that could be read during travel on the route. The last diagram (Figure 56) summarizes the structure of a place on Route 280 in the both conditions—slow-speed and high-speed—on Route 280. It consists of three planes: lower one—structure of the route in the slow-speed conditions, upper two—structure in the high-speed conditions in the both driving directions, east and west, that are connected by U-turns (vertical lines). The structure of high-speed conditions is superimposed over the traditional slow-speed structure.

**Figure 53. Aerial view of Route 280.**

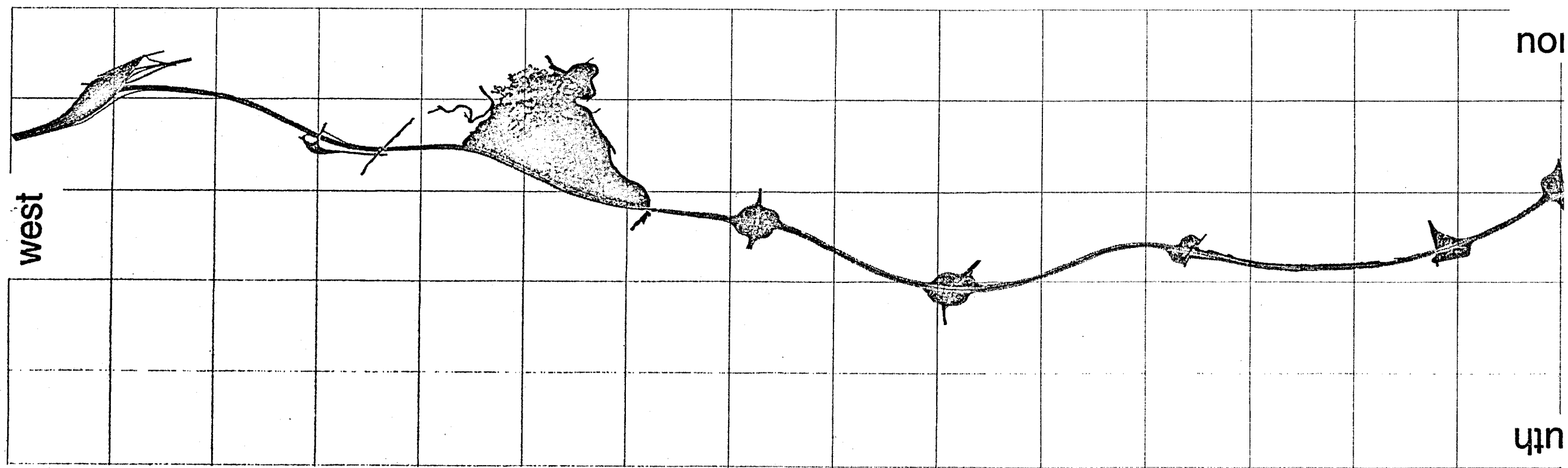
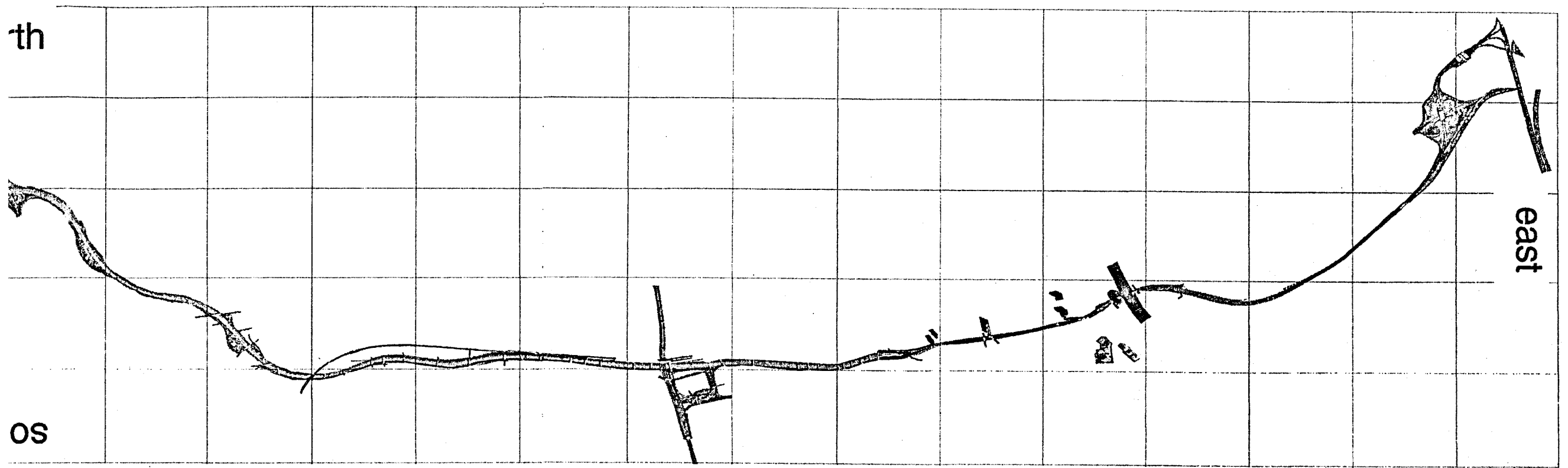


Figure 53. Aerial view of Route 280.





**54. Motion and vision—a dynamic character of motion and a sequence of views on**

**Fig**



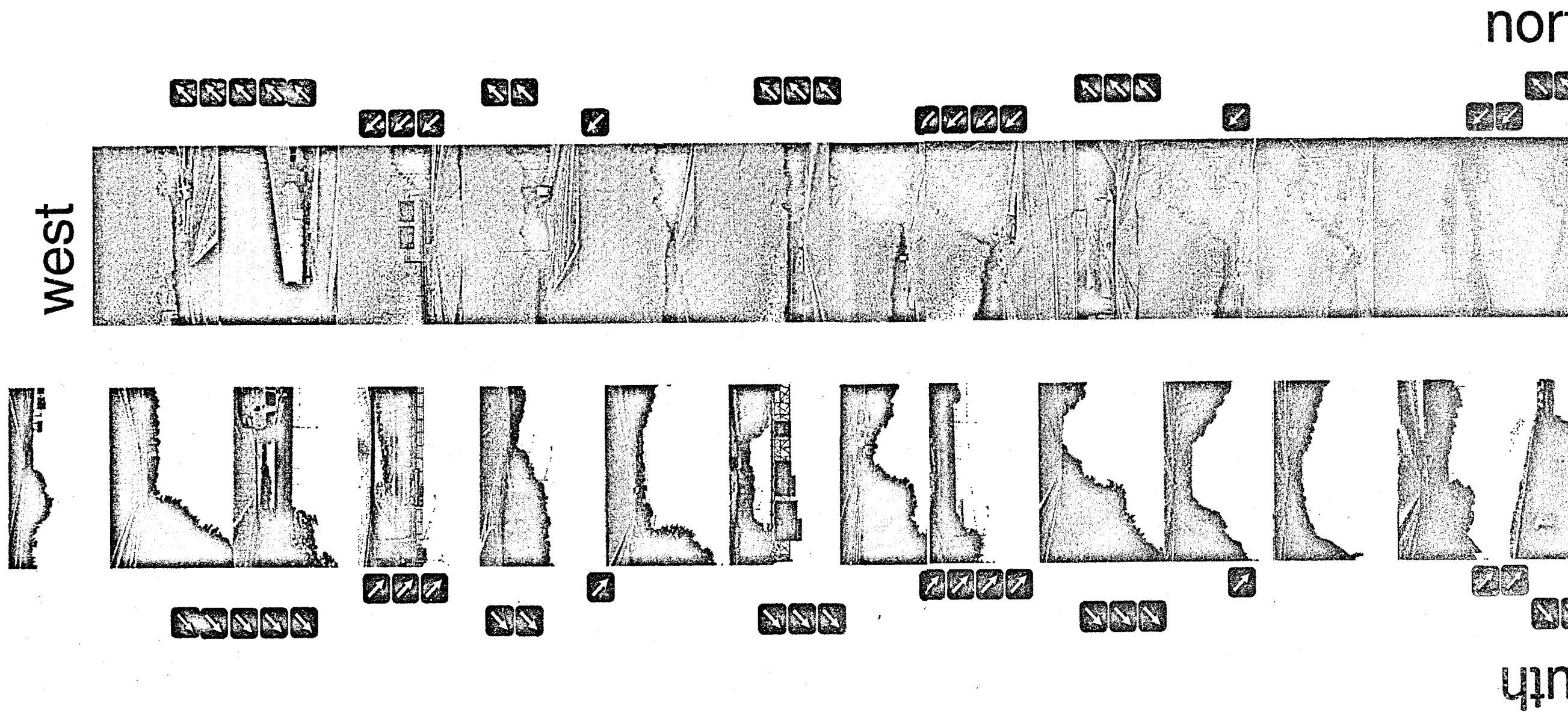
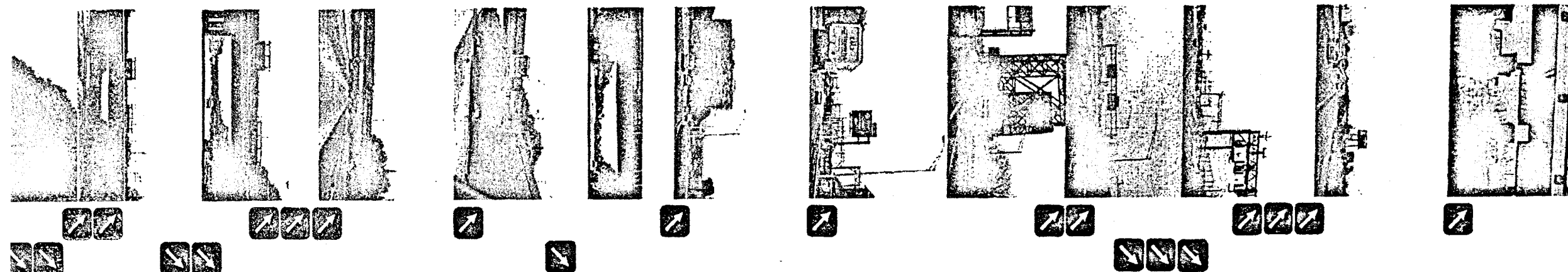
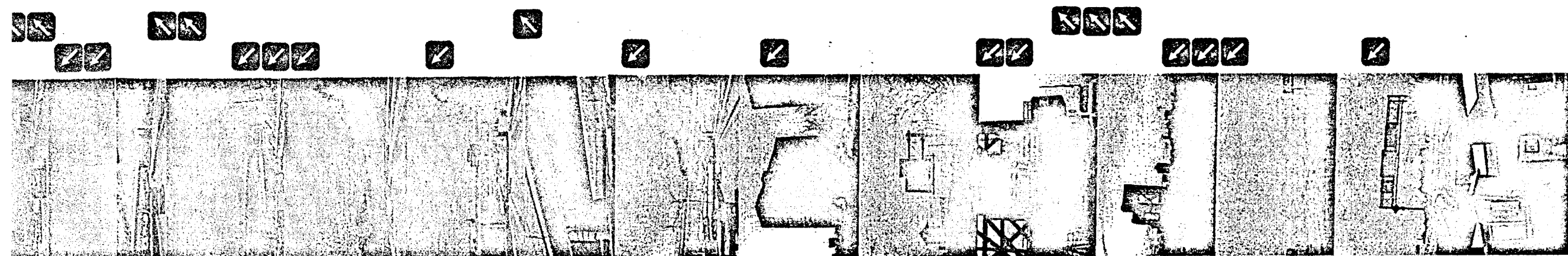


Figure 54. Motion and vision--a character of motion and a sequence of views on Route 280.

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east

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55. Path and sequence—spatial structure of Route 280

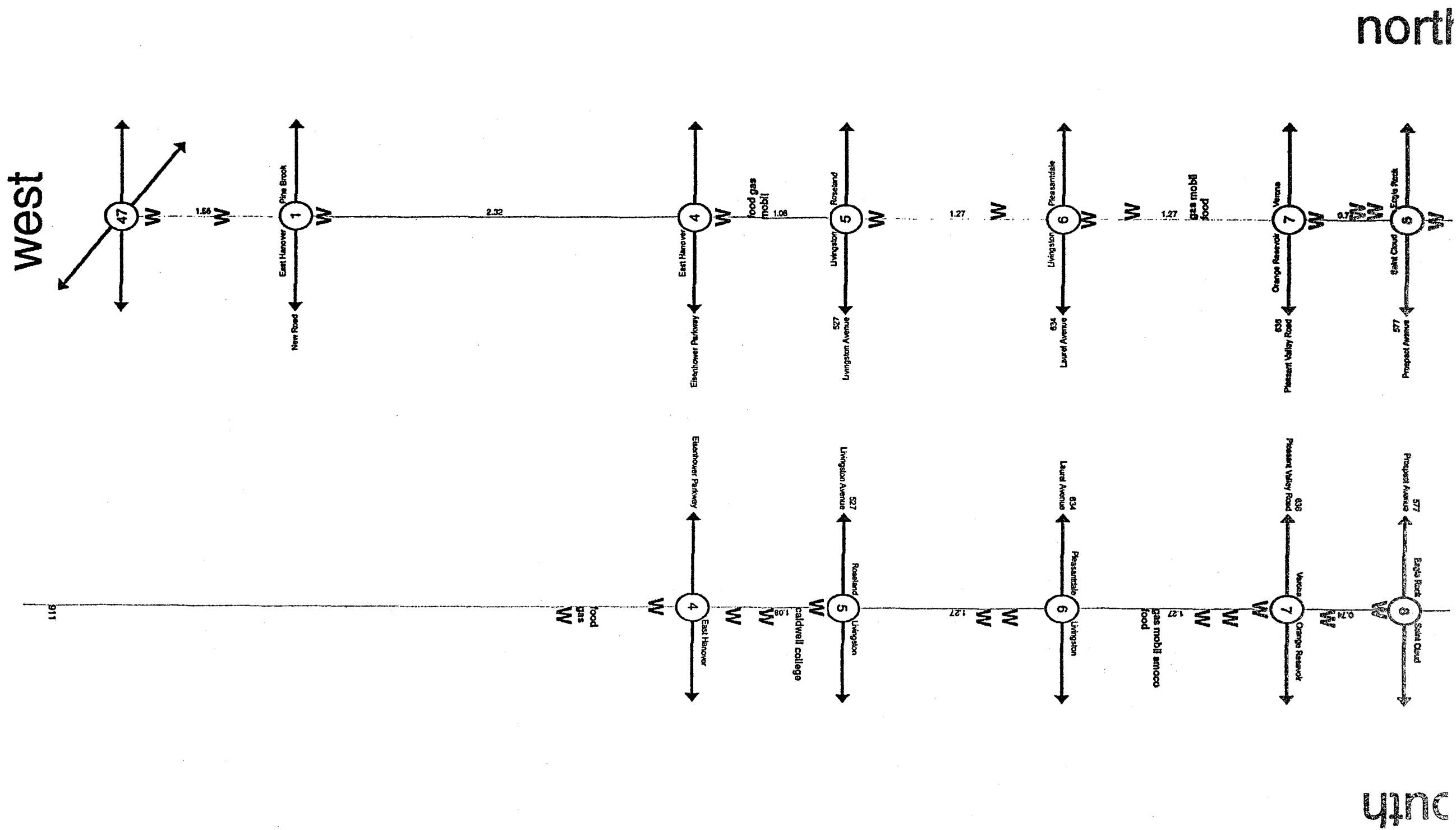


Figure 55. Path and sequence—spatial structure of Route 280.



**Figure 56.** Architecture of a place in the high-speed conditions on Route 280

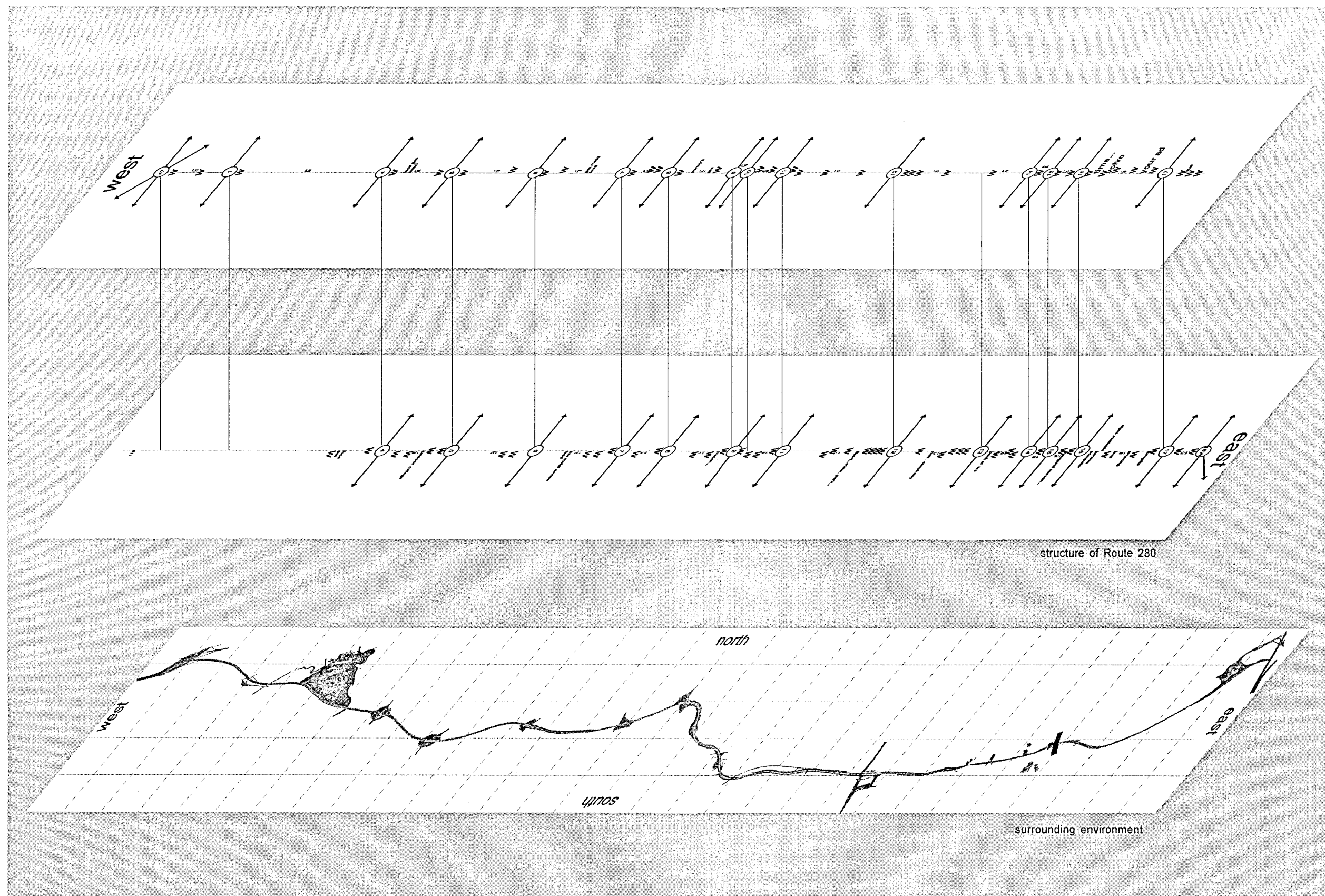


Figure 56. Architecture of a place in the high-speed conditions on Route 280.

## **CHAPTER 6**

### **CONCLUSION**

#### **6.1 Conclusion about the Analysis of Route 280**

The goal of this study was to determine elements that identify a location on a highway when it is observed from a fast moving vehicle. It would demonstrate that on a freeway, which is an essential element of the North American urbanized environment, there exist a possibility for an identity of a specific location and character of space. It would mean that a highway is a place in the similar way as people were used to think when they spoke about a place in the traditional pedestrian environment.

This study explored a highway—Route 280. It determined attributes that identify a location in the conditions, when observer of a place is a passenger in a car moving at 50-70 miles per hour. The study examined Route 280 according to proposed criteria that define the nature of a place—observer's body, interaction with a place, and structure of a place. Place does not exist if there is nobody for whom it exist, if there is no interaction between a person and a place, and if it has no a specific relationship to other things or there is no structure where it can be located. It means that in order for a place to be, there has to be an observer, interaction with it, and it has to have a structure or order. These criteria, in the case of highway travel, refer to specific attributes of a highway environment: observer in a car, motion and vision, and path and sequence. These attributes were examined during the site visits, categorized, and recorded. The study produced diagrams of those attributes from the observations on Route 280 in the both driving directions, west and east.



This study found that a highway is a place, there is a character of a location in the conditions of high-speed movement, and there is elaborate system identifying location when someone travels on a freeway. The nature of those locations and the nature of their identification are different from the traditional slow-speed conditions where people walk. Generally, people were used to think that a highway lacks an identity and that it destroys what they recognized as a place. It is partially true, when people referred to a traditional stereotype of a place in the slow-speed conditions. Highways signify the transformation of the nature of a place and its perception.

On a highway, a body that observes the route becomes a composition of an observer enclosed in an automobile. It, consequently, modifies an interaction with a place that becomes a high-speed motion and vision through a window of a car. The car is like a frame through which people look out into the world and identify a specific location. The study found that at high speeds, when moving in a car, a visual experience is intensified and becomes over-saturated. At the same time, an observer memorizes and recognizes fewer images of the surrounding environment. The speed causes an observer to become a passive viewer and it animates the view outside the moving vehicle (animated view). The structure of a place, its arrangement in relation to other things or places, becomes determined by a network of routes, where cars can travel. Travel through this network of routes creates a path that connects sequence of reference objects.

## **6.2 Transformation in the Nature of a Place in the High-Speed Conditions**

What does it mean that the nature of a place is transformed? Generally, an idea about a place is derived from experiences in the surrounding space. An observer is immersed in

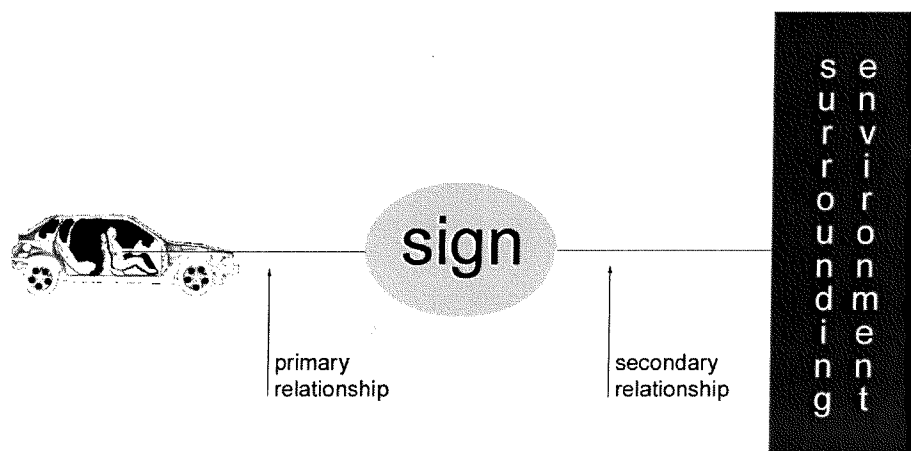
those experiences. (Figure 57) Any experience is local in relation to an observer. As soon as some part of space is experienced, it becomes a locality. A local experience stays between an observer and space, and it can identify a specific location—a place. In the slow-speed conditions, a place is derived from an experience of a surrounding environment with which observer interact directly, walk, touch, smell, etc. In this situation, a place is identified by the various experiences of material objects that are part of the surrounding environment.



**Figure 57.** The relationship between an observer and space.

In the high-speed conditions on a highway, a place can not be derived from the same things as in the slow-speed conditions. An observer is separated from the surrounding environment by a glazed enclosure of a vehicle so that it is possible only to see through and by the difference of speed between an observer and the static objects—motion. The material objects of the surrounding environment, that once identified a place for slowly moving observer, lose their role on a highway.

On a freeway, a place deterritorializes from the direct relationship with the natural surrounding environment. There appears a separation between static physical objects that are a part of the surrounding environment and a place, which becomes defined by more abstract categories, such as signs, route numbers, etc. There could be a secondary relationship between a place and a surrounding environment; for example, a signpost is actually a static material object in the surrounding environment, but the primary relationship is with an abstract sign (information) on the signpost. Introduction of so-called ‘smart signs’—electronic and computerized displays that direct and inform drivers depending of current traffic conditions—will weaken even this secondary relationship. It suggests a tendency towards increasing alienation from the natural environment. This tendency appears throughout the historical development of the means of travel (see appendix B). Consequently, the transformation in the nature of a place might mean the disjunction between the organization of places and organization of surrounding environment.

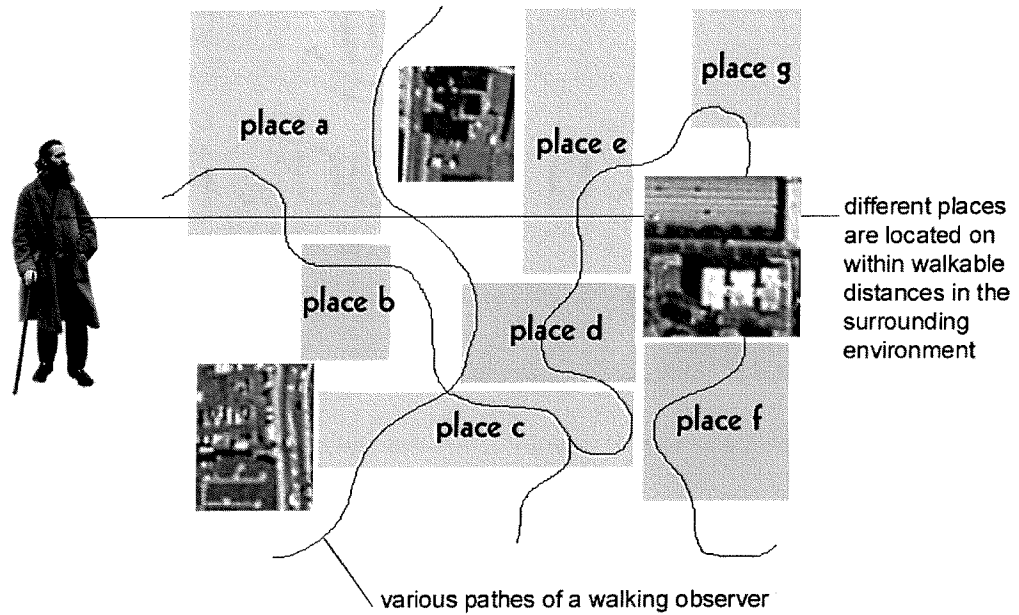


**Figure 58.** Observer in a fast moving car on a highway and the surrounding environment.

### 6.3 Architecture of a Place in the High-Speed Conditions

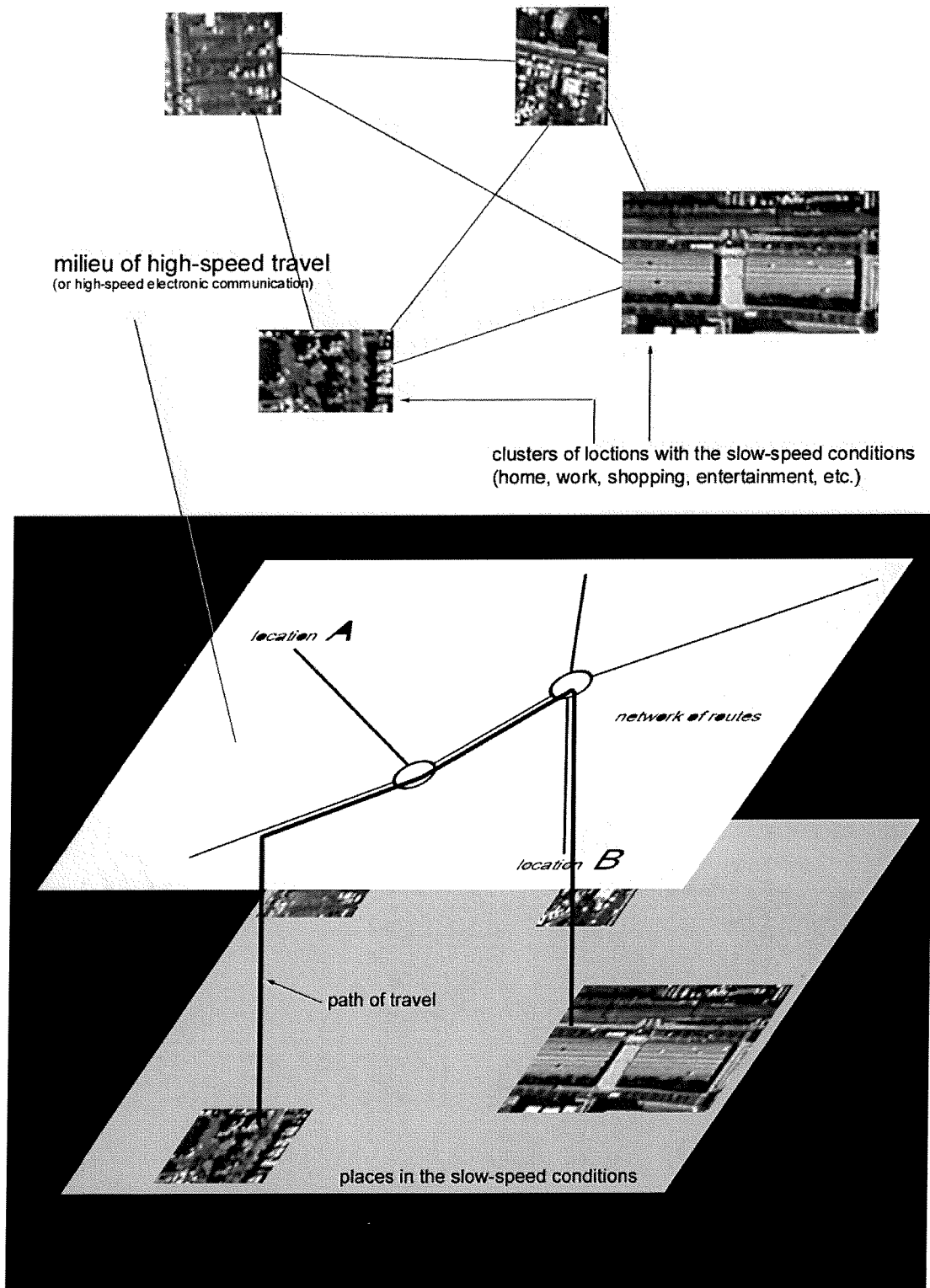
This new transformed nature of a place in the high-speed conditions opens new dimensions of architecture. Vitruvius wrote in *Ten Books on Architecture* that the order (or arrangement) of architecture is putting ‘parts’ in their ‘proper places’. It is a simple, but also an important statement, which needs further interpretation. There are historically inherited criteria of what are those ‘parts’ and what is their ‘proper place’. Kent Bloomer and Charles Moore in their book *Body, Memory and Architecture* actually mention three elements—void, solid, and surface between them—that would summarize the archetypal criteria of those ‘parts’; and monumental location in the surrounding environment created by these elements is a criterion of their ‘proper place’. Such interpretation can be established only in the slow-speed conditions of interaction with space. There has to be slowness of experiencing space in order to perceive its voids, solids, and surfaces. When people start roaming space in fast moving cars, the criteria are significantly.

In the high-speed conditions, when a structure of a place or places becomes increasingly alienated from the surrounding environment and observer submerges in fast motion, the meaning of ‘putting ‘parts’ in their proper places’ is different. The location in the surrounding environment does not define a place of ‘parts’, but it is defined by the way in which they can be approached. And this way of approaching locations is also transformed because observer in a car can move only in a certain network of routes. Alex Wall in one of his articles said, “Movement [in a car] becomes a principle of order, and citizens adapt themselves to the perception of cityscape while in motion”. Route 280 was one actual example of the order of ‘parts’ and their places for an observer moving in a car, which was explored in this study.



**Figure 59.** Structure of places in the slow speed conditions.

When creating a place in the high-speed conditions, an architect would have to think about location and space according to network of high-speed travel or communication that is superimposed over the traditional surrounding environment. “The ground-level plane of the ... journeyman is opposed to the metric plane of the architect, which is on paper and off site.” (Deleuze, p. 368)



**Figure 60.** Structure of a place in the high-speed conditions.

This transformation in our thinking about a place confronts traditional image of a place and traditional opinion that highways destroy traditional communities, towns, and cities. Historically, a town and any urban habitat are related to the network of routes. “The town is the correlate of the road. The town exists only as a function of circulation, and of circuits; it is remarkable point on the circuits that create it, and which it creates.” (Deleuze, p. 432) The highways, which are created by a desire for moving faster, are only a newer generation of those traditional routes on whose intersections grew cities. Route 280, as well as any other freeway, signifies an irreversible transformation of spatial experience.

## APPENDIX A

### MEANING OF THE WORD ‘PLACE’

This appendix includes the list of senses for the word ‘place’ and its chronological development represented in a diagram. The study is based on *The Oxford English Dictionary* as a reference source about usage of the word in specific senses and about the dates, when each of the specific senses were first recorded.

**Table 10.** Senses of the word ‘place’. (source: Simpson, Vol.11)

#### Word *place* as noun

I	1.	An open space in a city; square, a market-place
II	<b>Material space</b>	
	2.	
	a	Space, extension in two (or three) directions; room
	b	In generalized sense: Space, extension
	3.	
	a	A particular part of space, of defined or undefined extent, but of definite situation
	b	Portion of space actually occupied by a person or thing; position of a body in space, or with reference to other bodies; locality situation
	c	Short for ‘place of battle’ or ‘battle-field’
	d	“To <i>leave</i> or <i>win place</i> ” : to lose or gain ground, to retreat or advance
	e	“ <i>all over the place</i> ” : disordered, irregular, muddled
	4.	A piece or plot of land
	5.	
	a	A portion of space in which people dwell together; general designation for a city, town, village, hamlet, and etc.
	b	A residence, dwelling, house; a seat, mansion, palace; sometimes, a religious house, a convent; the chief residence on an estate; a manor-house; a country house with its surroundings
	c	A fortress, citadel, strong place, a fortified city
	d	A building apartment or spot devoted to a specified purpose.
	e	(slang) A lavatory
	6.	
	a	A particular part or spot in a body or surface
	b	A square or the board
	7	
	a	A particular part, page, or other point in a book or writing
	b	A (short) passage in a book or writing, separately considered, or being upon some particular subject; a text, extract
	c	A subject, a topic



Table 10. (continued)

8.	In technical uses:	
	a	The apparent position of a heavenly body on the celestial sphere
	b	Locus in geometry
	c	The point or pitch attained by a falcon or similar bird of prey before swooping down on its quarry.
	d	A drift or level driven from side to side of a wide lode as a beginning of a slide
III Position in some scale, order, or series		
9	a	Position or standing in the social scale or in any order of estimation or merit; rank, station, whether high or low
	b	High rank or position; dignity
	c	A position among the placed competitors
	d	“to know ones place”: to know how to behave in a manner befitting one’s rank; “it is not my place”: outside my duties or customary rights “to put (someone) in his/her etc. place”: to remind someone of his or her rank or situation; to rebuff or rebuke
10.	The position of a figure in a series, in decimal or similar notation, as indicating its value or denomination	
11.	A step or point in the order of progression	
IV Position or situation with reference to its occupation		
12.	a	A proper, appropriate, or natural place (for the person or thing in question to be in or occupy); sometimes in an ideal or imaginary region
	b	A fitting time, point in the order of events; occasion, opportunity
	c	Room, reasonable occasion or ground
	d	“a place for everything and everything in its place”
13.	a	The space which one person occupies by usage, allotment, or right; a seat or accommodation engaged in a public building, conveyance, or the like, a space at table; seat, station, quarters
	b	With possessive or of: The space previously or customarily occupied by some other person or thing; room, stead, lieu
	c	“a place in the sun”:
14.	a	An office, employment, situation; a government appointment, an office in the service of the crown or state
	b	Without a or pl.: Official position, especially of a minister of state
	c	The duties of any office or position; one’s duty or business

Table 10. (continued)

V	Phrases
15.	<p><i>“place of arms”</i>:</p> <p>a An open space for the assembling of troops</p> <p>b A strongly fortified city or a fortress, used as an arsenal or magazine, or as a place of retreat; a tent at the head of each company where the arms were stored</p>
16.	<p><i>“place of worship”</i>: A place where religious worship is performed; a building or its part appropriated to assemblies or meeting for religious worship; a general term comprehending churches, chapels, meeting-houses, synagogues, and other places in which people assemble to worship God</p>
17.	<p><i>“one’s heart (lies) in the right place”</i>  <i>“to have a soft place in one’s heart for”</i>: to regard affectionately, be well-disposed, be fond of</p>
18.	<p><i>“from place to place”</i>: from one place to another, and so on in succession</p>
19.	<p><i>“in place”</i>:</p> <p>a before and without moving away; on the spot; then and there, immediately</p> <p>b In presence, present, at hand, on the spot</p> <p>c In its original or proper position; in position</p> <p>d In his or its proper or fitting position;</p> <p>e In (his) position, situation, or circumstances; situated as (he) is</p> <p>f In stead of</p>
20.	<p><i>“out of place”</i>: out of or not situated in the natural or appropriate position; misplaced; unsuitable, unseasonable</p>
21.	<p><i>“come in place”</i>:</p> <p>a To come to be, come forth, originate, turn up; to come into notice, to appear; to appear, present itself for consideration</p> <p>b To occur, take place</p> <p>c To come into a position (to do something)</p>
22.	<p><i>“find place”</i>: to find room to dwell or exist, to have being (in something)</p>
23.	<p><i>“give place”</i>: to make room, make a way, get out of the way; to yield to, give way to; to be succeeded by</p>
24.	<p><i>“have place”</i>:</p> <p>a To have room to exist; to have being or existence (in something); to exist; to be situated, have lodgment</p> <p>b To have or take precedence</p>
25.	<p><i>“hold place”</i>: To obtain regard, to prevail</p>
26.	<p><i>“make place”</i>:</p> <p>a To make room or space for; to give a position, situation, office to</p> <p>b <i>“to make places”</i>: said of two bells which shift their position in successive changes so as to make room, as it were, for another bell which is struck successively before, between, and after their</p>

**Table 10.** (continued)

	27	“take place”:
	a	To take effect, to succeed; to be accomplished or realized
	b	To find acceptance; to have weight or influence
	c	To take precedence of; to go before
	d	To take up or have a position; to be present
	e	To come into existence, come to pass, happen; to occur
	f	“to take place of”:
VI	28	Short for <i>Place brick</i>
VII	29	Combinations: <i>place-description, place-disease, place-illustration, place-name, place-nomenclature, place-ordering, place-poetry; and place-bound, place-ordered; place-logic, place-time; place-getter; place-broker, place-monger, place-mongering, place-seeker, place-seeking, place-begging, place-loving, place-proud, place-act, place-being, place-betting, place-bill, place-book, place-card, place-horse, place-house, placelike, place-making, place-mat, place-money,</i>

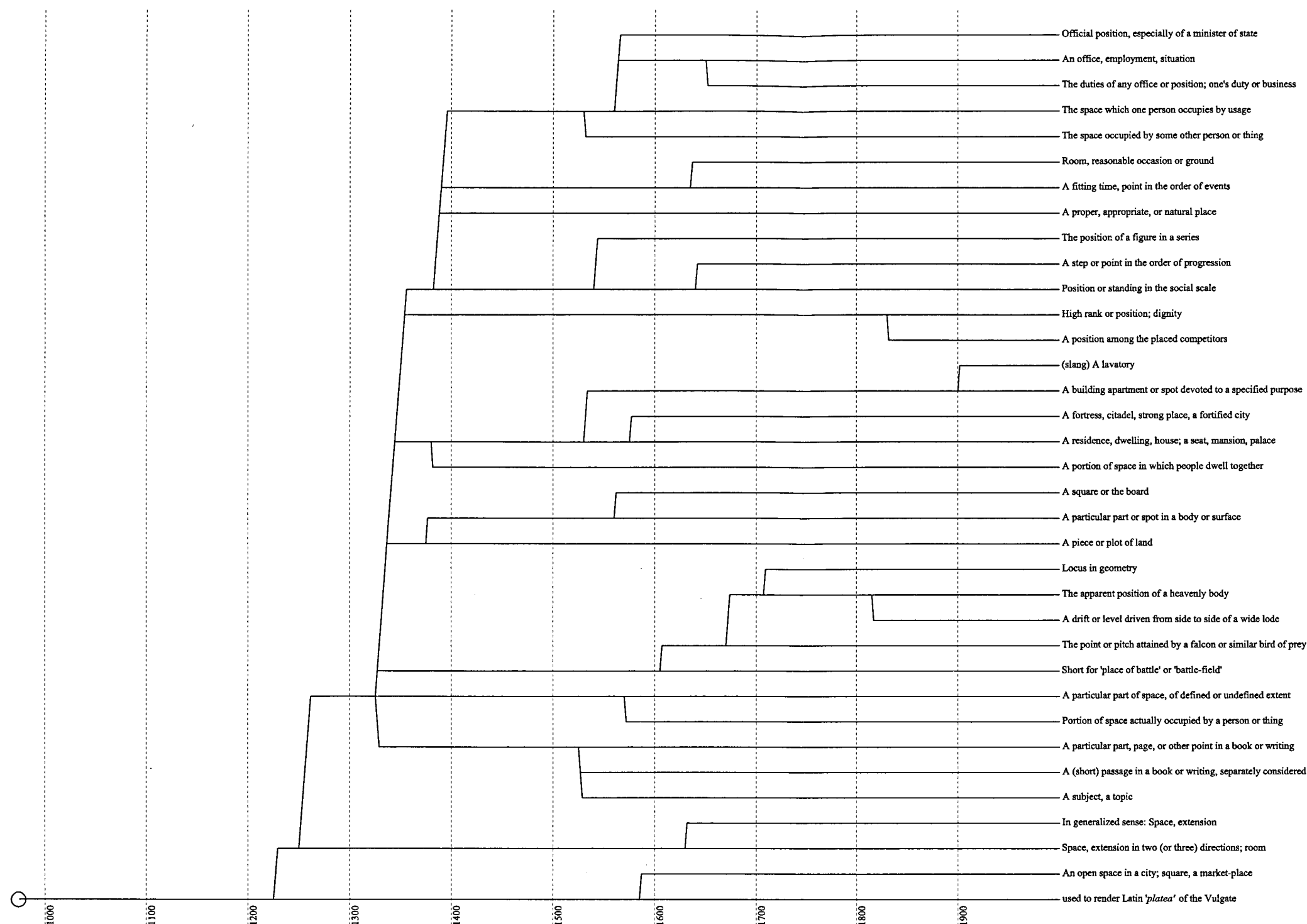
**Word *place* as verb:**

1.	a	To put or set in a particular place, position, or situation; to station; to posit; to set in some condition, or relation to other things
	b	To put or set a number or things in proper relative places; to arrange, to dispose, to adjust
	c	When speaking about games, to control and guide (the ball) in making a stroke or hit
2.	a	To appoint (a person) to a place or post; to put in office
	b	To find a place or situation for; to arrange for the employment, living, or marriage of; to settle
3.	To put (a thing) into suitable or desirable place for some purpose	
	a	To put out (money, funds) at interest; to invest
	b	To put into the hands of a particular person or firm
	c	To dispose of to a customer
4.	d	To arrange for the performance or publication of
	To put, set, fix, repose (faith, confidence, esteem, etc) in or on a particular person or thing	
5.	To determine or indicate the place of; to assign a place to	
	a	To assign or refer to a particular locality or set of circumstances; to locate
	b	To assign a certain rank or station to; to rank, class
	c	To fix the chronological position of; to date; to fix, determinate (a date)
	d	To state the place or position among the competitors when passing the winning post

**Table 10.** (continued)

	e	To determinate who or what a particular person or thing is; to assign to a particular class or category; to determine the importance of; to identify
	f	To achieve a certain place or position; to be placed
6.		To assign, attribute, ascribe
	a	To hold (a quality or attribute) to reside or consist in something
	b	To refer a fact or circumstance to something as a cause; to put down
7.		When speaking about game, to get (a goal) from a place-kick

**Figure 61.** Chronological development of the word 'place'.



**Figure 61.** Chronological development of the word 'place'.

The horizontal axis is a dimension of time in years, on the right side is a vertical list of different meanings of the word 'place', the lines in the graph refer to a specific meaning in the list, the point where a line splits from other line refer to a year, when a specific interpretation of the word was first recorded. (source: Simpson, Vol.11)

## **APPENDIX B**

### **HISTORY OF TRAVEL AND TRANSFORMING PERCEPTION OF SPACE**

This chapter studies change in our perception of place when our speed of movement increases. This is analyzed in relation to the historical evolution of our means of travel. The evolution has three main phases: invention and use of an efficient passenger coach, train, and automobile. Route 280 is a part of this development. Each of these phases increased velocity and autonomy of travel in space along this corridor. The travel was made easier, more extensive. The interaction with space expanded. A person's space becomes the extent of his or her movement in space; it was established by mobility. The form of the movement was the mode by which one oriented in space. Place extended in space of mobility and was defined by dimensions or aspects of mobility. In order to understand the transformation of place to the contemporary state, we have to look for transformation of the mode of travel in space.

When we travel, we interact with space around us. The specific form of travel shapes the interface of the interaction. For one who moves, the interface with space is completely different than for one who does not moves. Because having no static allocation, our traveling in space always challenges our sense of place. The increase of the velocity of movement eliminated traditional sense of place, because the perceptions of space become different.<sup>13</sup>

With no transportation, one's location was the only the nearest existing world because one could not walk as far. In that situation, one's sense of place was tied to inhabited environment. When one started to travel quickly and longer distances, the ties

with the environment became animated; one was not dependent of only one restricted region in space.

Since prehistoric times, human beings strive to improve their ability to move in space. From the moment, when our ancestors for the first time tamed a horse and built the first road, the man continuously had the desire to inhabit increasingly more space. Each such invention changed our mode of perceiving the space and locality. The radical transformation from slow-speed traveling on foot or horse to high-speed traveling in mechanical vehicles occurred between the early nineteenth century and mid twentieth century. The change influenced our sense of space. It increased the speed of our movement in space, and disrupted our relationship with our environment where we move. The specific mechanisms of surface traveling established the specific forms of interaction with our local environment distinguishes each stage of the transition: moving on foot or horseback; moving by carriage or coach; moving by train; and, lastly, to movement by car. Each of those stages represents a different speed and a character of movement.

Until the sixteenth century, carriages were exceptional because of their inefficiency and lack of the roads. For example, in Medieval Times the price on bulky goods increased by 30% every 100 miles of travel.<sup>14</sup> The common form of traveling was on a foot or on horseback. The covered distances were rather limited. The war and trade with goods were the main reasons for going longer distances from one place to another.<sup>15</sup> Because of the relatively slow speed of movement, the traveler was capable of being involved into a very close relationship with the surrounding environment. One could discern even the smallest things around him: textures of the pavement, roadside plants, and sounds of a daily life. The traveler's orientation in space and sense of place was

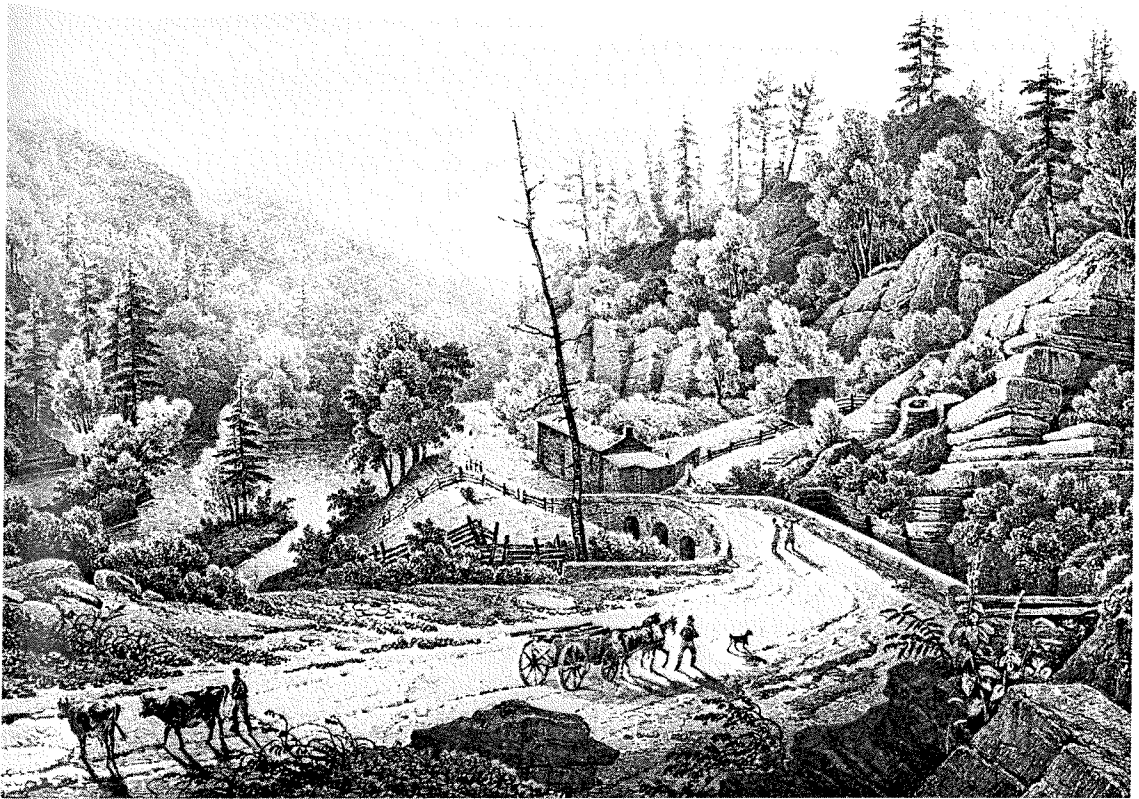


relying on the physical objects in the landscape. The traveler was in the intimate and sensitive contact with the surrounding material world. The sense of locality was based on the direct encounter with the objects, such as, trees, buildings, stones, rivers, etc.

“In the course of the sixteenth century, presumably due to the improvement of the roads, travel by horse-drawn carriage became more common. True, we encounter the merchants of the sixteenth with increasing frequency in their ‘coaches’: but as late as in the mid-seventeenth century we find resistance against coach travel on the grounds that it is detrimental to the welfare of the nation – it makes the people too soft, it ruins horse-breeding, etc. By the end of the seventeenth century travel by coach had finally established itself as equally acceptable as travel on horseback” (Sombart, p. 262, quoted in Schivelbusch). As soon as one switched from walking to a carriage driven by horses, the interaction with space changed. Now, a traveler is enclosed inside the cabin of the coach. He or she is freed from any physical effort necessary to pull the coach forward, which is supplied by the power of horses. The passenger is sitting on a chair in the cabin of the carriage, while the horse is pulling it. The relationship between the distance and physical effort is modified and becomes expressed as a matter of time rather than action. It was a shock for people who used to measure everything by foot, which may be why carriage travel was occasionally resisted. People became aware of the visualization of a traveled space. Looking outside the cabin was almost the only activity that a traveler could do: to admire a changing scenery and an appearance of objects. Our experience of landscape became dominated by the vision of human eye. The traveling in a coach made our trip more saturated with visual experience. Travel journals became a popular form of eighteenth-century literature; it gives abundant descriptions of scenery. (Figure 62) Johann

Wolfgang von Goethe writes in his journal of the Swiss journey in 1797, after he left Frankfurt:

“Left Frankfurt shortly after 7:00 A.M. On the Sachsenhausen mountain, many well-kept vineyards; foggy, cloudy, pleasant weather. The highway pavement has been improved with limestone. Woods in back of the watch-tower. A man climbing up the great tall beech trees with rope and iron cleats on his shoes. What a village! A deadfall by the road, from the hills by Langen. Sprendlingen. Basalt in the pavement and on the highway up to Langen; the surface must break very often on this plateau, as near Frankfurt” (Goethe, p. 348).



**Figure 62.** Road and bridge over the Mohawk in an early nineteenth century lithograph.

The slow pace of a horse-driven coach allowed the traveler to see objects for a longer moment that was sufficient to discern them in a sensitive manner. The traveler had a time to grasp the view with abundance of a detail.

People had desire for travel and seeing exotic sites. When means of long distances were not available to general public, they tried to replicate foreign landscapes because. In ‘panoramic’ and ‘dioramic’ shows and gadgets, people watched displayed panoramic paintings that imitated the impression of actual visiting the site. “These were designed to provide, by showing views of distant landscapes, cities, and exotic scenes, ‘a substitute for those still expensive and onerous journeys’” (Buddemeier, quoted in Schivelbusch). Travel books were stuffed with illustrations of exotic scenes. People became acquainted with those landscapes from the available pictures, and they remained in their minds as images. Only the later invention of railway for the first time gave an actual and affordable access to those images.

The next stage of development was the invention of the steam engine and building the first railway in the beginning of the nineteenth century. Initially railway was used in the coalmines of England for transporting coal to the nearest ports. (Figure 63) The difference in speed between the first trains and the horse-driven coach was insignificant, but the difference in efficiency gave a spur that afterwards would deform our perception of space. The trains were also initially resisted as any other unknown phenomenon. In the mid-nineteenth century, shocking stories were told with the advent of the first passenger train lines. The attitudes ranged widely from a naïve excitement to a fear caused by frequent train crashes, and even included rage against mechanical transportation. It took a long time before society adopted itself to the phenomenon of the fast moving train.



**Figure 63.** One of the first scenes with train is naïve and prophetic. The walking person in the front and coal train coming from behind suggests the transformation of our mode of traveling in space.

Travel with train further alienated the passenger from the landscape and opened up a new perception of space and a new sense of place. “What was experienced as being annihilated was the traditional space-time continuum which characterized the old transport technology” (Schivelbusch, p. 36). When one is sitting still in a train compartment that was moving at 30-40 miles per hour (in mid 19<sup>th</sup> century), the direct physical contact with the ground was lost. There was no direct interaction between a passenger and the surrounding environment. It was impossible to discern details of the objects. One saw only moving outlines and shapes. Earlier in a seventeenth century, Newton had postulated that objective appearances of the object are its size, shape, quantity, and motion that now become almost the only qualities that can be grasped at this speed of travel.<sup>16</sup> The texture, color, and character of objects merged into abstract shapes in the eyes of traveler. The view out of the window of the train car consisted of

monotonously moving hills, fields, villages, etc. It eliminated traditional landscape experiences, which predominated when people moved with the speed of a horse.

A passenger in a train became a passive viewer, and his role was minimized to being just an object that has to be transported from one point to another. “The traveler who sat inside the projectile [fast moving train] ceased to be a traveler and became, as noted in a popular metaphor of the century, a mere parcel” (Schivelbusch, p. 54).

Another aspect following the invention of the train was the traveler’s changed conception about the distances between different locations in space. The speed of a train diminished the time needed to travel from one location to another. Distant regions become closer and started to merge with each other as the network of railways grew, and the flow of passengers and goods increased. It changed the geography of a region previously isolated by long distances. After the advent of a railway they virtually become linked into one integrated entity, at the same time, they lost their spatial separateness and their own uniqueness. “The regions, joined to each other and to the metropolis by the railways, and the goods that are torn out of their local relation by modern transportation, shared the fate of losing their inherited place, their traditional spatial-temporal presence or... their ‘aura’” (Schivelbusch, p. 41).

The shrinking of space, which was caused by decreasing time of travel, blended regional identities. It led to the unification of space. The effective work of the railway network required coordination among its various parts and the elimination of their differences. The characteristic example is the invention of a synchronized time. Before railway, each town and city had their own time that was different from that in other towns. When traveling speed was slow, there was no need for a synchronized time. The

difference of time between the towns could not even be noticed. When traveling speed increased, the time difference became obvious. It started to create problems in coordinating the railway network connecting different towns. The railroad companies decided to synchronize their own time on all serviced lines. They invented own time, railroad time that was the same on the entire line serviced by a company. "Each company had its own time ... In stations used by several different lines there were clocks showing different times: three of these in Buffalo, six in Pittsburgh" (Schivelbusch, p. 44). As speed and intensity of trains increased, the companies needed even more integrity and unification. They proposed an idea about single standard time used by all companies. As the scale of train movement increased, the standardization of the time went beyond the railway infrastructure; the entire life of countries had to be unified under the same standardized time. Only after several decades, in 1880, the time used by railroad companies was accepted as a general time in England. In 1884, the International Conference on Time Standards first divided the world in time zones.<sup>17</sup> The speed of the train gave an origin to the global system of time. Simultaneously, it removed something that was an identity of a particular town - its time.

The shrinking of space also involved interweaving of its structure. The railway became the major way people approached other distant cities. People started their journey at a train terminal. Wherever people went, they had to pass a railway station that became the gate to distant destinations that were approached by a train. The speed of a train brought the beginning of the journey closer to its destination.<sup>18</sup> A railway station was mere an entrance to a destination approached by train and it set the order how one can

travel in space. (Figure 64) Sites connected with railway become relatively closer and those that were not connected became relatively detached.



**Figure 64.** Terminal in Paris, 1830.

When means of long distances were not available to general public, they tried to replicate foreign landscapes because. In ‘panoramic’ and ‘dioramic’ shows and gadgets, people watched displayed panoramic paintings that imitated the impression of actual visiting the site. “These were designed to provide, by showing views of distant landscapes, cities, and exotic scenes, ‘a substitute for those still expensive and onerous journeys’” (Buddemeier, quoted in Schivelbusch). Travel books were stuffed with illustrations of exotic scenes. People became acquainted with those landscapes from the available pictures, and they remained in their minds as images. The speed of the new travel technology gave an access to those images, and the approach at high-speed itself made perceiving the space more visual.

Early travelers moved through the landscape on foot or on horseback, while the traveler in the industrial age moved through a netlike frictionless network of railway lines. Those lines created a new geographic structure of space. “The speed and mathematical directness with which the railroad proceeds through the terrain destroy the close relationship between the traveler and the traveled space. The space of *landscape* becomes... *geographical space*” (Schivelbusch, p. 53). This means that space, where one is traveling, becomes expressed in more rational and abstract ways.

High velocity intensifies visual experience. A landscape passes the field of vision in a fast succession. Objects are gliding by the gaze of a traveler within tenths of a second. Speed does not allow the eye to observe objects carefully.<sup>19</sup> It leaves only fuzzy momentary image and then disappears in the perspective.<sup>20</sup> The scenes change rapidly, each of them bring something new to surprise a traveler. The rail line goes through various regions and each of them has its own life. When walking one’s observations are immersed inside that particular region, one sees as separated from the landscapes of other sites. The movement of the train makes the traveler view all those scenes within a compressed moment of time. “In quick succession it presents the astonished traveler with happy scenes, sad scenes, burlesque interludes, brilliant fireworks, all visions that disappear as soon as they are seen...” (Schivelbusch, p. 61).

It has two sequences. Firstly, those scenes are unstable because they are constantly changing and interweaving with each other. Secondly, it minimizes the interval between those separate locations, which start to merge. The human mind has to process increasing quantity of impressions. Their over-saturation diminishes our ability to discern each scene in particular. “The flowers by the side of the road are no longer flowers but flecks,

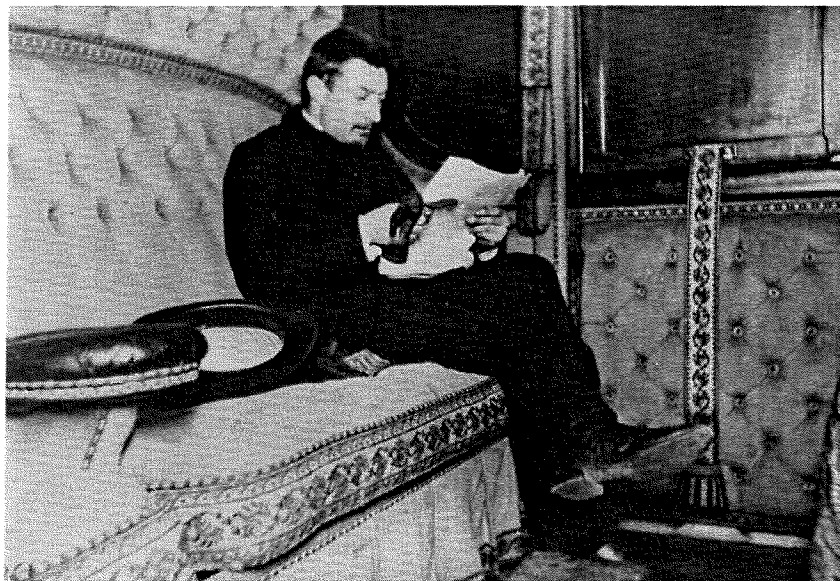


or rather streaks, of red or white” (Schivelbusch, p. 55). The appearances of the objects on a side of a railway blur together creating different image than one would see when standing motionless. The scene out of the window of a train consists of color patches and streaks instead of unmoving images of objects. It created a new perception of space. The slowly moving observer saw him- or herself as moving in the surrounding landscape; the fast moving passenger sees landscape animated and moving while he/she sitting still and staring out. From the description of the railroad trip by Benjamin Gastineau: “the motion of the train through the landscape appeared as the motion of the landscape itself. The railroad choreographed the landscape” (Schivelbusch, p. 60). Traveler become immersed in kinetic landscape, in the space of movement.

The unmoving observer looking on a scene distinguishes a foreground that gives a notion of a distance to objects. It also gives us a sense of our involvement in the scene; it is a connection to the scene. When moving, the nearest parts of the scene, which form the foreground, pass our field of vision faster and, therefore, are less detectable. The foreground, which connects observer with further proximity, was dissolved by this speed. It increased separation between traveler and landscape. The accelerating speed of movement diminished our sense of spatial distance to the objects in the scene. It alienated the traveler from the scene that now was indifferently flying outside.

The loss of the traditional landscape was a shock. The traveler, who could not recognize the dynamic view, was left with no impressions, no narrative of the travel. It was not like traveling by traditional means, by horse carriage or on foot. It was especially characteristic for upper class travelers, who were sitting in their own compartments and had no possibilities of interaction in his furnished ‘cell’. “Dullness and boredom resulted

from attempts to carry the perceptual apparatus of traditional travel, with its intense appreciation of landscape, over to the railway” (Schivelbusch, p. 58).



**Figure 67.** Passenger in a First-class train, 1900.

There is another personally distinguishing aspect that was created by invention of the railway. The traveler began to feel isolated and alone in the compartment of the train car. (Figure 65) Such feelings arose specifically in the railway journey, while not characteristic for a journey in a horse carriage. “Travel in the coach was characterized not only by the travelers’ intensive relationship to the world outside, the traversed landscape, but also by their lively communication with each other” (Schivelbusch, p. 74). The passengers who shared the train were affected by the loss of the contact with the ground, by the speed, and by the mass of people, versus being with few passengers in the coach.

The next stage in the development of movement technology was the invention of the automobile with an internal-combustion engine in 1885 and the beginning of its mass production 1890.<sup>21</sup> Travel in a motor vehicle had one significant difference from a train trip. Movement was individualized; a driver could go with his/her car anywhere and at any time. It also did not have any prominent external expressions, as were railway terminals. For travel with a car, there was nothing more than a movement itself. The conditions that characterize movement in a car created a completely different form of interaction with space.

To begin with, the internal-combustion vehicle had its own history. Its progress toward mass culture was rather uneven in its beginning. Two German engineers Karl Benz and Gottlieb Daimler built the first known successful car in 1885. Their first three-wheel vehicle was show to the public in Mannheim on July 3, 1886 and had a speed of 15 km/h.<sup>22</sup> The Parisian Emile Rogers bought the first car in 1887. The early cars were owned by only a small part of a society. “It was a rich man’s toy”.<sup>23</sup> The vehicles were operating within a limited network of paved streets. “During these years the automobile was essentially a city vehicle, rarely leaving the brick or cobble-paved streets” (Robinson, p. 36). The car as any other new invention was wrapped in suspicion created by their noise, technical unreliance, and insecurity. When automobiles started to drive out into rural areas, drivers felt relatively immobile because of the road conditions, their narrow width, and absence of any services for cars. (Figure 66) “Before the advent of the automobile, rural routes were built to the needs of horse and wagon. Unpaved roads were well suited to iron wheels and ironclad hooves” (Robinson, p. 38).



**Figure 66.** In early years of the twentieth century, in the countryside, the road conditions were an obstacle for car travel outside of the paved streets of a city.

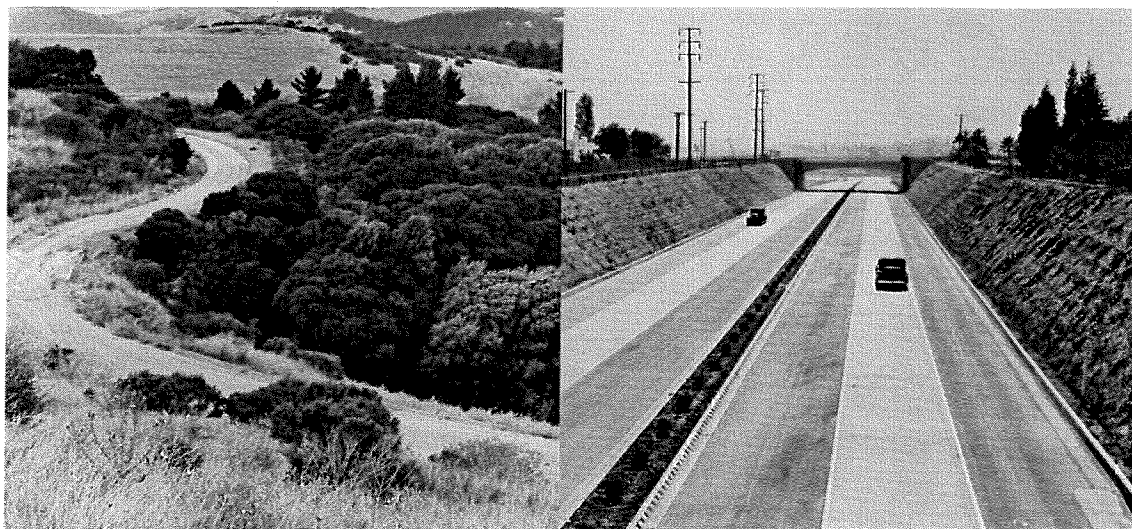
The idea about mobility accompanied with the progress of transportation technology draw people out into urban frontiers and further. “Those few daredevils who ventured onto the rural roads risked tire trouble, breakdowns far from repair facilities, and the ignominy of being hauled out of a mudhole by a farmer’s team of horses at hold-up prices” (Robinson, p. 36). People were curious about the invention, but were not disposed kindly toward them. “Farmers particularly hated the newfangled machines, considered any car owner an idiot, and charged outrageously for their services. Some even camouflaged mudholes on roads close by their land as a helpful source of cash income” (Robinson, p. 36). Those circumstances did not let drivers really explore the benefits of nouveau ‘horseless couches’. They were restricted in speed and in the conditions of their travel. (Figure 67) “In most [American] towns, 10-mile-an-hour speed limits were strictly enforced...” (Robinson, p. 36).



**Figure 67.** Car driver in a small town.

While such scenes might seem naïve today, they were the beginning of transition that unrecognizably changed our experience of space. The important fact for this study, is that the increased mobility and speed changed not only the process of travel itself, but also our entire conception of locality in space.

In the second half of the nineteenth century, bicyclists already demanded improvement of the roads. Then the people started to pave public roads. The arrival of the automobile demanded to improve roads on a much larger scale that would remove the obstacles faced by the pioneers. Engineers designed roads and bridges that could accommodate automobiles and their speeds and at the same time it dramatically modified our landscape. (Figure 68) It gave freedom and safety of movement. Cars started gradually to invade our daily life. Simultaneously, the romantic nature of the road for horse and people in natural conditions become obsolete.



**Figure 68.** Curved and unpaved roads limited travel speed. Routes were widened and straightened. Exactly this condition gave cars the possibility of high-speed movement that consequently changed our perception of space.

A trip with an automobile merged the characteristics of a train trip (high velocity) with a characteristics of walking (freedom from restrictions of rails or schedules). It complies with travelers own operative decision into a single event. As place is the interface between a person and space; in a car, a person interacts with space by moving, and the place can be defined by the aspects of movement. A car and road changed the traveler's experience of place. Here, we have to remember that only widespread construction of roads, and specifically highways, gave a possibility for fast movement.

In 1956, the U.S. Congress enacted legislation to create the Interstate Highway System that links the country from east to west, from north to south. It was celebrated as a "men's triumph over nature".<sup>24</sup> Before there were no successful countrywide programs that would link the country from coast to coast with a unified network of roads. Planners envisioned completing the entire system within approximately ten years. In reality, the last piece of it, which was the section of Interstate-90 connecting Boston to Seattle, was

opened only in 1991. Since then, it has been named the “Dwight D. Eisenhower System of Interstate and Defense Highways”. The history of highway development marks a gradual transition in the social attitude towards environment.



**Figure 69.** Legislative hearing on highways.

Interstates reshaped not only a physical environment but also social life, not always for the good. The acquisition of property for highways required significant funds. In order to save resources, the routes were put through the lands with the least property value, which usually were either black or lower class communities. The practice was obviously discriminating against certain parts of society and spurred a number of social protests. The resulting destruction of communities created abandoned areas around many such routes. In order to deal with this issue, President Nixon signed the Federal-Aid

Highway Act of 1973, which tried to resolve problems faced during the previous years and to catch up with the contemporary social situation.

Creating wide roads gave people a new level of mobility. “It enabled us to speed across the land into vast stretches of wilderness; yet it distanced us from the very land we sought. It added new words to our vocabulary, like “beltway” and “drive time,” and lent new meaning to old ones like “smog” and “pollution,” “ecology” and “environment,” “traffic jam” and “pileup” (Lewis, p. x). If the Interstates are so essential to American life and culture, did their creators pay enough attention to how they would look or to the human impact they caused? There is some controversy between the important functional role that the roads play, and the approach towards its construction. Although there are some examples of good design, for the most part roadsides are neglected. It has been forgotten that highways are a place for people. Frequently, the narrowness of a pragmatic mind dictated the development of the Interstates. A technical talent was “married” to an absence of human soul.

In addition to euphoric conquering of distance and admiring a speed that gave people virtually unlimited mobility, there were also negative results. The system, where people live in remote suburbs and commute exclusively by motor vehicles, gave only some of them the actual freedom of mobility. “As long as anyone could drive and had a car, the system worked well. But those without a license – children, teenagers under sixteen, the old and infirm – found themselves completely dependent on someone who did. Such dependence led to the second unintended consequence: the virtual entrapment of wives and mothers as chauffeur slaves.” (Robinson, p. 244)



In conclusion, we can state that there are two things that direct evolution of travel: speed, freedom of travel. In order to achieve them, people transformed their environment and created routes where high velocities could be achieved, thus creating a network of freeways. At the same time the increased speed made people to look on their environment in different ways. Space that now could be traveled in much shorter time thus bringing distant parts of space closer. Together with the new network of freeways, it created new form of inhabiting space that has its advantages of increased mobility and disadvantages—alienation from the natural environment and discrimination of those who cannot drive a vehicle. There are three major consequences of high-speed travel—unification of environment, apparent diminishing of space, and loss of a physical character of a place, which became largely imperceptible at the speed of a car and was replaced by more abstract symbols and signs that characterizes a place on a highway. (For more see: Venturi, *Learning from Las Vegas*)

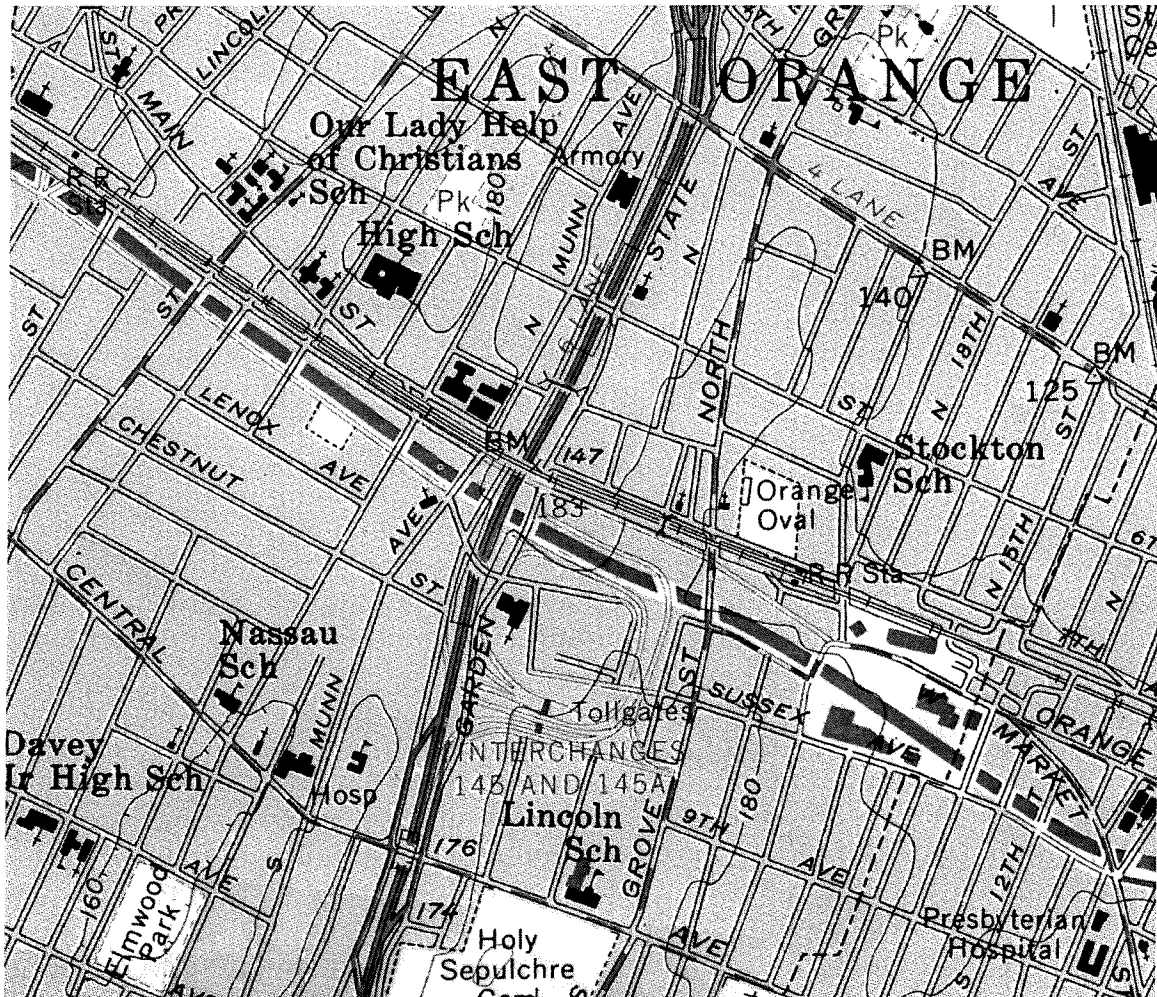
## APPENDIX C

### REPRESENTATIONS OF ROUTE 280

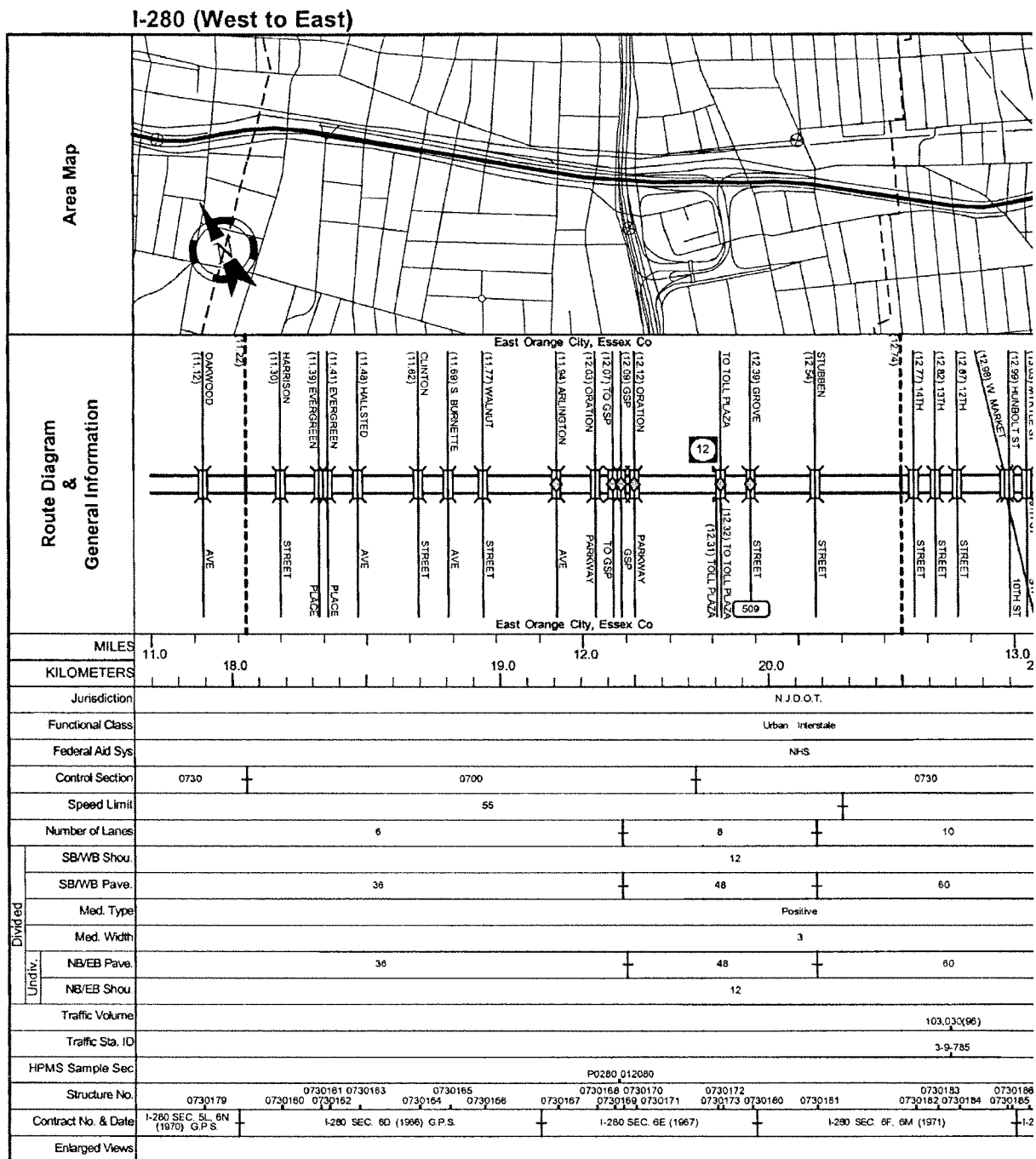
The appendix contains three different examples that represent Route 280, specifically, the area around the highway interchange 12, where the route intersects with the Garden State Parkway. The difference between them can be easily seen. They follow in the increasing degree of abstraction. The aerial photograph is a factual representation. The topographic map introduces symbols that show location of objects. The straight-line diagram consists only of abstract information and parameters of Route 280.



**Figure 70.** Aerial view of Route 280 around interchange 12.  
(source: Teraserver)



**Figure 71.** USGS Topographic Map (scale 1:24000).  
(source: USGS)



**Figure 72.** Straight Line Diagram developed by New Jersey Department of Transportation. (source: DOT, New Jersey)

## SOURCES OF FIGURES

Figure	Page
1. Mapquest, internet site, <a href="http://mapquest.com">http://mapquest.com</a> (May 5, 1999) .....	6
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5. Palazzo Borghese ground floor plan from: Waddy, Patricia, <i>Seventeenth-Century Roman Places</i> (Cambridge: MIT Press, 1990) p. 114.....	16
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19. Venturi, Robert; Scott Brown, Denise; Izenour, Steven, <i>Learning from Las Vegas</i> (Cambridge: The MIT Press, 1986).....	40
20. Ibid.....	40
23. James McQueeney, "Route 280 drives engineer to action," <i>The Star Ledger</i> , 11 February 1973, sect. 1, p. 42.....	50
24. Leonard J. Fisher, "Traffic finally rolls on Rt. 280", <i>The Sunday Star Ledger</i> , 23 June 1973, sect. 1, p. 1.....	51
53. Terraserver, internet site, <a href="http://terraserver.microsoft.com/coveragesearch.asp">http://terraserver.microsoft.com/coveragesearch.asp</a> (May 5, 1999).....	82
62. John Robinson, <i>Highways and our Environment</i> (New York: McGraw-Hill, 1971) p. 285.....	103
63. Wolfgang Schivelbusch, <i>The Railway Journey: The Industrialization of Time and Space in the 19<sup>th</sup> Century</i> (Berkeley: The University of California Press, 1986) between p. 112-113.....	105
64. Ibid.....	108
65. Ibid.....	111
66. John Robinson, <i>Highways and our Environment</i> (New York: McGraw-Hill, 1971) p. 41.....	113

# **SOURCES OF FIGURES** **(continued)**

<b>Figure</b>	<b>Page</b>
67. Ibid.....	114
68. Ibid. p. 111, 184.....	115
69. Ibid. p. 295.....	116
70. Topographic Map (scale 1:24000), sheet: East Orange (USGS, 1981).....	119
71. Terraserver, internet site, <a href="http://terraserver.microsoft.com/coveragesearch.asp">http://terraserver.microsoft.com/coveragesearch.asp</a> (May 5, 1999).....	120
72. DOT, internet site, <a href="http://www.state.nj.us/transportation/framed/sldiag">http://www.state.nj.us/transportation/framed/sldiag</a> (May 5, 1999).....	121

Other illustrations are completely or partially created by the author.

## NOTES

1. Data is taken from the customized traffic volume search at DOT NJ internet site, <http://www.state.nj.us/transportation/count/> (May 5, 1999)
2. This term, *x-urban city*, is borrowed from Mario Gandelsonas work *X-Urbanism: Architecture and the American City*, where he analyzed urban development in America after development of suburbs and new forms of communication. It represents the next generation of urban form after automobile suburbs.
3. The division of meanings for the word 'place' in four categories is largely borrowed from Simpson's *The Oxford English Dictionary* (see appendix A).
4. "The Interstate program became effective July 1, 1956. When the Jersey program was publicly unveiled, Essex interests protested loudly at the omission of the Freeway." Franklin Gregory (Alias Lewis Carroll) "Rt. 280 maze of confusion, bad planning," *The Star Ledger*, 24 June 1973, sect. 3, p. 4.
5. "State Highway Department was invited to re-submit the Essex East-West project and in October, 1957, it became part of the Interstate 90-10 program." Franklin Gregory (Alias Lewis Carroll) "Rt. 280 maze of confusion, bad planning," *The Star Ledger*, 24 June 1973, sect. 3, p. 4.
6. See: Kevin Coyne, "The Road That Ruined East Orange," *New Jersey Monthly* (May 1998): p. 64.
7. East Orange Mayor: William S. Hart; "Hart, who had once threatened to sue the state for \$50 million to recover potential ratables lost during the 10 years of delay, noted his former home was one of those taken by the Transportation Department for the highway." Leonard J. Fisher, "Traffic finally rolls on Rt. 280: Traffic at last makes Route 280 a road to somewhere," *The Star Ledger*, 23 June 1973, sect. 1, p.7
8. "The original target date was 1964; then 1965-66. Then mid-1967. In 1964, the East-West was underlined by a State Senate committee as a glaring example of the Highway Department's failures." Franklin Gregory (Alias Lewis Carroll) "Rt. 280 maze of confusion, bad planning," *The Star Ledger*, 24 June 1973, sect. 3, p. 4.
9. See note 6.
10. "Last week, Terry and an associate devoted an hour of time on their way home to distribute 350 bumper stickers emblazoned with the message "Please Open 280". James McQueeney, "Route 280 drives engineer to action," *The Star Ledger*, 11 February 1973, sect. 1, p. 42.

11. People could not understand why the major part of the route, which is already finished, remains off limits for drivers waiting during Rush hours on congested sideways. The local residents used the parts of the Highway and went across the barriers. They used it for playing golf, recreation, bike riding, etc. See article: Randy Young, "13-mile stretch of freeway remains off limits to cars," *The Star Ledger*, 18 March 1973, sect. 1, p. 31.
12. "The impact the full length of the freeway will have in heavily congested areas like the Oranges and Newark was felt last June when a section of the road was opened from the Parkway eastward to Clinton Ave. in Newark." Randy Young, "13-mile stretch of freeway remains off limits to cars," *The Star Ledger*, 18 March 1973, sect. 1, p. 31.
13. "Transport technology is the material base of ... base of the traveler's space-time perception." Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the 19<sup>th</sup> Century* (Berkeley: The University of California Press, 1986) p. 36.
14. James E. Vance Jr., "Medieval Land Transportation," *The New Encyclopedia Britannica* (Chicago: Encyclopedia Britannica Inc., 1994) Vol. 28, p. 784.
15. "In the Middle Ages, people traveled almost exclusively on foot or on horseback, depending on their class. The custom of traveling in coaches arose at the beginning of the Early Modern period..." Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the 19<sup>th</sup> Century* (Berkeley: The University of California Press, 1986) p. 73.
16. According to Newton, 'size, shape, quantity, and motion' are the only qualities that can be objectively perceived in the physical world. Indeed, those became the only qualities that the railroad traveler was able to observe in the landscape he traveled through." Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the 19<sup>th</sup> Century* (Berkeley: The University of California Press, 1986). p. 55
17. The standard time in the United States legally was recognized only in 1918, see: Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the 19<sup>th</sup> Century* (Berkeley: The University of California Press, 1986) p. 44.
18. "But if Normandy and Brittany, being its destinations, were part of the Western Railway, then the point of departure of that same railway, the station in Paris, became the entrance to those regions." Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the 19<sup>th</sup> Century* (Berkeley: The University of California Press, 1986) p. 39



19. “visual perception is diminished by velocity” Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the 19<sup>th</sup> Century* (Berkeley: The University of California Press, 1986) p. 55
20. “What is decisive is the quantitative increase of impressions that the perceptual apparatus has to receive and to process. Contemporary texts that compare the new travel experience with the traditional one demonstrate how that stimulus increase produced by increased velocity is experienced as stressful. The speed causes objects to escape from one’s gaze, but one nevertheless keeps trying to grasp them.” Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the 19<sup>th</sup> Century* (Berkeley: The University of California Press, 1986) p. 57
21. James E. Vance Jr., “Medieval Land Transportation,” *The New Encyclopedia Britannica* (Chicago: Encyclopedia Britannica Inc., 1994) Vol. 28, p. 799.
22. Ibid.
23. John Robinson, *Highways and our Environment* (New York: McGraw-Hill, 1971) p. 36.
24. Tom Lewis, *Divided highways: building the interstate highways, transforming American life* (New York: Viking Penguin, 1997) p. x

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