

READING THE CHANGE OF ANKARA'S SPATIAL-VISUAL STRUCTURE
THROUGH URBAN PANORAMAS

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ABSTRACT

READING THE CHANGE OF ANKARA’S SPATIAL-VISUAL STRUCTURE THROUGH URBAN PANORAMAS

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This study aims to explore spatial experiences and visual manifestations of the urban space of Ankara. The spatial-visual structure of contemporary Ankara and how it has evolved over time from the beginning of the 20th century to the present is examined. This study considers characteristics and elements of the spatial-visual structure of cities as well as potential methods and tools to analyze and visualize these characteristics. The visual transformation of the city and its current state is studied by using urban panoramas, silhouettes, photographs, sections, and plans. The research focuses on panoramic views, considering stationary visions. Within this scope, the visual transformation of the city and its current state will be studied in both vertical and horizontal dimensions in order to form the basis of a guideline for future urban design and planning possibilities.

Keywords: Spatial and Visual Structure, Urban Physical Elements, Visual Hierarchy, Visual Experience, Urban Panoramas

ÖZ

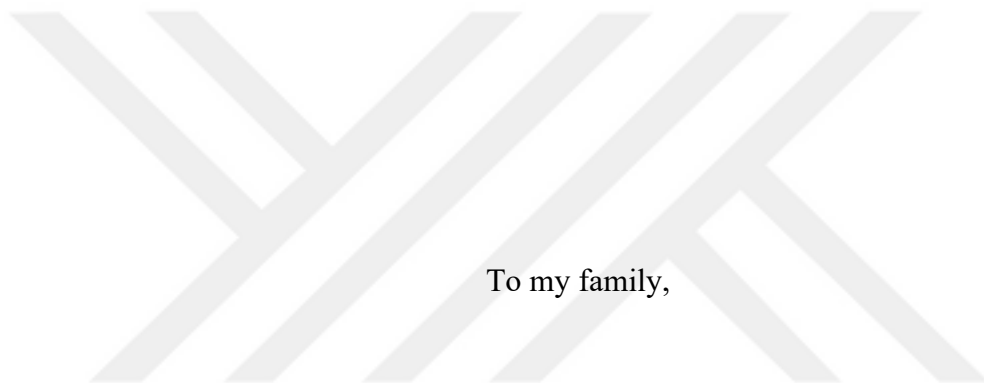
ANKARA'NIN GÖRSEL VE MEKANSAL YAPISININ KENTSEL PANORAMALAR ÜZERİNDEN OKUNMASI

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Bu tez, Ankara'nın kentsel mekansal deneyimlerini ve görsel tezahürlerini inceleyerek, 20. yüzyılın başlarından günümüze kadar olan dönüşümünü ortaya koymayı amaçlamaktadır. Şehirlerin mekansal ve görsel yapılarının özellikleri ve bileşenleri araştırılmaktadır. Bununla birlikte, mekansal ve görsel özellikleri analiz etmek ve görselleştirmek için potansiyel yöntem ve araçlar ele alınmaktadır. Kentin görsel dönüşümü ve mevcut durumu, kent panoramaları, silüetler, fotoğraflar, kesitler ve planlar kullanılarak değerlendirilmiştir. Araştırma, sabit bir bakı noktasından panoramik görüntülere odaklanarak, hem dikey hem de yatay boyutta kentsel mekanı analiz etmektedir. Bu kapsamda, Ankara'nın kentsel çevresinin gelişimi için gelecekteki kentsel tasarım ve planlama olanaklarına yönelik bir kılavuz oluşturmayı amaçlamaktadır.

Anahtar Kelimeler: Mekansal ve Görsel Yapı, Kentin Fiziksel Öğeleri, Görsel Hiyerarşi, Görsel Deneyim, Kent Panoramaları



To my family,

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TABLE OF CONTENTS

ABSTRACT.....	v
ÖZ	vi
ACKNOWLEDGMENTS	viii
TABLE OF CONTENTS.....	ix
LIST OF TABLES.....	xii
LIST OF FIGURES	xiii
1 INTRODUCTION	1
1.1 Problem Statement.....	1
1.2 Aim and Scope.....	3
1.3 Methodology	5
1.3.1 Archival Research.....	7
1.3.2 Mapping	7
1.3.3 Photography	7
2 DETERMINANTS OF SPATIAL-VISUAL STRUCTURE.....	9
2.1 Perception of Space.....	10
2.1.1 Field of Vision	11
2.1.2 Figure and Background.....	15
2.1.3 Image.....	18
2.2 Spatial and Visual Structure of Urban Space.....	20
2.2.1 Urban Space	21
2.2.2 Spatial Structure.....	24
2.2.3 Visual Structure	29
2.2.4 Integration of Spatial and Visual Structure.....	36

2.3	Key Concepts for the Stationary Vision Perception of Cities and Determinants.....	38
2.3.1	Determinants of City Image	39
2.3.2	Coherence and Order	43
2.3.3	Sense of Whole.....	45
2.4	Mapping Methods of Determinants.....	47
3	CHANGING SPATIAL-VISUAL STRUCTURE OF ANKARA.....	49
3.1	Natural Landscape	50
3.1.1	Hilltops	51
3.1.2	Plains	52
3.1.3	Valleys.....	52
3.2	First Settlements	53
3.2.1	Phrygian Period	53
3.2.2	Roman and Byzantine Periods.....	55
3.2.3	Seljukian and Ottoman Periods	57
3.3	Republican Period	66
3.3.1	Lörcher Plan	68
3.3.2	Jansen Plan	71
3.3.3	Uybadin – Yücel Plan.....	77
3.3.4	Post-1950s Urban Developments	79
3.4	Prominent Viewpoints and Approaching Points	84
3.4.1	High Vantage Points.....	84
3.4.2	Street-Level Vantage Points	93
3.4.3	Concluding Remarks	99

4	AN ASSESSMENT OF CONTEMPORARY ANKARA	101
4.1	Composition of Ankara's Urban Spatial and Visual Elements.....	102
4.1.1	Urban Spatial Structure.....	103
4.1.2	Natural and Built Elements in Visual Structure.....	105
4.2	Visual Analysis of Contemporary Ankara	109
4.2.1	Viewpoints	109
4.2.2	Approaching Points.....	117
4.3	Transformation of Spatial-Visual Structure.....	124
4.3.1	Comparison of Urban Panoramas	124
4.3.2	Problems in Spatial-Visual Qualities	128
4.4	Visual Urban Design Guideline Examples	130
5	CONCLUSION.....	135
5.1	Evaluation of Spatial-Visual Structure of Ankara	136
5.2	A Framework for Visual Design Principles in Ankara	140
5.3	Future Studies	142
	REFERENCES	145
	APPENDICES	
A.	Extended Table of Literature Review	151

LIST OF TABLES

TABLES

Table 2.1. Key Concepts and Determinants	37
Table A. Literature Review of Spatial and Visual Structure in Urban Spaces.....	151



LIST OF FIGURES

FIGURES

Figure 1. 1. Ankara topography model view from the west (source: ODTÜ BAP no: AGEF-201-2019-10265, Aral, Söğüt, Kocaili, Tatar)	2
Figure 1. 2. Logical Flow of the Thesis Methodology	6
Figure 2. 1. The head movement in horizontal and vertical planes. (source: Panero and Zelnik, 1979)	12
Figure 2. 2. The visible field of horizontal and vertical planes. (source: Panero and Zelnik, 1979)	13
Figure 2. 3. Frontal and longitudinal surfaces and angle of incidence (source: Higuchi, 1975)	32
Figure 2. 4. Effect of viewpoint level (source: Higuchi, 1975)	33
Figure 2. 5. Higuchi's diagrams on the angle of depression	33
Figure 2. 6. Gordon Cullen's diagrams on the division of space	34
Figure 2. 7. Varying depths of invisibility caused by walls of different height (derived from Higuchi, 1975)	35
Figure 3. 1. Topographical structure of Ankara (map is derived from TED University, Department of City and Regional Planning Archive, colored by the author)	50
Figure 3. 2. Partial topographical sections from Atatürk Boulevard to hills. The base map is Jansen's 1932 plan (derived from the Architectural Museum of Berlin Technical University)	51
Figure 3. 3. City formation through history around the eruptive hill and Engürü plain from the digital model viewed from the west (source: Alanyalı, 1994)	53
Figure 3. 4. Roman period map (adopted by the author from Kadioğlu&Görkay, 2007 in the scope of Mapping as Design course by Alanyalı Aral in 2022, basemap	

is retrieved from Kadioğlu, M., & Gökay, K. (2007). <i>Yeni arkeolojik araştırmalar ışığında MHTPOΠOΛΙΣ ΤΗΣ ΓΑΛΑΤΙΑΣ: Ankyra</i> [New archaeological research on the Metropolis of Galatia: Ankyra]. Images are retrieved from Kadioğlu&Görkay, 2007, VEKAM archive, and Mahmut Akok's drawing from 1940).....	56
Figure 3. 5. The legend of the map.....	57
Figure 3. 6. Dersnschwam's sketch of Ankara from the west of the city in 1555 (derived from Seyyahların Gözüyle Ankara, 2017, p. 37)	58
Figure 3. 7. Ankara engraving, beginnings of 18 th century (derived from Kadioğlu&Görkay, 2007).....	59
Figure 3. 8. View of Ankara, anonymous, 1700–1799 (derived from https://www.rijksmuseum.nl/en/collection/SK-A-2055).....	60
Figure 3. 9. Von Vincke Map, 1839 (derived from Mamboury, E. (1934). <i>Ankara: Gezi Rehberi: Haydarpaşa-Ankara; Boğazköy, höyük, Sivrihisar ve çevresi, Çankırı, Yozgat, vs.</i> (Translated 2014). Ankara Üniversitesi Ankara Çalışmaları Araştırma ve Uygulama Merkezi, p. 75).....	62
Figure 3. 10. 19th-century gravure of Ankara, drawn by Preaux and engraved by Ales, Chopin, C. Famin, E. Bore, Russie, Tome Deuxieme De La Russie D'euope, La Crimee, Les Provinces Russes En Asie Circassie Et Georgie, Armenie, Paris 1842. (derived from https://www.digitale-sammlungen.de/en/view/bsb11122120?page=676 , as cited in Şahin Tekinalp and Karaaslan, 2023).....	63
Figure 3. 11. View of Ankara, anonymous, drawn by a British prisoner of war from his barracks (derived from https://scholarworks.wmich.edu/wwi_pow_camps/1246/)	64
Figure 3. 12. View from Train Station to the city, the 1900s (derived from Günel et.al, 2007).....	64
Figure 3. 13. View from the cemetery to the city, 1880 (derived from Cangır, 2011)	65

Figure 3. 14. 1924 Ankara Map (Ahmet Yüksel Archive, as cited in Günel & Kılıcı, 2015)	67
Figure 3. 15. Urban Process of Ankara (derived from Ankara Kent Atlası, p.40-41)	68
Figure 3. 16. Lörcher Plan (adapted from Cengizkan, 2004, legend and indications are edited by the author)	69
Figure 3. 17. Views from the train station to the citadel, 1925 (derived from Cangır, 2007)	70
Figure 3. 18. Jansen's Overall Development Plan, 1932 (1/12.500) (adapted from the Architectural Museum of Berlin Technical University, legend and indications are edited by the author)	72
Figure 3. 19. View from the Northwest (derived from the Architectural Museum of Berlin Technical University).....	73
Figure 3. 20. View from the train station to the citadel, 1934 (derived from Cangır, 2007)	74
Figure 3. 21. View from the train station to the citadel, 1938 (derived from Cangır, 2007) and Jansen's sketch on the intersection of İstasyon and İstiklal Avenues (derived from the Architectural Museum of Berlin Technical University)	74
Figure 3. 22. Jansen's Bentderesi Sketches (derived from the Architectural Museum of Berlin Technical University)	75
Figure 3. 23. Bentderesi, the left side is dated 1928 (derived from Cangır, 2007) and the right side is dated 1937 (derived from Koç University, VEKAM Library Archive)	75
Figure 3. 24. Jansen's Youth Park drawings (derived from the Architectural Museum of Berlin Technical University)	76
Figure 3. 25. Uybadin-Yücel Plan, 1957 (derived from Koç University, VEKAM Library and Archive).....	77
Figure 3. 26. 1990 Plan (derived from Ankara Metropolitan Municipality)	80
Figure 3. 27. 2015 Structural Plan Schema (derived from Ankara Metropolitan Municipality).....	81

Figure 3. 28. 2025 Plan Schema (derived from Ankara Metropolitan Municipality)	82
Figure 3. 29. 2023 Plan Schema (derived from Ankara Metropolitan Municipality)	83
Figure 3. 30. The view from the Citadel to the Railway direction for a decade (photographs are derived from Atılım University Archive, Ankara Municipality Collection)	86
Figure 3. 31. Planned residential zone and squatter housing (derived from Koç University, VEKAM Library and Archive)	86
Figure 3. 32. Views of Ankara from Citadel between 1919-1945 (photographs are derived in Cangır, 2007)	87
Figure 3. 33. Transformation around Bentderesi district between 1930-1990	89
Figure 3. 34. Views of Ankara from different hills	91
Figure 3. 35. Route from the train station to the citadel (photographs from 1920s are derived from Cangır, 2007, the Base map is Jansen's 1932 plan, derived from the Architectural Museum of Berlin Technical University, edited by author)	93
Figure 3. 36. Viewpoints towards the city between 1925 and 1935. (the base map derived from https://farm6.staticflickr.com/5481/12178069884_5007f6d9e5_o.jpg , date is indicated as 1940)	94
Figure 3. 37. View from AŞOT to city in 1990 (derived from Antoloji Ankara)	95
Figure 3. 38. Changing position and background of Zafer monument in Ulus Square	96
Figure 3. 39. Views from Kızılay Square to old city	97
Figure 3. 40. Views from Youth Park towards the citadel	98
Figure 3. 41. Views from Güvenpark to north	99
Figure 4. 1. Contemporary urban structure, citadel, and historical core are marked (produced by the author using QGIS based on open street map data)	103

Figure 4. 2. Land use map (produced by the author using QGIS based on CORINE Land Cover 2018 data).....	104
Figure 4. 3. View from the citadel towards the west (photo by author, 2024)	106
Figure 4. 4. View from the citadel towards Hatip Hill (photo by author, 2024) ..	107
Figure 4. 5. Viewpoints (red dots indicate the frequent viewing points; black dots indicate certain natural and built high vantage points) (map produced using OSM (Carto) data and ESRI topographic data by the author).....	110
Figure 4. 6. Views from the Citadel (Map is derived from Google Earth Satellite View and photos by author, 2024).....	111
Figure 4. 7. Visual axis that defined in 100th Anniversary of the Republic Monument Idea Project Competition (derived from https://www.arkitera.com/proje/yarisma-projesi/ucuncu-odul-2023-cumhuriyetin-100-yili-aniti-fikir-projesi-yarismasi/).....	112
Figure 4. 8. Views from Roman Bath (Map is derived from Google Earth Satellite View and photos by author, 2024).....	113
Figure 4. 9. View from Roman Bath towards the Citadel (first photo by author)	114
Figure 4. 10. Views from 50. Yıl Park (Map is derived from Google Earth Satellite View and photos by author, 2024).....	114
Figure 4. 11. Views from Bademlidere Park (Map is derived from Google Earth Satellite View and photos by author, 2024).....	115
Figure 4. 12. Views from Yumurtatepe and the Great Tumuli (Map is derived from Google Earth Satellite View and photos by author, 2022)	115
Figure 4. 13. Views from Atakule towards North (first photograph) and South (second photograph) directions (photos by author, 2024)	116
Figure 4. 14. View from Istasyon Square towards Citadel direction (first photo by author, 2024 and second photo is derived from Cangır, 2007 and dated 1937) ...	119
Figure 4. 15. A route from train station to the Citadel (Map is derived from Google Earth Satellite View and photos by author, 2024)	119
Figure 4. 16. Change of the Ulus Square with the demolition of 100. Yıl Çarşısı	120

Figure 4. 17. Sequential views from Istanbul Road towards the city center (Map is derived from Google Earth Satellite View and photos by author, 2024)	122
Figure 4. 18. Views from Akköprü towards the Citadel, the 1900s vs. 2024 (the first photo is derived from Cangır, 2007 and the second photo by the author)	122
Figure 4. 19. Sequential views from Eskişehir Road towards the city center (Map is derived from Google Earth Satellite View and photos by author, 2024)	123
Figure 4. 20. Views from Citadel to Train Station direction (the first three photographs are derived from Cangır, 2007 and the last photograph is derived from “Eski Ankara” Resimleri Antolojisi in Facebook)	124
Figure 4. 21. Contemporary views from Citadel to Train Station direction (the first photograph derived from Facebook, Ankara Kalesi, and the current photographs are by author).....	125
Figure 4. 22. Panoramic view from the citadel to the west, 2024 (Photos by author)	125
Figure 4. 23. Views from the Citadel towards Hacıbayram	126
Figure 4. 24. Views from Youth Park to Citadel (photographs from 1936 and 1955 are derived from Cangır, 2011; 2024 dated photograph taken by the author, and the collage is produced by the author).....	127
Figure 4. 25. Views of Melike Hatun Mosque, the first photo is from İstiklal Avenue and the second one is from in front of the Youth Park (photos by author, 2024).....	128

CHAPTER 1

INTRODUCTION

1.1 Problem Statement

A city has various components that reflect its character and structure. The primary way a city communicates its identity to its inhabitants is through the spatial structure of its components. The characteristics and structure of the city shape the visual experience and legibility of urban spaces. The visual coherence and integrity of urban space can create a holistic image of the city, both spatially and visually, for its users. Urban space can be considered under twofold headings: urban and natural landscapes. As a natural element, topography creates the first segment of the urbanscape and directly affects its spatial-visual character. The calyx structure of Ankara is an example of this statement.

As a case study of the thesis, Ankara is a geographically significant city in a nodal position in the transition routes between the coastal regions and the Central Anatolian Plateau. It encircles Central Anatolia, and its urban form has been shaped by the geomorphological structure of the surrounding terrain (Günay, 2013). The city is located in the eastern part of the Engürü Plain and has a calyx form surrounded by hilly areas. The altitude of the settlement area changes from 800 meters to 1200 meters. The city is surrounded by, in the west, Karyağdı mountains (1200–1500 m); in the north, the Meşe and Hacı mountains; in the south-east, Elmadağ (1800 m); in the east, the Hüseyin Gazi (1415 m) mountain; and in the farther north-east, İdris mountain rises to 1992 meters (Figure1.1). The lower areas determine the water route: Ankara, Hatip, İncesu, and Çubuk streams. Therefore, the city formation includes plains, hilltops, mountain skirts, and valleys with various spatial-visual

characteristics—for instance, Engürü Plain forms eastward, offering a wide visible area with hilly backgrounds. Hilltops like Castle, Hıdırlık, and Hüseyingazi hills or smaller hills like Hacıbayram, Hacettepe, Anıttepe, et cetera are natural landmarks and ideal viewpoints to watch the plain in the distance with different directions. Also, mountain skirts create visual barriers that appear as the background of the figural elements. Then, valleys have limited and dynamic views that create shifting images for observers (Alanyalı, 1994). As such, these topographic features and the calyx form of Ankara become significant in both spatial and visual manner.

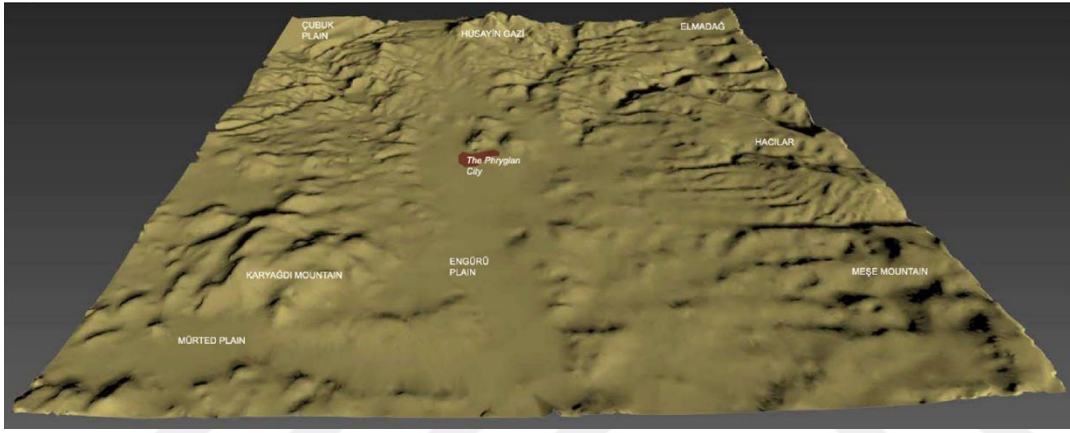


Figure 1. 1. Ankara topography model view from the west (source: ODTÜ BAP no: AGEp-201-2019-10265, Aral, Söğüt, Kocaili, Tatar)

Even though the spatial history of Ankara dates back to earlier ages, the city started to develop extensively as a comprehensive urban space after the establishment of the Turkish Republic. It is because Ankara has become a capital city and has undergone rapid urbanization with various reflections on urban space. The first plan for the capital city was the Lörcher Plan (1925); the city's overall image was emphasized first in the Jansen Plan. In later plans, Ankara's perspectives on spatial-visual structure were not integrated with urban panoramas as a design problem. Ankara's visual structuring started earlier, yet rapid urbanization, especially since the 1990s, has rendered earlier studies not responsive to the city's current form. Hence, to define spatial-visual characteristics that can be used for the interpretation, evaluation, and communication in urban design, there is a need to evaluate and discuss elements of

spatial-visual structure¹ and visual landscape² relevance to qualitative and quantitative mapping approaches and techniques.

Urban morphology and urban aesthetics are deeply intertwined in Ankara's development. The city's spatial structure—composed of its historical core, peripheral neighborhoods, and evolving infrastructure—has undergone significant changes since the establishment of the Turkish Republic. Early plans, such as the Lörcher Plan (1925) and the Jansen Plan (1932), emphasized the spatial organization and visual coherence of the city. However, rapid urbanization, particularly since the 1990s, has disrupted these initial frameworks, leading to a fragmented urban form and diminished visual harmony. The uncontrolled urban expansion of peripheral areas has obscured natural landmarks and disrupted the city's aesthetic and morphological continuity.

1.2 Aim and Scope

This study aims to examine the visual-spatial integrity of contemporary Ankara with the prospect of forming a basis for guiding future design possibilities of the city. In that scope, spatial and visual characteristic determinants will be defined regarding relevant literature, and worldwide city examples will be evaluated accordingly. This conceptual framework will analyze Ankara in two phases: spatial history outputs and current state outputs. Finally, the outputs will be compared and discussed in terms of the protected values, lost qualities, new barriers, or potentials to examine contemporary Ankara's visual-spatial integrity and guide future design possibilities.

¹ Spatial-visual structure includes both spatial composition and visual organization of space. In his book *Mapping Landscape Spaces*, Mei Liu used this term for landscape design, but it has a multi-disciplinary meaning. The term can be seen as predominant and intuitionistic mediators to describe and understand the design mechanisms and effects of space.

² In 1978, DeVeer and Burrough introduced the visual landscape term, which refers to the visible qualities of the landscape phenomena and their structure.

Time scope of the thesis focuses on the Republican period, which is the period that has most of the urban spatial information, until now. It is evident that the spatial history of Ankara dates to earlier ages because of its calyx structure, which is composed of crossroad geomorphology substantiated through the valley and basin floors and the eruptive hilltop formation at the center (Yavuz, 2018). Even though the center seems to be Hacıbayram Hill in the Phrygian period (Alanyalı Aral, 1994& 2017), starting from the Galatian period, the citadel is laid on the eruptive hilltop on the core of the calyx to ensure control over the basin. Thus, the citadel has been the locus of urbanity for city formation throughout time until the 20th century (Yavuz, 2018). Although the archeological evidence near Ankara and its city center shows that the city's history dates to the Paleolithic Ages, the ruins, Roman period sources, and tumuli³ show Ankara was a Phrygian city. It was followed by Galatian, Lydian, Persian, Roman, Byzantine, Seljuk, Ottoman, and Turkish periods of the city (Buluç, 1994). Nevertheless, the study method is based on the urban panoramas of the city from the stationary vision point of view, with pertinent data primarily available from the early 20th century. That is why the time interval of the thesis scope includes the late Ottoman and Republican periods.

In this scope, the visual transformation of the city and its current state will be studied in both vertical and horizontal dimensions in order to form the basis of a guideline for future urban design and planning possibilities. As input for design-based knowledge production, this research provides possibilities to describe and communicate the spatial-visual structure of urban space thoroughly. It aims to provide guidance for further urban research and design domains.

Within the objective of this research, the guiding research questions of the proposed thesis materialize as follows:

³ The locations of tumuli create strong visual relationships with the settlement area, each other and the surrounding.

1. What are the characteristics and components of the spatial-visual structure of cities?
2. What are the typological attributes of cities regarding the components? How did these components affect the city formation?
3. What are the spatial and visual characteristics of Ankara's urban structure?
4. What are the potential methods and tools to analyze and visualize the characteristics of the spatial-visual urban structure of Ankara?
5. What are the points that have been used for taking photographs in the city? What are the viewpoints that can be perceived in a holistic manner? What are the qualities of these viewpoints?
6. How has Ankara's spatial-visual structure evolved over time? What development attributes have changed the city's overall spatial and visual character?
7. What is the current spatial and visual structure of Ankara?
8. How can these characteristics form design guidelines or outputs for Ankara's future possibilities?

1.3 Methodology

The thesis methodology consists of several vital steps. The initial phase involved conducting a literature review to establish the spatial and visual structure of urban space using concept tables. Regarding the structure, various scales enhance the analysis of city components. With the guidance of the theoretical framework, archival research on urban panoramas of Ankara from the 20th century has been done. The process of urban space's visual and spatial structure has been revealed through historical panoramas. The viewpoints that were used to take photographs in a stationary vision are determined, and the output information is mapped using the layering technique. After determining viewpoints, the current situation in Ankara was photographed. In the photographing process, the viewpoints that are open to the public have been used, aiming to reflect the urban perception of residents,

newcomers, and foreigners of the city. The comparison between historical urban panoramas and the current state provided a reading of the urban transformation and revealed new and lost potential. The contemporary city analysis was done according to spatial and visual structure determinants, which are discussed in Chapter 2. Therefore, maps, sections, and urban panoramas are utilized as the main tools in the thesis study.

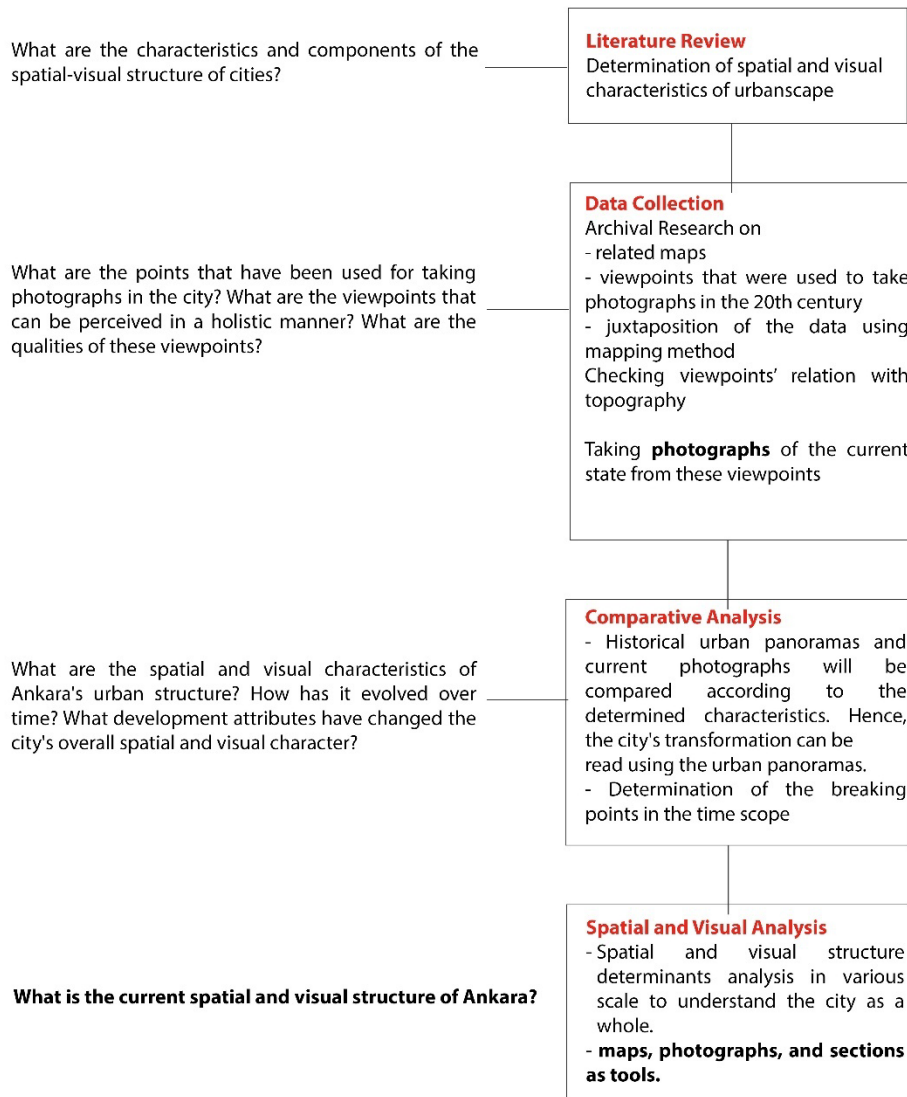


Figure 1. 2. Logical Flow of the Thesis Methodology

1.3.1 Archival Research

The first phase involves an extensive review of archival materials, including historical photographs, maps, urban plans, and panoramas, focusing on the period from the late Ottoman era to the Republican period. These resources are used to trace the development of Ankara's urban morphology, its form, structure, and evolution—and to identify prominent historical viewpoints. Cumhuriyetin Başkenti Ankara album by Atilla Cangır in 2007, Koç University VEKAM Library and Archive, and Atılım University Digital Collections were used as main sources for urban panoramas throughout history.

1.3.2 Mapping

Mapping is a fundamental tool in this research, providing a visual representation of the spatial and visual relationships within the urban environment of Ankara. The mapping process involves several layers, each representing different elements of the city's structure, such as topography, built forms, and open spaces. This layered approach allows for analysis of how different components interact within the urban fabric. Additionally, mapping viewpoints of urban panoramas of different times and overlapping them offers traces of lost potential. Overlapping the selected panoramas with today's condition aimed to uncover shifts in the visual narrative of the city in time and search for the times when radical changes happened in the spatial and visual structure of the city. Also, the juxtaposition of panoramas offers the determination of visual blockage, discontinuities, or continuities in the urban fabric and its general image.

1.3.3 Photography

For this study, using photography as a tool plays a critical role in capturing the current state of Ankara's urban environment, offering a visual comparison with

historical images. Viewpoints for photographs were strategically selected based on their historical significance, quality of offering urban panoramas with higher visibilities, and public accessibility. Nevertheless, the time of the day and quality of the weather could not be specifically chosen for the study. To address this, post-processing techniques in Photoshop were employed to enhance the lighting and visual clarity, ensuring that the photographs accurately represent the intended comparison. Additionally, as a research method in this study, photography serves as a visual narrative that complements other analytical methods, such as mapping and archival research, enhancing the overall study of Ankara's urban structure.



CHAPTER 2

DETERMINANTS OF SPATIAL-VISUAL STRUCTURE

The spatial formation of urban spaces and visual integrity between the city and its elements have been the focus of research by scholars. Urban formation encompasses natural offerings of the topography and constructed settlement as a whole. The key points of the discussion through history and today are the relationship between these two significant components and how they communicate with the city's inhabitants through their characteristics, image, and structure.

The preliminary focus of this study concerns the visual perception of urban spaces and considers spatial-visual structure as an integrated entity. A city's character and structure are reflected in its various components, both vertical and horizontal dimensions. The city's inhabitants primarily experience the three-dimensionality of urban space through the spatial organization of these components. The visual coherence and spatial integrity of urban space could create a holistic image of the city for its users. It is crucial to investigate understanding a city's visual and spatial structure as a whole and question if it is possible for contemporary cities. A theoretical examination of literature is necessary for creating a framework for spatial-visual characteristics of urban space and its components. This examination reveals related concepts and their determinants for developing a method of reading the urban landscape.

2.1 Perception of Space

In his book *The Language of the Vision*, Kepes argues that optical communication is one of the most substantial ways of communication because it can reinforce the verbal concept with the sensory vitality of dynamic imagery. Additionally, it is universal. Vision is significant for grasping spatial relationships and orientation to the environment (Kepes, 1951).

The visual image of today must come to terms with all this: it must evolve a language of space which is adjusted to the new standards of experience. This new language can and will enable the human sensibility to perceive space-time relationships never recognized before (Kepes, 1951, p.14).

It is valid for contemporary situations, too, and will be valid in the future. This is because to understand the environment, one must see the spatial relationships around it.

Vision plays a dominant role in how humans perceive and understand urban spaces. While people use all their senses to analyze their surroundings, vision stands out as the sense that provides the most information, shaping the imagination and thoughts. Therefore, the spatial and visual structure of urban spaces plays a crucial role in communication. The sense of sight employs light to discern shapes, textures, colors, light intensity, and movement while encompassing spatial dimensions such as distance and depth. Nonetheless, vision is not exclusively associated with the physiology of the eye. Instead, the brain processes the visual stimuli received and perceived according to the individual's psychology. This cognitive process, in combination with the structure of memory, facilitates the identification and classification of objects and patterns, resulting in a coherent, meaningful, and comprehensible visual image (Bell, 1999). Arnheim also considers the sense of sight as the most efficient organ of human cognition. Additionally, cognition is defined as all mental operations involved in the receiving, storing, and processing of

information, sensory perception, memory, thinking, and learning (Arnheim, 1969, p. 13).

Vision is a two-fold experience that includes external physical forces and internal forces, and the image is the result of this interaction. The visual experience starts with the sense of sight, and the retinal projection becomes a mental image in the perceptual process. The size of the retinal projection varies because of the distance between the object and the observer. The object's spatial location also affects the brightness and color because of the light conditions. Light is formed by different pigments, and their nature provides the basis for light and color: brightness, hue, and saturation. The physical basis of the perception consists of areas and their shapes. All together, they constitute the optical forces of attraction. As such, the observer's viewpoint and spatial qualities of the context of the object are decisive for human perception (Kepes, 1951; Arnheim, 1969).

2.1.1 Field of Vision

The visual field does not have clear boundaries, and the spatial interpretation relies on the spectator's position, direction, and distance. If the spectator moves the head, eye, or body, the changing position directly changes the retinal field from the vertical or horizontal position. Moreover, the picture field has boundaries of a picture plane on the two-dimensional surface, the frame of reference shifts from the spectator's spatial directions to the picture field's new background. The optical elements create an interpretation of the surface as a spatial world and become spatial forces (Kepes, 1951).

The field of vision or field of view in the picture plane is decisive for perceiving the visible form. The viewer has a restricted field of view because there is a certain degree to which the viewer may rotate the head in the vertical and horizontal planes. The range of neck rotation without discomfort is 45° to the left or right. Vertically,

the range from 0° to 30° in either direction is possible (Panero&Zelnik, 1979; Nijhuis, 2011).

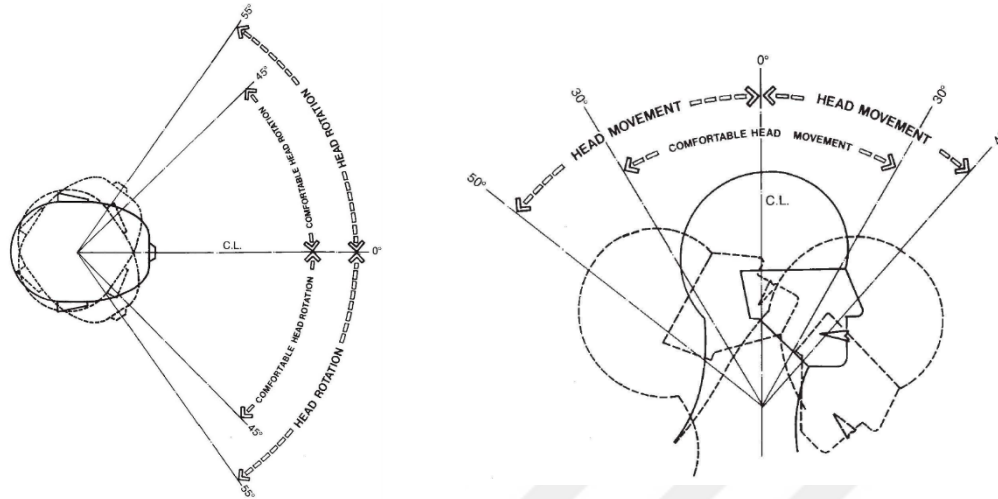


Figure 2. 1. The head movement in horizontal and vertical planes. (source: Panero and Zelnik, 1979)

In addition to head movement, the eyes have the capability of rotation. A visual field as a part of space can be measured in angular magnitude and seen when the head and eye are stationary. *Monocular vision* refers to the visual field of the individual eye, within which sharp images are not conveyed to the brain, resulting in unclear and diffuse appearances of objects. Nonetheless, the overlapping of each eye's visual field creates a greater magnitude than that possible by each eye separately, which is defined as a *binocular field*. It is about 60° in each direction. The standard line of sight is assumed to be horizontal at 0° . However, a person's natural or regular line of sight is slightly below the horizontal and varies depending on the individual's posture. The standard line of sight is about 10° below the horizontal when standing and about 15° when sitting. In a very relaxed position, the sight lines, when standing and sitting, may drift to an even greater angle below the horizontal, about 30° and 38° , respectively. The optimum viewing zone for display materials is about 30° below the standard line of sight. Considering these limitations, people have an almost

120-degree forward-facing horizontal, binocular field of vision with depth perception and color discrimination (Panero & Zelnik, 1979; Nijhuis, 2011).

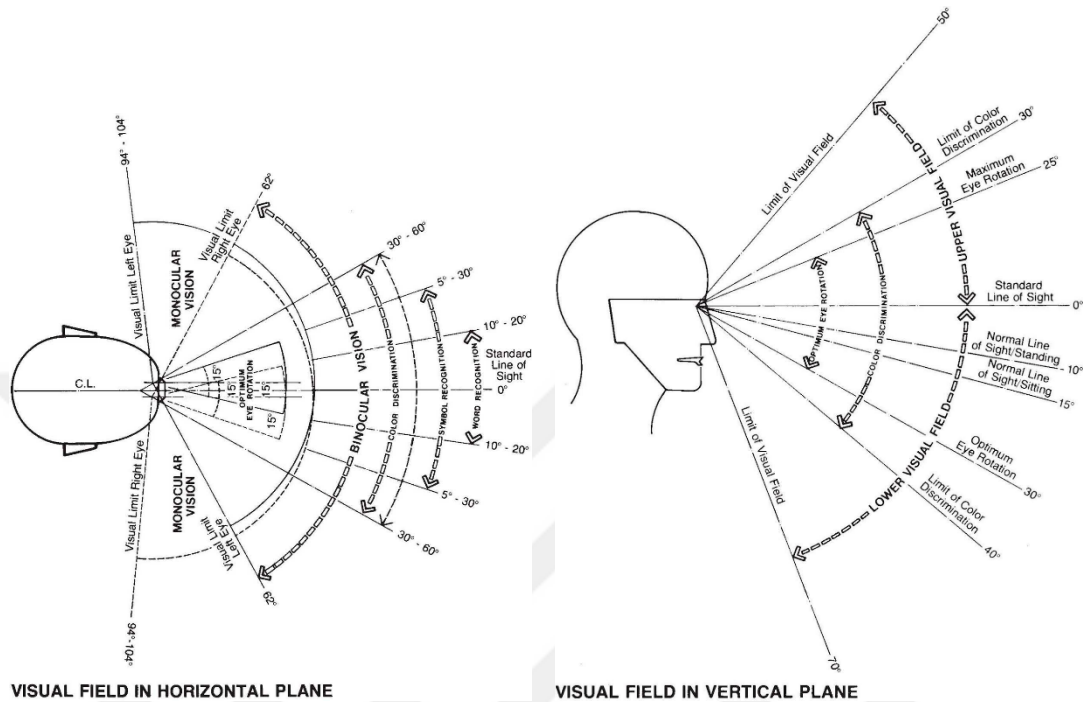


Figure 2. 2. The visible field of horizontal and vertical planes. (source: Panero and Zelnik, 1979)

In addition to head and eye movement, the body's movement is also significant for the visual experience of space. The information from the distance dimension creates the perception of depth. Due to the third dimensionality of contextual space, depth is used to measure distances from the observer's point of view (Nijhuis, 2011). Nijhuis defines three modes of vision as below:

Stationary vision: standing still or sitting; frontal perception of a fixed scene;

Slow-motion vision: walking, cycling, and horse riding; slow sequential frontal and/or lateral perception of scenes;

Fast-motion vision: car driving, motorcycling, and train; fast sequential frontal and/or lateral perception of scenes (Nijhuis, 2011).

In this case, movement becomes decisive in perceiving visible form because the eye, head, and body movement affect the experience in space. Considering Nijhuis's various modes of vision definitions, the scale of experience stands out. Humans can experience urban space via different acts, viewpoints, time, and speed. Similarly, Steven Holl interprets movement's impact on spatial perception as follows:

The body is at the very essence of our being and our spatial perception. As we move through spaces, the body moves in a constant state of essential incompleteness. A determinate point of view necessarily gives way to an indeterminate flow of perspectives. The spectacle of spatial flow is continuously alive in the metropolis as well as throughout the world. It creates an exhilaration, which nourishes the emergence of tentative meanings from the inside. Perception and cognition balance the volumetrics of architectural spaces with the understanding of time itself. An ecstatic architecture of the immeasurable emerges. The most potent architectural meanings come to the fore at the level of spatial perception (Holl, 2000, p.13).

The fundamental connection between humans and architecture is how the body moves across overlapping perspectives formed within space. Steven Holl defined the term "parallax" as the change in the configuration of surfaces that define space because of changes in the viewer's position. Parallax is transformed when movement axes leave the horizontal dimension. Vertical or oblique movements through urban space multiply the experiences, ordered by angles of perception forming the spatial definition. The historical idea of perspective as enclosed volumetrics in horizontal space is now yielding to the vertical dimension. In other words, vertical and oblique displacement are the key to new spatial perception (Holl, 2000).

Another point is that as well as movement, stationary vision is also part of the urban space experience. The spaces where people pause, or rest play a significant role in shaping perceptions of the urban environment. Gehl defines three modes of activity in the urban experience: walking, standing, and sitting. Standing activities are mostly brief stops for doing something, spots where people meet, or conversations. On the

other hand, if there are opportunities for sitting, the duration of staying in the place may increase. Orientation and the view are significant aspects of the choice of a sitting place. The chosen places generally have characteristics like offering a view or providing comfort zones from weather, as such (Gehl, 2011). High places may also be desirable for these stationary activities because they offer a broader perspective. Christopher Alexander describes this as: "The instinct to climb up some high place, from which you can look down and survey your world, seems to be a fundamental human instinct" (Alexander et.al, 1977). Hence, the elevated vantage points allow people to see far away to a sense of the city on a different scale in a more holistic manner.

Stationary vision offers one view of the perceived space instead of sequential views in motion. Therefore, the image of that view and perception of the figure and background relationship come forward. For the perception of space, J.J. Gibson argues that the perception of continuous background shapes the perception of space (Gibson, 1950). In essence, the visual sense of space is not determined by the object that is observed but by its background. This argument is valid for both experienced perception and the principles of Gestalt psychology.

2.1.2 Figure and Background

Optical units on a picture surface derive their characteristics like color, value, texture, size, and shape concerning their respective backgrounds, ranging from the immediate surrounding surface to the optical field as a whole. Therefore, there cannot be an absolute quality of color, brightness, saturation, or absolute measure of size, length, and shape on the optical field because of figure-ground relationships.

The forces of visual attraction- a point, a line, an area- exist in an optical background and act on the optical field. This optical field is projected on the retinal surface of the eyes as an inseparable background for the distinct visual

units. One can not therefore perceive visual units as isolated entities, but relationships (Kepes, 1951, p. 17)

The eye measures and assimilates positions, direction, and differences in size, shape, brightness, color, and texture. The optical qualities have unique experiences. However, the virtual movement of these qualities forms the picture spaces and thus acts as spatial forces. The relationships between the objects and their contexts are the main reason for this situation (Kepes, 1951).

The appearance of objects in the visual field depends on their place and function in the total structure. The togetherness of two objects also creates complex relationships because of seeing several items in a unitary pattern. Therefore, the composition of the elements affects the overall image of the perceiver. According to Arnheim, the simplest rule of togetherness is the rule of similarity, which is the oldest assertion of the theory of association: things that resemble each other are tied together in vision. The similarity of objects enables perceptual grouping. The hierarchy within the compositional order also determines perception in the total pattern. Hence, contrasting objects become the parts of the compositional order (Arnheim, 1969).

Kepes and Arnheim's arguments are rooted in Gestalt psychology, which emphasizes the idea of perceiving whole forms rather than isolated elements. Max Wertheimer, Kurt Koffka, and Wolfgang Köhler developed Gestalt psychology in 1910 (Behrens, 2004). The concept of gestalt derives its name from the term "organization" and refers to a concrete, individual, and characteristic entity with a distinct shape or form. In other words, it is related to how the human mind organizes sensory inputs into meaningful, unified entities with specific shapes or forms. A gestalt is a product of organization, and the process that leads to it is the process itself. The nature of the organization is opposed to mere juxtaposition or random distribution. In the process of organization, what happens to a part of the whole is determined by intrinsic laws inherent in the whole. The idea is that the whole is different from the sum of its parts, and this holistic perception is fundamental to understanding the environment. The

organized whole embodies the principle of emphasizing the contrast between chaos and order (Koffka, 1935).

Wertheimer established principles for structuring the togetherness of elements, known as *gestalts*. The three primary rules are *similarity* (elements that look alike), *proximity* (elements that are close together), and *continuity* (elements forming a continuous pattern). Over time, additional rules were incorporated, such as closure (enclosing a void with parts) and closed forms (perceiving a complete whole even with missing elements). Design principles like symmetry (ensuring compositional coherence), alignment (grouping elements by lining them up), and simplicity (creating legible parts and wholes) also stem from Gestalt rules (Behrens, 2004; Günay, 2007). The principles consider human perceptual tendencies and have become influential among designers in design education and visual arts. While gestalt laws provide valuable insights into human perception and organize visual information, they are not always sufficient to explain the perception of the environment.

According to the gestalt principles, the figure-ground relationship suggests that perception differentiates between a figure (the object of focus) and the background. Günay explains as follows:

One of the first principles of Gestalt theory is that all objects stand with reference to a background, which is as significant as the objects. This is the fundamental goal of any search for form. The other rules or principles of gestalt aim to establish this attribute of the environment (Günay, 2007).

In urban design, this principle can be applied to create clear distinctions between buildings and open spaces, streets and sidewalks, and other elements, enhancing the legibility and visual organization of the urban environment. Also, the principle of continuity states that elements arranged smoothly and uninterruptedly are perceived as continuous entities to promote a sense of flow and coherence in urban space. The similarity principle supports this continuous flow idea by suggesting that elements

with similar visual characteristics, such as shape, color, or texture, tend to be perceived as belonging to or forming a group. While Gestalt theory provides a top-down holistic perspective, the constituents of urban space are perceived at different scales.

2.1.3 Image

Cities form the most intricate type of human settlement. A city has a single prominent image with various fragments that reflect its character and structure. Although the image can be subjective to some extent, the primary way a city communicates its identity to its inhabitants is through the spatial structure of its components (Aral, 1994). As such, the perception of space is related to cognitive acts of the brain as much as the physiology of the eyes. In his seminal book *The Image of the City*, Kevin Lynch argues that an environmental image consists of three components: identity, structure, and meaning. For constructing an image, the perceived object needs to be identifiable for recognition as a separable entity. This quality of being unique or distinct is defined as identity. Additionally, the image includes the spatial or pattern relation of the object to the observer and other objects. Lastly, it is argued that the object should be meaningful to the observer. Lynch introduces the concepts of legibility and imageability to explain the cognitive process of seeing. *Imageability* refers to the quality of evoking a strong image in any observer to identify, structure, and make a mental image of the environment. On the other hand, *legibility* is defined as the recognition and organization of coherent patterns. In order to take attention and participation, a city needs to be imageable, legible, and visible. Enhancing the urban environment's imageability facilitates its visual identification and structuring. Paths, edges, landmarks, nodes, and districts are vital components that create solid and distinctive structures at the urban scale (Lynch, 1960).

Furthermore, according to Montgomery, every place has an identity and image. Identity refers to the inherent characteristics of a place, while image encompasses both identity and how the place is perceived. The formation of an image is the result of a cognitive process, which includes cultural values, beliefs, and ideas that give meaning to perceptual space. A city is experienced through a bottom-up approach, from part to whole. Hence, individuals assimilate and combine their knowledge through personal filters. The shared values and memory are mostly associated with public spaces, which are considered essential elements of the city's identity. As such, the composition of spaces in terms of their sequences and proportions and the way of interconnection have cultural importance in the life of cities (Montgomery, 1998).

There is another approach to the image of the cities. Kostof relates skyline with city image in his book *The City Shaped: Urban Patterns and Meaning Through History*. *Skylines* are defined as urban signatures that are significant for urban identity. It is possible that the urban process of cities can be read through the change of the skylines. Kostof explains that landmarks are essential to highlight the city portrait. The physical formation of a skyline can be determined by height, shape, and approach. Kostof relates height and shape with city landmarks. However, the approach is much more related to the skyline as a whole. Approaching the city is a direct experience of skyline features by the visitor to the city. Nonetheless, because of the complexity of contemporary cities, the urban fringe is perceived as a first impression when a visitor approaches the city (Kostof, 1991). Kostof classifies three ways that related to topography for approaching the cities as follows:

Traditionally, there were three kinds of urban skyline views that mattered—those you had from approach roads by land; waterfront views along a river or the seacoast; and the views to be had from high vantage points within the city limits and in the environs, places like the Pincio and the Janiculum in Rome, Brunate in Como, and Montmartre in Paris (Kostof, 1991, p. 314).

The city image can be considered as a result of the visual communication between inhabitants or visitors and urban space. The spatial components of the city and the composition of those elements affect the visual perception of urban space. Hence, the spatial structure of urban space is directly related to its visual structure. Mainly, they have a mutual relationship, which enhances each other. In this context, the discussions of Lynch, Montgomery, and Kostof provide a comprehensive understanding of how the city's image is formed and perceived. Lynch discusses environmental image as three components- identity, structure, and meaning. Montgomery focuses on the cognitive process of the image in terms of cultural values, public spaces, and collective memory, which shape the city's perception. Kostof adds another dimension by associating the city image with its skyline, which is defined as urban signatures that represent the overall image of the city. Overall, physical form, spatial organization, collective memory, and visual structure contribute to the characteristics of the cities.

2.2 Spatial and Visual Structure of Urban Space

Structure can be defined as how the parts of a system or object are arranged or organized, or a system is arranged.⁴ As such, spatial structure is mainly related to the formation of urban space as a whole. The interrelationships of elements, how they come together, and their relationship with the context are key issues of the spatial structure. The perception of space, in general, is mainly related to the visual field that has spatial elements within it. The visual structure encompasses the visual qualities and characteristics of urban spaces that influence the perception of spaces. It includes the composition of visual elements such as shapes, colors, textures, and forms within the urban landscape. Therefore, the formation of urban space and how it is perceived in a visual manner depend on each other. Perception of the spatial

⁴ Cambridge University Press. (n.d.). *Structure*. In *Cambridge Dictionary*. Retrieved from <https://dictionary.cambridge.org/dictionary/english/structure>

structure forms the visual structure. Also, visual structure can be a determinant of spatial structure.

2.2.1 Urban Space

Before discussing spatial and visual structure, it becomes significant to delve into the definition of urban. Kostof & Ingersoll (2013) suggest that architecture, even before architects, existed in the natural formations that shaped the natural landscape like ridges dividing plains, hills defining horizons, and caves carved into rocky cliffs. Each of these natural features not only provided physical shelter for the life forms but also influenced early human settlement patterns, which would later evolve into cities. Humankind transformed the natural environment into constructed spaces by using mounds, caves, and tree trunks for dwelling (Kostof & Ingersoll, 2013). These constructed spaces can be considered as the earliest stages of architectural expression. According to Kostof (1991), cities are a combination of structures and inhabitants, serving as living environments in which daily rituals acquire meaning. Urban artifacts and their transformations include the time and place continuum. That is why Kostof discusses *urban form* and *urban process* as interconnected concepts for city-making. While urban form refers to the physical structure and layout of cities, the urban process encompasses the power, institutions, and historical mechanisms that shape these forms (Kostof, 1991).

Mumford (1961) argues that human life swings between two poles: movement and settlement. The emergence of permanent human settlements is a clear testimony to the satisfaction of basic animal needs, but it also extends far beyond such needs. Early evidence of campfires and tools indicates human concerns, especially ceremonious concern for the dead. According to Mumford, this respect often led early humans to establish permanent gathering places. Burial sites, whether in caves, mounds, or cairns, became the first permanent homes, serving also as special symbols for group rituals and the worship of ancestors. Unlike the transitory nature

of hunting and gathering people, these sacred places demanded stability and thus triggered the first forms of settled life (Mumford, 1961).

In his seminal book *The City Shaped* (1991), Kostof emphasizes that according to ancient traditions, early city-making was an act of deliberate creation, underpinned by divine or royal authority. On the other hand, there is the counter-tradition that looks at cities because of collective human initiative independent of divine or royal authority. Kostof explains this in Greek thought, this idea was most fully expressed in the polis—that is, the city is seen as a collective community, a moral framework, and not merely a physical entity (Kostof, 1991).

Following the establishment of urban settlements, the historical narrative of urban space reveals important milestones that transformed the understanding and perception of cities. In his book *Life Between Buildings*, Jan Gehl undertakes a historical analysis of the development of cities, using the approach of an art historian. For hundreds of years, medieval cities underwent organic processes of evolution through which their physical layouts adapted to urban functions. These cities were not constructed on predetermined plans; they developed organically, with urban environments that facilitate life between buildings. The Renaissance marked a shift in the history of urban planning from organic development to planned design (Gehl, 2011; Türe, 2023). There was a radical change in urban design in the era of Baroque based on the concepts of grandeur, symmetry, and systematic regulation. Cities like Rome and Paris became prototypes of the dominance of centralized government in terms of monumental streets, squares, and axial designs. This era can be also seen as a turning point from the organic urban forms of the medieval period to the well-planned and symbolic spaces that reflected the authority and aspirations of their rulers (Kostof, 1991).

As a reaction to the excessive formalism of the Baroque era, Camillo Sitte advanced a picturesque approach to urban design in the late 19th century. In his seminal work, *The Art of Building Cities* (1889), Sitte criticized the rigid geometries of modern city planning and advocated instead for designs inspired by medieval and Renaissance

urban forms. According to Sitte, cityscapes should evoke a sense of intimacy and beauty and must stress the experiential qualities of urban morphology as opposed to functionalist strictures (Sitte, 1945). By about 1930, a new paradigm in town planning appeared: functionalism; it stressed physical and material needs at the expense of aesthetic and social considerations. Functionalism in architecture relied heavily on advances in medical science and privileged natural illumination, air circulation, ventilation, and green spaces. Buildings were oriented toward the sun rather than the street, while residential, occupational, and recreational areas were separated to improve living standards. However, functionalist theories failed to consider the psychological and social aspects of city planning. Streets and squares, once integral to community life, were replaced by roads, walkways, and large parks. This resulted in fragmented communities, less outdoor activity, and sterile city environments (Gehl, 2011).

During the 1960s and 1970s decades, the deficiencies of this kind of methodology became clear and highlighted the need for balance between functionality, aesthetics, and social interaction in urban environments (Gehl, 2011; Türe, 2023). Focusing further on this concept of experiential urbanism, prominent among those who developed the kind of idea of Townscape during the mid-20th century was Gordon Cullen. As he outlined in *The Concise Townscape*, written in 1961, Cullen emphasized the importance of what he called visual and sensory perceptions of urban environments, specifically how people perceive and move through the city. He introduced terms like serial vision, the sequential development of visual experiences when moving through urban spaces, and the interplay of scale, texture, and rhythm in creating interesting environments (Cullen, 1961).

Cullen's approach emphasized the inherently subjective and dynamic interrelationship between people and their created environment, positing that urban areas should inspire and delight their inhabitants. In summary, the history of urban design reflects the perpetual interaction between spatial arrangement and visual experience. From the grand symmetry of Baroque to Sitte's concern with scenic beauty and Cullen's concern with human perception, these models represent various

ways cities have been built to balance use, power, and aesthetics. Understanding such historical changes provides an important context for critical consideration of the spatial and visual structure of contemporary urban environments.

2.2.2 Spatial Structure

The urban environment is a medium of communication, and its legibility refers to the degree of communication with inhabitants regarding physical features. Spatiality refers to the sense that the objects of orientation are distributed according to such relations as inside and outside, far away and close by, separate and united, and continuous and discontinuous. Space is an aspect of orientation, and spatial relations are related to position. Additionally, spatial structure is related to how the parts come together and create a sense of orientation. Orientation is mainly associated with navigation. To orient themselves, people utilize various indications to establish structure, like recognizing a characteristic form or activity in areas or centers, sequential linkages, directional relations, time and distance, landmarks, path or edge continuities, gradients, panoramas, and many others (Norberg-Schulz, 1971; Lynch, 1981). Hence, the spatial configuration of urban areas influences the perception of the city and the movement within it. According to Kevin Lynch (1981), visual cues and spatial characteristics contribute to effective wayfinding, including clear paths, distinct landmarks, and well-defined edges. As such, the high legibility of spaces forms a user-friendly and visually comprehensible city (Lynch, 1981).

Spatial structure is related to how the parts come together, their organization, and their layout. Gordon Cullen defines one building as architecture but two buildings as townscape. According to the definition, the relationship between buildings and the space between them releases the art of townscape and gains importance. When considering the expansion to the scale of a town, the art of environment emerges, leading to increased possibilities of relationships (Cullen, 1961).

Expanding on the concept of spatial structure, in his book *Genius Loci: Towards a Phenomenology of Architecture*, Norberg-Schulz introduced the concept of genius

loci as a spirit of place. The structure of place is described in terms of landscape and settlement, which have figure and background relationship and are analyzed through the categories of space and character. Space is explained as the three-dimensional organization of the elements that constitute a place. Character is defined as the atmosphere, which is the comprehensive property of any place. Space and character are defined in one concept as *lived space* (Norberg-Schulz, 1979).

For the relationship between spaces, Norberg-Schulz defines the concept of *existential space* as a relatively stable system of perceptual schemata or images of the environment. Existential space has three components for the establishment of the elementary organizational schemata of perception: centers or places (proximity), directions or paths (continuity), and areas or domains (enclosure). The abstract notions of proximity, centralization, and closure form a more concrete existential context, which is the concept of *place* as the basic element of existential space. The place is defined by the proximity of its defining elements. However, the *path* is linear succession, which is characterized by its continuity. Paths divide the environment into areas, and *domains* are the qualitatively defined areas that are potential places for activities (Norberg-Schulz, 1971).

Norberg-Schulz discusses concepts of place, path, and domain by associating Lynch's definitions of elements of city image. In this context, place is related to the concept of node, which is defined as the strategic foci of the junction of paths or concentrations of some characteristics. Also, landmarks correspond to centers in existential space. Districts indicate thematic continuity through texture, space, form, detail, symbol, building type, usage, activities, inhabitants, and topography, forming distinctive clusters. These clusters, with their diverse textures and shapes, often include transition zones or boundaries, further defining the distinct character of domains (Norberg-Schulz, 1971; Lynch, 1960). Considering Lynch's and Norberg Schulz's definitions, Higuchi, in his book *The Spatial and Visual Structure of Landscapes* (1975), determines four determinants to analyze the spatial structure of landscapes:

- boundary, which corresponds to the edge definition of Lynch

- focus-center-goal, which is associated with aspects of landmark definition
- directionality
- domain, which denotes the total space encompassing the concepts above

Consequently, the organization and layout of the parts constitute the spatial structure. Considering the definitions of Norberg-Schulz and Higuchi, enclosure, proximity, continuity, and directionality emerge as critical determinants of spatial structure. These aspects shape human perception and interaction within urban spaces, creating coherent and legible environments. On the other hand, Kevin Lynch's concepts of path, edge, node, landmark, and district provide a more tangible framework for understanding this phenomenon by focusing on the visible forms in which such relationships occur. Paths direct movement, edges define boundaries, nodes act as focal points, landmarks offer orientation, and districts provide thematic continuity in distinctive clusters. These frameworks offer a comprehensive understanding of spatial structure, balancing abstract principles with physical qualities.

2.2.2.1 Natural Landscape

"What, then, determines the seemingly idiosyncratic shapes of evolved or generated cities? The most widely acknowledged causality, the natural landscape, rings true because it is visually the easiest to grasp (Kostof, 1991, p.53)."

The influence of nature on the physical characteristics of urban spaces is evident throughout the history of cities, from early human settlements and agrarian societies to the industrial era's more recent cities. The urban form has been shaped by various natural factors such as climate, topography, water resources, and agricultural land. Over time, human interventions have transformed these natural spaces, layering them with built environments and social structures that create urban space. Urban design addresses both the visual and organizational aspects of these environments, reflecting the social conditions of those who create and inhabit them. As Harvey (1989) notes, a city's appearance and its spaces' organization form the material foundation for various social practices and experiences. Viewing urban design as

addressing only one of these aspects or as separate from the social practices it encompasses provides a narrow perspective.

Norberg-Schulz argues that the existential space elements appear on several levels within a hierarchy of levels of geography and landscape. Landscape-level is formed by human interaction with topography, vegetation, and climate. The landscape has the function of forming the continuous background of our environmental image. According to him, natural places are determined by the concrete properties of the earth and sky. Sky has a characterization function in landscapes regarding atmospheric conditions and light. On the other hand, the ground is directly related to topography, which denotes the physical configuration of a place and is defined as surface relief. Natural places encompass the totalities of surface relief, vegetation, and water interaction. Texture and color constitute the material substance of the ground, and vegetation refers to added elements and transforms the surface relief (Norberg-Schulz, 1971&1979).

Variations in surface relief create direction and defined spaces. The distinction between the structure and the scale of the relief is significant. The structure may be described as nodes, paths, and domains. Isolated hills, mountains, and circumscribed basins are elements that centralize space. Valleys and rivers have directive quality in the natural environment. Also, elements define and extend spatial patterns, such as a relatively uniform cluster of fields or hills. The effects of such elements vary according to their dimensions. Changes in the topography create landscape elements like plains, valleys, basins, ravines, plateaus, hills, and mountains. These landforms have distinctive phenomenological characteristics. For instance, the plain manifests extension, while a valley represents a delimited and directed space. A basin, a centralized valley, creates an enclosed and static environment. Hills and mountains complement valleys and basins, defining the environment with features like slopes, crests, ridges, and peaks. Rivers emphasize valleys, and lakes enhance basins. Additionally, water creates spatial configurations such as islands, points, promontories, peninsulas, and bays (Norberg-Schulz, 1979).

The influence of nature on the physical characteristics of urban spaces is obvious throughout urban history, from early human settlements to the industrial era's newer cities. The urban form has been shaped by various natural factors such as climate, topography, water resources, and agricultural land. Over time, human interventions have transformed these natural spaces, layering them with built environments and social structures that create urban space. Urban design addresses both the visual and organizational aspects of these environments, reflecting the social conditions of those who create and inhabit them (Madanipour, 1996).

2.2.2.2 Built Environment

Built environment denotes a series of environmental levels from houses to towns. Boundaries and enclosures define all the elements of the built environment. According to Norberg-Schulz, how the built environment elements are enclosed using boundaries determines spatial properties and character (Norberg-Schulz, 1979). Built forms are external forms of urban structure elements, and the buildings are significant elements of it. The forms of buildings are determined by their sizes and shapes, and within the urban context, buildings are perceived as surfaces defining distinct spaces while creating background.

On the other hand, spatial forms are defined by the outer borders of built forms in relationship with each other. Curran defines two patterns of spatial forms as linear spaces and cluster spaces. While linear spaces give direction and encourage movement along them, cluster spaces are valid when there is a clear definition of outer space in the urban structure (Curran, 1983; Alanyalı, 1994). Similar to Curran's definition, Norberg-Schulz argues that the spatial structures developed during the history of architecture are based on centralization and their longitudinal combination. That is why the main urban elements are described as centers, paths, and domains. Their spatial identity depends upon relatively continuous lateral boundaries (Norberg-Schulz, 1979).

Built environment and natural landscape together constitute the urban spatial structure. The natural landscape provides a background with diverse landforms to the built environment. For instance, hills and mountains can shape the layout of streets and buildings, while rivers and coastlines often define the boundaries and connectivity of urban areas. This relationship between the built environment and natural landscape ensures that urban spaces are not only functional but also provide a sense of place, offering residents and visitors a coherent and navigable environment.

2.2.3 Visual Structure

Higuchi discussed spatial and visual structure in terms of landscapes and defined *visual structure* as the appearance of a given scene from a freely chosen point of observation. Consciously or subconsciously, individuals distinguish between various perspectives, and it is instructive to consider the specific criteria used, whether consciously or not. The term "bird's eye view," a view from above or below, denotes a distinction based on the observer's position. Long-term, mid-range, or short-range perspectives depend on the object's distance from the observer. When differentiating the main object from the background, the focus is typically on the visual structure of the scene rather than solely the distance. Additionally, vistas or panoramas highlight the contrast in terms of breadth or scope. These common distinctions are valuable for the scientific analysis of view in general (Higuchi, 1975).

Inhabitants experience the environment via different modes of movement. Consequently, the spatial sequences gain importance to create a sense of anticipation, surprise, and variety. In this scope, the arrangement of spaces, vistas, and transitions between different urban elements can enhance the overall visual experience. In his book *Townscape*, Gordon Cullen evaluates this by considering pedestrian experience. Serial vision is defined as a pedestrian walking through the town at a uniform speed; the scenery of towns is often revealed in a series of jerks or revelations. At this point, the book emphasizes that humans deal with various

experiences stemming from the significant impacts of exposure and enclosure, sense of position, height (hills, topography), sequence, and screened vistas in their visual experiences (Cullen, 1961).

The visual perception of space depends on the change in height of the viewpoint and the type of movement. While walking, people perceive urban space at street level, whereas a stationary vision from a high vantage point allows for a more holistic view of urban space. The high view is the decisive element that provides for distance, offering a comprehensive view of topographical and architectural details. This spatial analysis can provide a visually coherent and identifiable sense of space. Alanyalı further explains this concept as follows:

High vantage points in and around the city offer high degree of visibility over the whole urban formation. These may be natural platforms like Montmartre in Paris or summits of high buildings. View from high points give possibility to see the dominant figures in the city while disregarding lower features (Alanyalı, 1994, p.39).

Therefore, the viewpoints determine the scale of the area involved that can be seen. Looking from above or below directly changes the spatial perception. Street-level experiences enhance the image of the observer in terms of parts of the city and the life within it. However, a bird's eye view eliminates the details of the city while offering an understanding of its visual structure.

Furthermore, the visual characteristics of a city are significantly influenced by its topographical layout, which arises from the interplay between natural and built environments. Cities can be classified into flat lands and rugged lands. Flat lands are distinguished by prominent rising elements that dominate the skyline, while rugged lands offer diverse vistas and viewpoints, including hills, valleys, and mountain skirts, which contribute to the cityscape and serve as natural visual boundaries. Throughout history, pointed hills have been strategically chosen for city building due to their defensive and symbolic attributes, and for contemporary cities, pointed hills are integrated elements of overall spatial organization and act as, acting as distinct

visual markers. Mountains, standing prominently apart from their surroundings, also serve as notable landmarks, offering spatial organization and directionality. Valleys create directed views as visual barriers on opposing planes, while mountain skirts serve as natural visual barriers that culminate at the mountain ridge. Water also plays a pivotal role in shaping a city's visual qualities, drawing attention through its reflective properties. It can act as a boundary or physical barrier, creating a sense of openness in the urban landscape. In settlements situated along rivers, water forms a linear sense of openness, flanked by urban elements on both sides, creating a visual corridor along its path (Alanyalı, 1994).

To further discuss the other determinants of visual structure, Higuchi introduced a comprehensive framework. The indexes discussed in the book concern the visibility or visual perception of landscapes. However, it is emphasized that since these indexes are generally related to vision, they should be applicable to any visual environment. According to the book, eight criteria or indexes determine the visual structure (Higuchi, 1975):

- **visibility or invisibility:** what can be seen and what cannot be seen from a viewpoint
- **distance:** changes in the appearance of an object depend on the interval between the object and the observer
- **angle of incidence:** view can be conceived as a concentration of surfaces; the angle at which the line of vision strikes each surface determines to a large degree what can be seen of it
- **depth of invisibility:** the degree of invisibility in terms of the depth of the unseen section with respect to the line of vision
- **angle of depression:** viewer's position of looking at a scene from above
- **angle of elevation:** nature of upward view and the limits of visible space
- **depth:** the degree of three-dimensionality of the view
- **light:** appearance changes when the position of the light source moves from front to side to back

Considering the relevant literature above, the perception of the visual structure of an urban space or any space depends on the visibility of its elements. Higuchi's analysis of the determinants is related to the visibility of visual structuring. The determinants may be discussed under two primary headings: viewpoint and direction, and depth. Although speed of movement can be another determinant, this study will focus only on stationary vision to maintain consistency and depth in the analysis for the comparisons of urban panoramas. However, in Chapter 3 and Chapter 4, approaching points to city are discussed in reference to Nijhuis's modes of vision definitions.

2.2.3.1 Viewpoint and Direction

Each viewpoint offers unique perspectives and scenery and enhances the variety of visual perception of the city's overall panorama. Different perspective angles provide a diversity of urban space perception. Hence, if an urban environment is rich in vantage points, the image of the urban structure can be enhanced and provide opportunities for coherent horizon experiences. (Kuzmych&Petrovska, 2020).

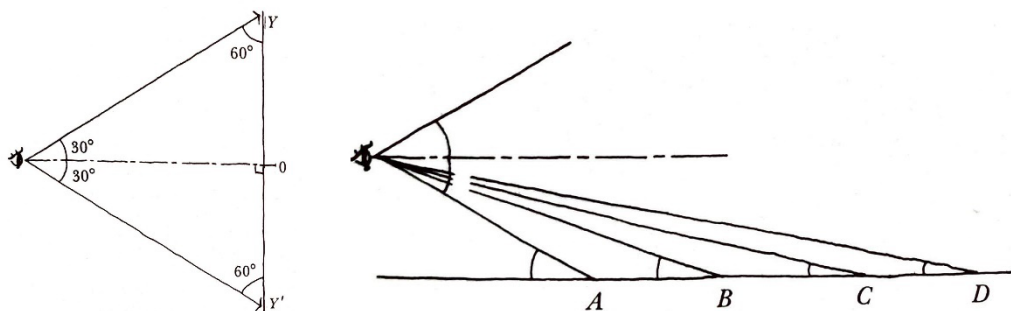


Figure 2. 3. Frontal and longitudinal surfaces and angle of incidence (source: Higuchi, 1975)

Higuchi suggests a detailed examination of varying angles of view. The angle of incidence is a significant index to the ease of visibility of surfaces. This index analysis is based on J.J. Gibson's description of the visual environment. According to J.J. Gibson, the visual environment is formed of horizontal and longitudinal surfaces. A frontal surface is transverse to the line of sight, and the longitudinal

surface is parallel to it (Figure 2.3.). The angle of incidence of frontal planes is always larger than that of longitudinal surfaces. Therefore, the frontal surfaces are easier to see. To improve the visibility of a horizontal plane, the point of view (Figure 6) can be raised to the angle of incidence (Higuchi, 1975; Gibson, 1950).

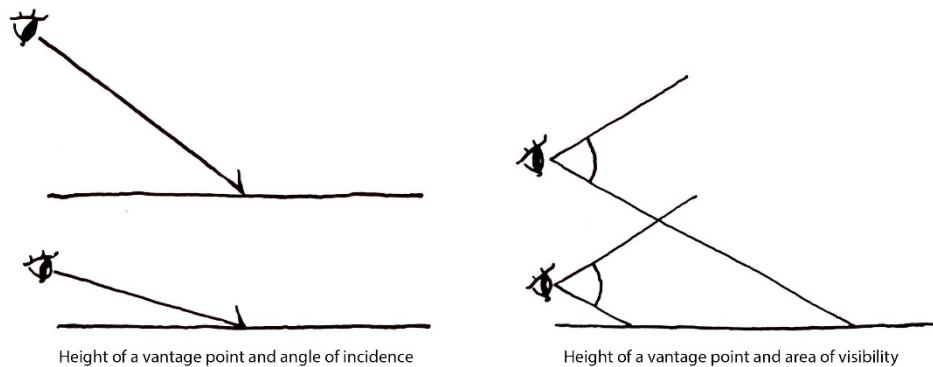


Figure 2. 4. Effect of viewpoint level (source: Higuchi, 1975)

High places such as mountains, hills, or structures are thought to provide good views and the opportunity to look down on the surrounding area. Looking downward provides an extensive range of vision, which is panoramic. The high elevation distance offers visible relationships linking the physical elements of the landscape (mountains, rivers, plains, lakes, or the ocean) and urbanscape. Nevertheless, relationships are obscured in terms of detail. This looking downward situation is defined as the angle of depression, which is the angle between the horizontal line and the line entering the eye from the object being viewed. It determines whether the viewer perceives an object as near or far (Figure 2.5.).

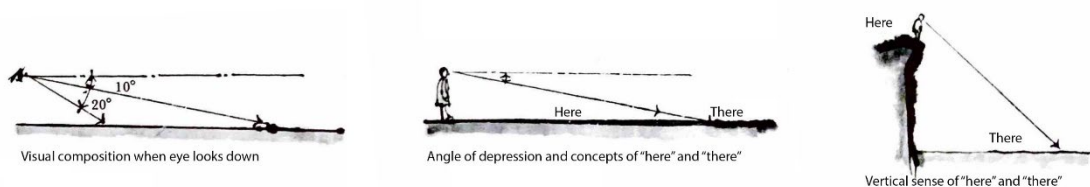


Figure 2. 5. Higuchi's diagrams on the angle of depression

The visual field spans between 10 and 30 degrees. However, people can sense the area beyond 10 degrees to be the most prominent in their visual range, and the 30-degree angle is considered the limit of color discrimination (see Figure 4). Gordon Cullen defines this situation of nearness with the concepts of “here” and “there”. It is suggested that the borderline between them lies not at a point equidistant from the viewer and the horizon but at a point corresponding to an angle of depression half of the horizon (Figure 2.6.). However, the 0 to 30 degree is accepted as the range of angle of depression because people tend to look down rather than up at that range (Cullen. 1961; Higuchi, 1975).

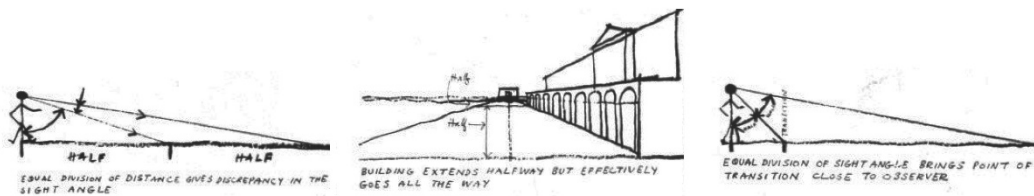


Figure 2. 6. Gordon Cullen’s diagrams on the division of space

2.2.3.2 Depth

As Gibson (1950) indicated, the visual field is a composition of horizontal and vertical planes. Similarly, Kepes argues that the horizon line provides a frame of reference. A spectator judges the position of the object according to the horizon line and receives an impression of distance. Even though the horizon line is not apparent, the different elevations of objects give a sense of depth. When one spatial form blocks the view of another, it is not assumed that the second ceases to exist because it is hidden. This overlapping creates dual spatial meanings for the visible form: its presence and beneath itself. The figure that blocks the visible surface of another figure is perceived as closer, creating a sense of depth and space for the observer. Representation of overlapping indicates depth. It creates a sense of space. Each

figure appears parallel to the picture plane and tends to establish a receding spatial relationship (Kepes, 1951).

Since overlapping objects are concerned with the depth of space, the depth of invisibility introduces another dimension to consider. It concerns the area that is obstructed and the depth to which it recedes from the line of vision. The height of vertical lines can indicate blockage, which results in invisibility and the degree of invisibility of an area dropped from the line of sight. When the obstacle is very close to the eyes, slight differences in height can lead to visible changes in the depth of invisibility beyond it (Higuchi, 1975). For instance, Lynch (1984, p.194) noted that when the obstacle's height is at eye level, the viewer experiences feelings of vagueness and uncertainty and recommends that walls should be either higher or lower than eye level (Figure 2.7.). At the urban scale, buildings may cause blockage for the view. As well as artificial elements, terrain affects the depth of invisibility or visibility.

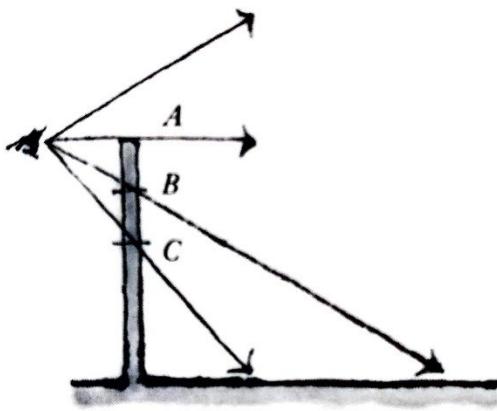


Figure 2. 7. Varying depths of invisibility caused by walls of different height (derived from Higuchi, 1975)

Depth determines the perception of three-dimensional space. It is an effect of continuous change in the terrain's surface and atmospheric perspective, or the overlapping objects viewed. Atmospheric conditions play a crucial role in visual depth perception. Air turbidity can alter the appearance of objects from an atmospheric perspective. The farther an object is, the less visible light passes through

it. Weather conditions and lighting also subtly influence visual perception. As a result, weather is another significant factor affecting visibility. For instance, visibility is further reduced during rainy or snowy conditions. Additionally, the time of the day affects visibility too. Even on clear days, visibility is typically lower in the morning and evening compared to midday.

2.2.4 Integration of Spatial and Visual Structure

Integration of spatial and visual structure is mainly related to the legibility of the environment. While spatial structure is related to parts' organization and layout, visual structure is related to the appearance of spatial structure. Their togetherness creates visually comprehensive urban environments and enhances the orientation of the inhabitants. Indeed, the integration of these two concepts is related to how they are composed. The composition of the urban elements in terms of spatiality and visibility includes various dimensions and layers. This is because an environment cannot have a single comprehensive image. Instead, there are sets of images. As such, the varying scales of urban environment become significant for this subject from house to street level, street level to neighborhood or a city. As well as the scale of the area, viewpoint, time of day, or season changes the images. To have a comprehensive image, it is important to maintain continuity, which should persist in major changes (Lynch, 1960).

The image as a living organism needs to have progressively changing aspects, and change implies movement. According to Kepes, the most evident characteristic of the movement is its unity and dynamic continuity. The movement also implies the opposite of unity: the variety of locations. It is the contradiction between dynamic unity and static discontinuity (Kepes, 1951). Hence, looking at its changing image is crucial to read an urban process. This change is related to both time and elements of the city. These determinants form the multilayered quality of urban spaces. Organization of the layers of the cities hierarchically and continuously is essential for creating a cohesive and legible environment. Achieving strong images may be

challenging for contemporary cities, considering the diverse individual and cultural perspectives involved. Therefore, adaptable urban environments that provide specific cultural types and individual needs are crucial for creating a flexible yet cohesive urban experience (Lynch, 1960). This adaptability ensures that the urban image remains strong and inclusive, enhancing the overall sense of order and coherence within the city's spatial and visual structure.

Table 2. 1. Key Concepts and Determinants

Reference	Concepts	Determinants	Notes
Norberg-Schulz, C. (1979). <i>Genius loci: Towards a Phenomenology of Architecture</i>. Academy Editions. Higuchi, T. (1989). <i>The Visual and Spatial Structure of Landscapes</i>. Cambridge, MA: MIT Press. Kepes, G. (1951). <i>Language of Vision</i>. Theobald. Norberg-Schulz, C. (1971). <i>Existence, Space and Architecture</i>. London: Studio Vista. Cullen, G. (1961). <i>The Concise Townscape</i>. Elsevier. Kostof, S. (1991). <i>The City Shaped: Urban Patterns and Meaning Through History</i>. London: Thames and Hudson. Bacon, E.N. (1967). <i>Design of Cities</i>. New York, Penguin Books.	spatial structure	depth	closure, horizon line, position, distance
		form	size, shape, scale, texture, color
		boundary	space-defining element, shutting the outside world off from view while at the same time having a high degree of visibility within the domain it protects. difficult to penetrate. continuity is crucial to the formation of boundaries.
		domain	a domain is the total space that is brought together and given order by the conditions of boundary, focus-center-goal, and directionality.
		enclosure	determines a space which is separated from its surroundings as a particular place
		directionality	axis, continuity, and directional order can be achieved by means of an image that exists only in the mind's eye. mountains rising from terrain, sloping ground surfaces, valleys or basins, prevailing winds, passages, corridors
		organization	the layout of spatial elements, order, and hierarchy
		orientation	position, clear image, legibility
		foci	focal point, central, centralization, concentration, landmarks, clear form, contrast with the background
Norberg-Schulz, C. (1979). <i>Genius loci: Towards a Phenomenology of Architecture</i>. Academy Editions. Cullen, G. (1961). <i>The Concise Townscape</i>. Elsevier. Kepes, G. (1951). <i>Language of Vision</i>. Theobald. Higuchi, T. (1989). <i>The Visual and Spatial Structure of Landscapes</i>. Cambridge, MA: MIT Press. Bacon, E.N. (1967). <i>Design of Cities</i>. New York, Penguin Books. Kostof, S. (1991). <i>The City Shaped: Urban Patterns and Meaning Through History</i>. London: Thames and Hudson Lynch, K. (1981). <i>A Theory of Good City Form</i>. MIT Press. Nijhuis, S., Lammeren, R. van, & der, H. F. van. (2011). <i>Exploring the Visual Landscape Advances in Physiognomic Landscape Research in the Netherlands</i>. IOS Press.	visual structure	visibility	what can be seen and what cannot be seen in the given viewpoint
		depth of invisibility	the degree of invisibility in terms of the depth of the unseen section with respect to the line of vision
		viewpoint	viewer's position as he/she looks at a scene from above, the nature of the upward view, and the limits of visible space
		depth	the degree of three-dimensionality of the landscape as it unfolds before the viewer
		light	transformations that take place as the position of the light source moves from front to side to back
		architectural styles	forms, materials, facade variations
		topography	may offer visual possibilities
		vistas and panoramas	direct views

Lynch, K. (1960). The Image of the City. Cambridge, MA: MIT Press. Kostof, S. (1991). The City Shaped: Urban Patterns and Meaning Through History. London: Thames and Hudson	image	paths	channels along the observer moves, continuity, directionality, hierarchy
		edges	linear boundaries between two phases or linear breaks, visibility, continuity, directionality
		districts	medium to large sections of the city, components: texture, space, form, detail, symbol, building type, use, activity, inhabitants, degree of maintenance, topography.
		nodes	strategic points, junctions, concentrations, spatial form, activity, introvert or extravert
		landmarks	external point-references, physical objects, uniqueness and specialization, spatial prominence: visibility or local contrast
		topography	affects the characteristics of the visual and spatial structure-shape the city image
		skyline	urban signatures that are significant for urban identity, height, shape, and approach
Lynch, K. (1960). The Image of the City. Cambridge, MA: MIT Press. Bacon, E.N. (1967). Design of Cities. New York, Penguin Books. Kepes, G. (1951). Language of Vision. Theobald. Cullen, G. (1961). The Concise Townscape. Elsevier. Kostof, S. (1991). The City Shaped: Urban Patterns and Meaning Through History. London: Thames and Hudson	coherence and order	legibility	the ease with which its parts can be recognized
		scale and proportion	human scale, order of spaces, and urban elements
		unity	the coherence and harmony of visual elements within a composition, creating a sense of wholeness or completeness.
		urban panorama	holistic understanding of the city, including both panoramic views of the skyline and street views
		structural organization	balance, tension, rhythm, proportion, scale
		ordering principles	axis, symmetry, hierarchy, datum, transformation
Cullen, G. (1961). The Concise Townscape. Elsevier. Lynch, K. (1960). The Image of the City. Cambridge, MA: MIT Press. Bacon, E.N. (1967). Design of Cities. New York, Penguin Books. Norberg-Schulz, C. (1979). Genius loci: Towards a Phenomenology of Architecture. Academy Editions.	sense of whole	composition	layout, organization, coherence
		hierarchy of spaces	order, scale
		integrated totality	relationship between vertical and horizontals, between above and below, serves as a unifying force
		spatial identity	continuity, urban layers, heritage
		image	relatively stable system of perceptual schemata or image of the environment
		pattern	rhythm, variation, repetition
		sequential continuity	the hierarchy, the dominant element, or the network of sequences.

Table 2.1. (continued)

2.3 Key Concepts for the Stationary Vision Perception of Cities and Determinants

The key concepts for understanding the stationary perception of urban spaces' spatial and visual structure have been identified through a literature review conducted by the author. These concepts have been detailed in Appendix A, where an extended table is provided. Table 2.1 summarizes the main findings, highlighting three key concepts: image, coherence and order, and the sense of the whole. The spatial and

visual structure of cities is intricately linked to their components and overall form. Since the scale of the urban environment is essential, determinants of the image come forward. Additionally, to analyze the integration of spatial and visual structure, coherence and order of the urban structure is another significant issue. Finally, determinants and their coherent and ordered relationships form a sense of wholeness for the urban experience.

2.3.1 Determinants of City Image

An observer senses the complex structure as a whole, whose parts are independent and relatively fixed to each other. According to Lynch (1960), an investigation starts with parts rather than wholes. This approach is a bottom-up approach to understanding a city. Differentiation of parts affects others in a total system of image as a continuous field. As such, the recognition of an object is as dependent on context as on the form of the object itself. Elements of city image - paths, nodes, districts, edges, landmarks -are essential for analyzing the urban structure. Nevertheless, one should also analyze the layers of topography and skyline to read the overall image. Therefore, studying the interscale of the city image may be an efficient way to understand it.

2.3.1.1 Paths

An organized set of paths structures a city. Paths are channels along the observer's moves, including streets, walkways, transit lines, canals, and railroads. These linear elements are directional because of the formation and should be continuous as a functional necessity. For instance, streets are perceived as going towards something. The direction of the walking route can be indicated by gradients, such as ground slopes, as well as by using thickening signs, color or texture gradients, and shortening block lengths. Asymmetries, arrows, and coded colors can also be used to indicate the direction of travel. These elements make the path an oriented element and make

it easier to navigate. Creating a visual hierarchy of streets and pathways forms the framework of the city's image, and scaling the elements is crucial for hierarchy. A sequence of known landmarks or nodes along the path may accomplish it. The marking of identifiable regions as a path enters and leaves them also constitutes a powerful means of giving direction and scaling to a path. Therefore, A clear visual hierarchy of streets and pathways, akin to a functional hierarchy, contributes clarity and distinctiveness to the city image (Lynch, 1960).

Moreover, to emphasize the circulation system's clarity, street patterns must be easy to understand, the identity of streets and destinations must be clear, intersections must be well-defined, and vivid spatial sequences along critical paths should be created. The dynamic shaping of routes gives identity and produces a continuous experience over time. Characteristic spatial qualities strengthen the image of paths. The concentration of special use or activity, special façade characteristics, particular lighting patterns, a unique set of smells or sounds, a typical detail or mode of planting, and proximity of particular features of the city affect the importance of the paths and may give an identity (Lynch, 1960&1981). Therefore, the organization and clarity of paths contribute significantly to the mental map of a city, providing orientation for inhabitants and visitors. As Lynch (1960) suggests, paths are often the most dominant elements in people's perception of the city, shaping their spatial experience and enabling them to connect different urban areas into a coherent whole.

2.3.1.2 Edges

Edges, like paths, are linear elements, but unlike paths, they represent a boundary between two areas. An edge must be visible and continuous to be effective as a boundary. It becomes visible when it defines a sharp gradient of area character and obviously joins two bounded regions. For instance, the sudden stop of a medieval city at its wall, the fronting of skyscraper apartments facing Central Park, and the distinct shift from water to land along the seafront are all powerful visual experiences. Visual attention is concentrated when two contrasting regions are

placed close together, and their meeting edge is open to view. As such, it may provide both visual and circulation connections to the rest of the city structure and becomes a feature to which everything else is easily aligned (Lynch, 1960).

An edge is not necessarily divided into two contrasting areas. Norberg-Schulz has also considered edges as boundaries. Since spatial qualities and character of a built environment are determined by how boundaries enclose it, they determine the degree of enclosure and openness. As such, it is useful to differentiate the two sides of an edge where the regions bounded are not contrasting to orient the observer in the "inside-outside" sense. This can be achieved by using contrasting materials, a slope, a consistently concave line, or planting. The edge can also be designed to provide orientation along its length, using a gradient, identifiable points at intervals, or by emphasizing one end over another. When the edge is not continuous and self-closing, then its ends must have definite finishing points and recognizable anchors that define and position the line (Lynch, 1960; Norberg-Schulz, 1979).

2.3.1.3 Districts

Districts encompass relatively large city areas with shared characteristics such as texture, space, form, detail, symbol, building type, use, activity, inhabitants, maintenance level, and topography. District names contribute to their identity, and a district may be characterized by homogeneity. This homogeneity can be attributed to spatial features such as narrow sloping streets, building types like row houses, architectural style, topography, color continuity, texture, material, floor surface, scale, facade details, lighting, planting, and silhouette. The more characteristics overlap, the stronger the impression of a unified region. The district may be structured within itself as well. Internally, a district may have sub-districts differentiated while conforming to the whole, as well as nodes that radiate structure and internal paths. A well-structured region tends to create a more vivid image. Additionally, the definiteness and closure of a district's boundary enhance its identity (Lynch, 1960).

Another point is that when distinctively differentiated, a district can establish connections with other city features. The boundary should be permeable, acting as a junction rather than a barrier. Districts can join one another by juxtaposition, intervisibility, relation to a line, or through links like mediating nodes, paths, or small districts. These links enhance each district's character, bringing together significant urban areas. It is possible to have a region characterized by homogeneous spatial quality that forms a structured continuum of spatial form. This spatial region differs from a spatial node because it cannot be perceived quickly and experienced as sequences of spatial changes (Lynch, 1960).

2.3.1.4 Nodes

Nodes serve as strategic focal points within the urban environment, typically located at the junctions of paths or areas where specific characteristics are concentrated. It is possible to arrange a series of nodes to form a related structure either by being closely positioned or made visible to each other. They may also be related to paths or edges, connected by a short linking element, or share similar characteristics. In the larger context of a city, these seemingly small points can encompass large squares, extended linear shapes, or even entire central districts. The city itself can be considered a node at a national or international level (Lynch, 1960).

Nodes act as natural pauses in transportation, encouraging people to observe their surroundings with heightened clarity. Therefore, nodes should be visible, serving as conceptual anchor points of cities with distinctive and continuous qualities, whether through the texture of walls, the arrangement of floors, detailed elements, lighting, vegetation, topography, or the skyline. Nodes should be foci of attention. Also, they should have a coherent spatial form that includes features such as transparency, overlapping elements, light modulation, perspective, surface gradients, and articulation. The patterns of motion and sound within these spaces further enhance their expressiveness, making them vital elements for the identity and legibility of the urban environment (Lynch, 1960).

2.3.1.5 Landmarks

Landmarks serve as essential reference points for observers by standing out uniquely in their environment, distinguished by their singularity and memorable characteristics. They are more identifiable and likely to be considered significant when they have a clear form, contrast with their background, and are prominently situated. The primary component of their distinctiveness is the contrast with the surrounding elements. Additionally, the background against which a landmark stands out does not necessarily have to be limited to its immediate surroundings. The spatial prominence of landmarks naturally captures the attention of observers, making it crucial for these elements to be identifiable both day and night (Lynch, 1960).

On the other hand, while building surfaces create space, focal elements, due to their high visibility, not only organize spaces but also give meaning to them. Focal elements in public spaces have a particular power as they typically incorporate symbolic associations. Whether associated with events, values, or ideas, the selection and placement of focal elements invariably have significant impacts that play a crucial role in city-making. As such, landmarks can be designed to form a continuous sequence, guiding movement and enhancing the coherence of the urban environment (Lynch, 1960; Curran, 1983).

2.3.2 Coherence and Order

The visible form in the domain of urbanscape centers on the visual manifestation of three-dimensional forms and their relationship within outdoor spaces. This is conveyed through structural organization, such as balance, tension, rhythm, proportion, and scale, as well as ordering principles like axis, symmetry, hierarchy, datum, and transformation. These elements collectively determine how forms are perceived and interact within the environment, shaping spatial composition (Nijhuis, 2011). In the context of the urban environment, the visible form plays a crucial role

in how inhabitants experience and understand space. The visual manifestation of urban forms, such as buildings, streets, and open spaces, creates a structured and ordered landscape that contributes to the coherence and legibility of the city. For instance, a city's skyline, defined by its topographical layout and built elements, serves as a visual manifestation of its structural organization. The skyline's balance, rhythm, and proportion create a sense of harmony and unity while ordering principles like symmetry and hierarchy establish a clear visual structure within the urban landscape.

The paradigm of "plastic" experience, as introduced by Kepes, underscores the potency of visual elements being formed and manipulated to create a coherent and expressive composition, which is integral to this understanding. The plastic image has spatial unity, and it is an enclosed system that reaches its dynamic unity by various levels of integration: balance, rhythm, and harmony (Kepes, 1951). This paradigm can be evaluated for an urban context as this plasticity allows for a dynamic unity that emerges through varying levels of integration—balance, rhythm, and harmony—across the public realm. According to Montgomery, with its varying sizes, proportions, and levels, the urban space system embodies a 'space syntax' that ranges from formal to informal, from public spaces to intimate outdoor rooms. These varying scales and proportions are crucial in structuring the spatial narrative and giving context to its significance (Montgomery, 1998). As such, it is an important determinant of spatial and visual structure.

Furthermore, Norberg-Schulz's perspective on the urban image emphasizes the importance of identifiable places with a figural character in relation to the landscape. The identity of a settlement is relative to its surroundings and depends on certain densities which correspond to human scale. Similarly, Lynch's definition of place as a visibly organized and sharply identified environment underscores the importance of legibility in creating a sensible and coherent urban structure. For a city to be legible, it must be perceived and understood by its inhabitants, which directly relates to the clarity and order of its spatial organization (Norberg-Schulz, 1979; Montgomery, 1998; Lynch, 1960). To enhance coherence and order within the urban

environment, one might develop districts with strong visual identities, create visible boundaries, establish active centers of unique character, and build prominent landmarks at strategic points. Additionally, the exploitation and intensification of natural features and the conservation and enhancement of existing urban character further contribute to a coherent and orderly urban form (Lynch, 1981).

2.3.3 Sense of Whole

Kepes (1951) defines a field of attention as the organization of optical forces into a unified whole set against a background that is ready to perceive. Within this field, the visual appearance of objects is contingent upon their placement and function within the overall structure. The juxtaposition of multiple objects introduces complex relational dynamics, as several elements are perceived within a unitary pattern (Arnheim, 1969). Initially, objects are perceived as discrete entities, but a more profound understanding reveals their interrelationships. This transition from visual to spatial understanding marks a shift from mere observation of shapes to the experience of space as a three-dimensional construct (Madanipour, 1996). This transition is crucial in creating a cohesive urban design that transcends mere visual "appeal" to promote a more profound, experiential connection with space. Visual structure alone does not fully apprehend the urban space experience; the integration of visual and spatial structures enhances the urban environment, creating a more meaningful and coherent experience for its inhabitants.

In the context of urban environments, achieving a "Sense of Whole" requires integrating disparate elements into a cohesive system. According to Norberg-Schulz (1979), built environments exist within a hierarchical structure, where each settlement is externally related to its broader natural or cultural landscape. The observer perceives this complex structure as a cohesive whole, where each part is interrelated and relatively fixed within the larger context (Lynch, 1960). Integrating parts into a cohesive whole is a critical design concern, as it is essential for creating a dense and vivid image sustained across the city scale. The pedestrian network, as

described by Cullen (1961), exemplifies this principle by linking different parts of the town into a viable and continuous pattern. Cullen states:

“The pedestrian network links the town together in a viable pattern: it links place to place by steps, bridges and distinctive floor pattern, or by any means possible so long as continuity and access are maintained. The traffic routes sweep along impersonally but the tenacious and light-hearted pedestrian network creates the human town. Sometimes brash and extrovert, it may synchronize with the great traffic routes or with shops and offices, at other times it may be withdrawn and leafy; but it must be a connected whole (Cullen, 1961, p.54).”

The urban environment is inherently complex, composed of diverse architectural forms, textures, materials, and modulations of light and shade, all of which contribute to articulating space. According to Bacon, the quality of urban architecture is thus determined by the designer's skill in integrating these elements, both within interior spaces and in the surrounding urban context (Bacon, 1967). Different observers may recognize distinct details within the city, contributing to a richness of choice that makes urban spaces identifiable. However, the rapid pace of change within cities often disrupts and disorganizes these perceptual images (Lynch, 1960). In order to have a comprehensive image, it is important to maintain continuity, which can persist in notable changes. This continuity allows the city to be perceived and managed as a complete organism rather than a fragmented collection of parts. As Bacon (1967) posits, the ultimate test of urban design is whether we can transcend a fragmented approach and begin to perceive and design the city as a unified whole. Higuchi interprets the designing subject as understanding the spatial and visual characteristics of the elements, which is a prerequisite for environments that are coherent in character and function as a cohesive whole (Higuchi, 1989). This holistic approach ensures that urban spaces are not only integral to the spatial and visual structure but also functionally and experientially meaningful, reinforcing the overall sense of unity within the urban environment.

2.4 Mapping Methods of Determinants

Considering the complexity of contemporary cities, sensing the city as a whole may not be possible. However, it is possible that the parts of cities that give an idea of the visual and spatial characteristics of the urban environment can be analyzed through mapping. According to (Corner, 2011), mapping is a process that allows for the visibility of phenomena through representation rather than direct experience. It also fosters new relationships among disparate parts, creating a relational structure that is constructed through the act of mapping. Corner defines mapping as a creative practice that generates its most significant impact by discovering and establishing new insights. Its agency is not in reproduction or imposition but in revealing unseen or unimagined realities, even within seemingly familiar contexts. As such, mapping unveils potential and continually reshapes territory, yielding fresh and diverse outcomes each time (Corner, 2011).

Tawa (1998) argues that mapping offers a field of inquiry and is a way of weaving and knitting. It constructs and interprets place by connecting its various layers across different scales and registers. Mapping involves the practices of observation and documentation, capturing the intricate web of relationships and connections within a site. The goal is to delineate a network of possibilities and appropriateness with strategic and tactical implications for design. These unveil potential and viability arising from the specific circumstances of the present moment. Mapping operates in two phases: it documents a place's current state and identifies patterns that indicate potential future developments. This process stimulates and guides design decisions. The different dimensions of a place are not viewed in isolation but in their interconnectedness, with each element mirroring and suggesting the existence of others, often revealing hidden relationships (Tawa, 1998).

In conclusion, mapping emerges as an essential tool for understanding and interpreting the complexity of contemporary urban environments. As both Corner (2011) and Tawa (1998) suggest, it is not merely a passive act of reproduction; it is an active, creative process that uncovers new realities, constructs meaningful

relationships, and offers possibilities for future developments. Through its ability to connect various layers and dimensions of a place, mapping fosters a deeper understanding of urban spaces, guiding design decisions by revealing the intricate web of relationships that define a city's character.

Furthermore, horizontal and vertical layers of information should emerge to analyze an urban space's spatial and visual structure. This is because spatial and visual structure is directly related to the third dimensionality of urban elements. Whereas the horizontal layers provide insights into spatial arrangement within the urban landscape, including road layouts, public spaces, and land use, the vertical layers give insights into characteristics of the built environment, including elevation, density, and skyline characteristics. The combination of these layers enables a more integrated understanding of the urban fabric in terms of the connection between spatial dynamics and visual interpretations. Such an analysis, besides the detailed relationships between different parts, also draws attention to persistence and discontinuity in the urban experience. Applying this multi-dimensional approach is crucial for identifying the legibility, coherence, and overall imageability of urban settings as identified by theorists such as Lynch (1960) and Norberg-Schulz (1980).

CHAPTER 3

CHANGING SPATIAL-VISUAL STRUCTURE OF ANKARA

The spatial history of Ankara dates to earlier ages because of its geographical location and the calyx structure, which is composed of crossroad geomorphology substantiated through the valley and basin floors and the eruptive hilltop formation at the center (Yavuz, 2018). Even though the center seems to be Hacıbayram Hill in the Phrygian period (Alanyalı Aral, 1994& 2017), starting from the Galatian period, the citadel is laid on the eruptive hilltop on the core of the calyx to ensure control over the basin. Thus, the citadel has been the locus of urbanity for city formation throughout time until the 20th century (Yavuz, 2018). Although the archeological evidence near Ankara and its city center shows that the city's history dates back to the Paleolithic Ages, there needs to be more specific information about the city's formation at that time. However, the ruins, Roman period sources, and tumuli show Ankara was a Phrygian city. It was followed by periods under Galatian, Lydian, Persian, Roman, Byzantine, Seljuk, Ottoman, and Turkish settlements (Buluç, 1994). The 20th century became a turning point for the city because the Independence War was ruled from Ankara, and after that, it became the capital city of the Republic of Turkey. This new regime was concluded with new buildings and urban plans of Ankara.

3.1 Natural Landscape

To understand Ankara's spatial and visual structure, it is crucial first to consider its natural landscape. As mentioned before, Ankara has a calyx form surrounded by ridges, and the settlement of the city was started in the eastern part of the Engürü Plain (Figure 3.1.). The plain is bordered by Karyağdı mountain (1200–1500 m) in the north; in the south, the Meşe and Hacı mountains; in the south-east, Elmadağ (1800 m); in the east, the Hüseyin Gazi (1415 m) mountain; and in the farther north-east, İdris (1992 m) mountain rises. The lower elevations of the topography form the water routes which are Ankara, Hatip, İncesu, and Çubuk streams. As such, the natural formation of the city includes plains, hilltops, mountain skirts, and valleys and it is significant to analyze these topographical elements in detail concerning its visual and spatial characteristics (Alanyalı, 1994)

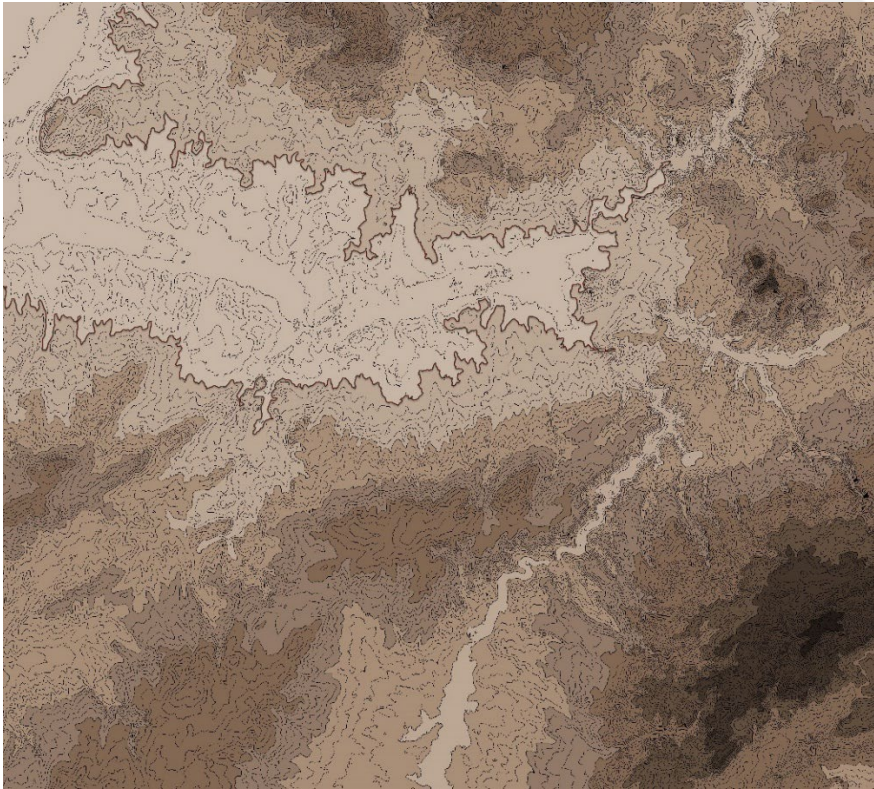


Figure 3. 1. Topographical structure of Ankara (map is derived from TED University, Department of City and Regional Planning Archive, colored by the author)

3.1.1 Hilltops

High places like hills and mountains offer good views naturally because of looking down on the surroundings. Looking downward provides a large range of vision, and the view is panoramic. Because the elevation of distance is high, the relationships linking the physical elements of the landscape (mountains, rivers, plains, lakes, or the ocean) are visible. Since hills and mountains have a significant bulk, they can serve as landmarks or offer an impressive background to urban space. Additionally, they can act as physical and visual boundaries. This also proves that they are decisive for the spatial structure of the urban environment.

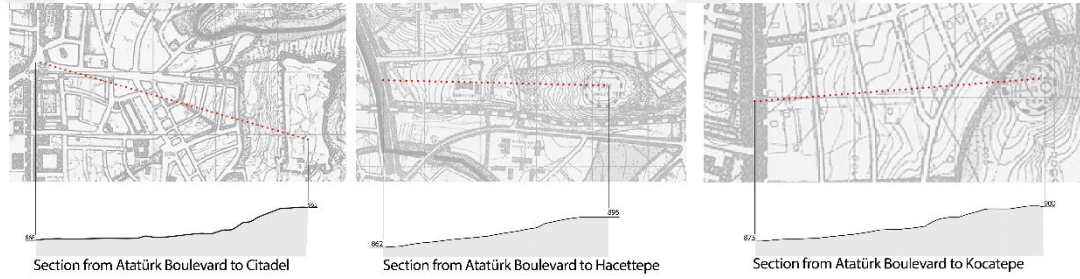


Figure 3. 2. Partial topographical sections from Atatürk Boulevard to hills. The base map is Jansen's 1932 plan (derived from the Architectural Museum of Berlin Technical University)

Ankara has various hills with different sizes and altitudes. Throughout history, three main hills have been prominent; the hill with the citadel on it, Hıdırlık, and Hatip hills. These notable hilltops are highly visible from the Engürü Plain and have become natural landmarks, offering ideal panoramic viewpoints towards the city. There are also smaller hills like Hacıbayram, Kocatepe, Anıttepe, and Hacettepe. Even though they are not as visible as other hills, they also offer vistas and panoramas towards urban spaces (Alanyalı, 1994). Such hills can be used as viewing terraces or the structures on top of them will be prominent landmarks in the urban space. Kocatepe Mosque, Anıtkabir, Hacıbayram Mosque, and Augustus Temple are examples of this condition.

3.1.2 Plains

The city settled through Engürü Plain which extends towards the west to Mürted Plain. Due to its bowl-like formation, the plain's eastern, northern, and southern edges are defined by mountains or hills. Hüseyin Gazi mountain acts as a boundary and defines the limits of the eastern part of the plain. The rising Etlik Hills, extensions of the Karyağdı Mountains in an east-west orientation enclose the area to the north. In the south, the slopes of Meşe and Hacı mountains limit the plain directing it to the northwest where it meets the Mürted plain (Alanyalı, 1994).

Due to the topographical features of the Engürü Plain, its flat expanse can be viewed widely and reaches approximately 780 meters above sea level in its western part and rises to about 850 meters in the east. When one looks from the plain towards to citadel, the view is dominated by prominent hills. Although higher landforms capture attention and act as significant natural landmarks within the landscape, they also create natural visual boundaries that define and limit the field of view from the plain. The openness of the plain and the enclosure of the surrounding topography shape the spatial experience and definition of the city's visual character. These natural boundaries establish a distinctive urban landscape, where both the elevated and lower areas contribute to Ankara's spatial and visual structure.

3.1.3 Valleys

Valleys in Ankara are formed by rivers, including the Çubuk River, which flows northeastward, the Hatip River, which flows eastward, and the İncesu River, which flows southeastward. These valleys, as winding hilly land, show similarities in their form. They are relatively deep and give a narrow view because the surrounding hills form visual barriers along the valley's depth. As a result of this meandering course of each of the streams, the view changes; hence, the view becomes dynamic but a narrow and enclosed vista (Alanyalı, 1994). While the view is limited in valleys, they also channel the view into one point. They may direct the sight line to specific focal

points, with an emphasis on well-chosen viewpoints within the valley scenery. This intentional focus shapes the spatial experience, where each winding path creates successive frames that draw attention to distinct landmarks or natural features along the way. In this way, the valleys not only contain but also emphasize certain visual elements, fostering a layered and directed experience within the enclosed scenery. As such, these viewpoints become important in the visual composition of the landscape, framing viewers' gaze in a way that emphasizes both continuity and variation of the valley's spatial structure.

3.2 First Settlements

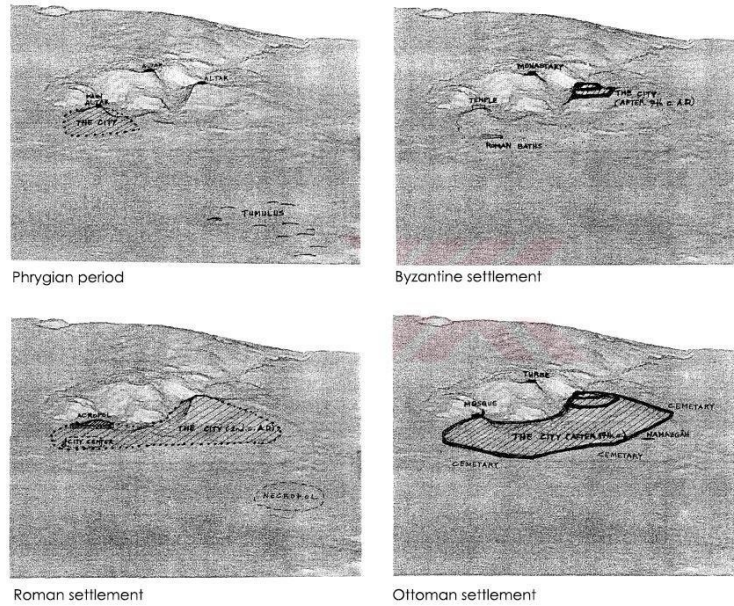


Figure 3. 3. City formation through history around the eruptive hill and Engürü plain from the digital model viewed from the west (source: Alanyalı, 1994)

3.2.1 Phrygian Period

The Phrygians settled in the northern and western Black Sea regions around 1200 BC before migrating to Central Anatolia, where they established several cities, including Gordion, Ankara, Yozgat, and Kerkenes. As a Phrygian city, Ankara is

notable for its about thirty known tumuli until now but being found to be over 70 with current studies⁵. However, the period following the fall of the Phrygian state until Alexander the Great's expedition to Asia remains obscure due to the lack of documents. Although there are no Phrygian-period artifacts in the castle area, it is believed that the Phrygian settlement in Ankara was concentrated around the Hacı Bayram Mosque hill and its environment, including the Çankırıkapı mound. Findings from the Phrygian settlement layers in the Çankırıkapı mound date back to 1100-700 BC, revealing that some Phrygian houses in this area were continuously inhabited until the Roman era (Alanyalı Aral, 2017).

Several of the tumuli from this period remain today and become part of the geomorphological structure. Their perception of the main routes and the visual relationship between each other are decisive for their location. Strong visual connections exist between the elements that form the city and the topographic elements in the Phrygian settlement structure. Ankara's tumuli were placed and elevated to establish relationships with topographic and artificial elements, such as Hacı Bayram Hill, the Phrygian City, and other tumuli. According to excavations in 1938 and 1939, the Phrygian Men Temple ruins were found under the Augustus Temple (Alanyalı Aral, 2017). Tumuli locations also focused on main routes approaching the city to affect the image of the city dwellers and visitors. Ankara's topography takes on a calyx form opening towards the west, situated in the eastern part of the Engürü Plain and surrounded by hilly formations to the north, east, and south. The tumuli around the Phrygian city on Hacı Bayram Hill and its foothills, located at the center of this form, are visible from the city center (Alanyalı Aral et al., 2023). Therefore, the visual structuring of the tumuli and their relationship with main routes and waterways was decisive for the Phrygian period's urban spatial

⁵ For detailed information see: Alanyalı Aral, E., Söğüt, G. D. G., Kocaili, B. E., & Tatar, C. Ö. (2023). Reading Elements of the Cultural Landscape Through an Urban Experience Route: The West Ankara Tumuli Trail. *Journal of Ankara Studies*, 11(1), 55–75. <https://doi.org/10.5505/jas.2023.28199>

formation. Even today, because of their heights, the tumuli offer vistas towards urban spaces.

3.2.2 Roman and Byzantine Periods

Galatians came to Anatolia in the 3rd BC, and Ankara underwent their rule. After the Galatians, the Roman period started in the city. Sevim Buluç (1994) defines this period as the most famous time in the city because it was the capital of the Galatian State organization of the Roman Empire (Buluç, 1994; Kadioğlu&Görkay, 2007). The Roman Acropolis of the city was located on Hacıbayram Hill, and the city surrounds this hill, where the Augustus Temple is located (Akurgal, 1994). Roman Ancyra expanded primarily towards the basin, creating tension between the Acropolis and the lower basin in its urban formation. The city's layout reflects a northwestern axial orientation, with civic structures aligned along this axis (Figure 3.4.). Archaeological evidence indicates that the urban center was around the Acropolis, where the Temple of Augustus was situated. The Roman Bath, located at the northwestern terminus of this axis, marked the settlement's boundary, with the area to the north consisting of marshland. (Yavuz, 2018). Furthermore, defensive walls were built to safeguard the city, encompassing the Temple of Augustus, the marketplace, the hippodrome, the gymnasium, and the baths, all of which were constructed during this period (Mamboury, 1934). Augustus Temple, Roman bath, theatre, and Julien Column remain today as historical elements of the city layers. Roman Dam (Roma Bendi) was also a significant part of city life until the 1950s (Kadioğlu&Görkay, 2007).

Following the Roman period, the Byzantine period began in the city, and throughout the period, the city settled inside double castle walls. New buildings were constructed, such as churches and monasteries, and most of the structures did not remain. According to Eyice, there were fewer buildings outside the wall, and the materials of historical buildings were used for the new ones (Eyice, 1996). One of the significant developments of the period was the transformation of the Augustus

Temple into a church. By the late 15th century, the Turkish people preserved the temple as it was and constructed the Hacıbayram Mosque next to it. As a result, Hacıbayram Hill has been home to various religious structures starting with the Men Temple in the Phrygian Period. (Akurgal, 1994; Alanyalı Aral, 2017). This layered condition of the hill has a significant value in the urban landscape and is one of the city's significant landmarks.

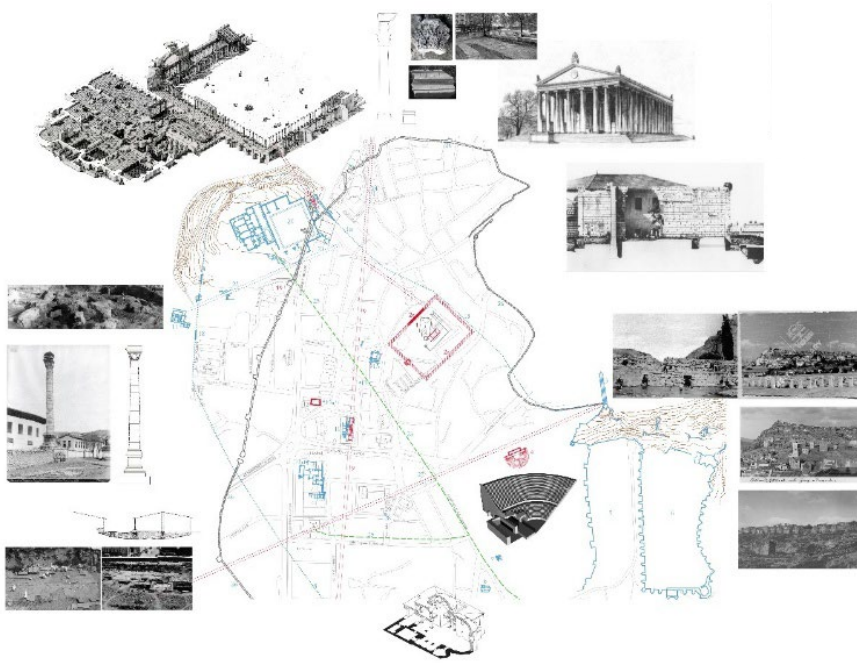


Figure 3. 4. Roman period map (adopted by the author from Kadioğlu&Görkay, 2007 in the scope of Mapping as Design course by Alanyalı Aral in 2022, basemap is retrieved from Kadioğlu, M., & Görkay, K. (2007). *Yeni arkeolojik araştırmalar ışığında MHTPOΠOΛΙΣ ΤΗΣ ΓΑΛΑΤΙΑΣ: Ankyra* [New archaeological research on the Metropolis of Galatia: Ankyra]. Images are retrieved from Kadioğlu&Görkay, 2007, VEKAM archive, and Mahmut Akok's drawing from 1940)



Figure 3. 5. The legend of the map

3.2.3 Seljukian and Ottoman Periods

Two years after the Malazgirt War, the city underwent the sovereignty of Seljukians. Despite periodic invasions by the Byzantines, the Seljuks conquered the city in 1127. Some of the period structures remained, like Arslanhane Mosque, Akköprü, and Kızılbaş Mosque (Öney, 1994). Even though Ankara was a border city at that time, Sultan Alaaddin restored the citadel at the beginning of the 13th century. The city's spatial layout remained similar to the Byzantine Period during this time. Nonetheless, this period changed the socio-cultural structure of the city in terms of raising the Turkish population and Islamization. After the Seljukian period, Ankara was governed by the Ahi community, when trade activities experienced significant growth. The Ottomans conquered the city in the latter half of the 14th century. Over the 14th and 15th centuries, many mosques and masjids were built on the castle's outskirts and in the surrounding plain, with 25 of these religious structures becoming focal points for the formation of neighborhoods (Aktüre, 1984).

During the Ottoman period, Ankara integrated into the Silk Road, further raising its trade activities in the latter half of the 15th and 16th centuries, and a new commercial center began to emerge outside the castle. This center was anchored by a bedesten, surrounded by hans and bazaars. The city's working areas were divided into two regions based on topography: Yukarı Yüz (Upper Face), the upper part adjacent to

the castle near what is now Anafartalar Avenue, and Aşağı Yüz (Lower Face), the lower part extending from Hacı Bayram Mosque to Karacabey Külliye (Tekeli, 2011). Uzun Çarşı was acting as a connector of the two focal points of the urban space. At least 15 hans were active at the end of the 16th century, and most of them were located at Yukarı Yüz, around At Pazarı (Aktüre, 1994). Therefore, the emergence of a commercial center anchored by the bedesten and connected by Uzun Çarşı highlights the strategic importance of Ankara's trade infrastructure during this period. Derschwam sketched Ankara's physical appearance in 1555 (Figure 3.6.). According to Derschwam's map, Ankara in the 16th century was a large, unwalled city situated on the plain surrounding the hill where the castle stood (Aktüre, 1984).

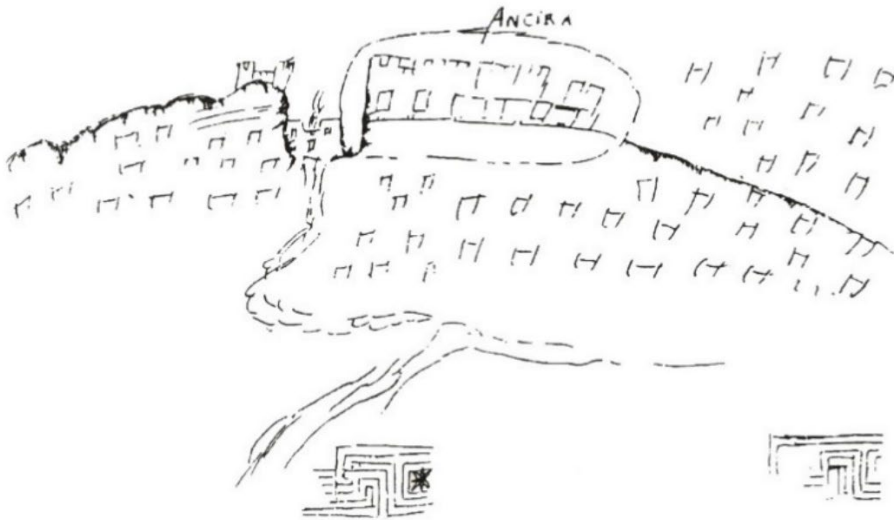


Figure 3. 6. Dersnschwam's sketch of Ankara from the west of the city in 1555 (derived from Seyyahların Gözüyle Ankara, 2017, p. 37)

The 17th century marked a significant period for Anatolian cities, particularly Ankara, due to the Celali Rebellions (Aktüre, 1994). In 1607, a third city wall made of stone and adobe was constructed to defend the city against the rebellion. This wall enclosed the inner castle, Hıdırlık Hill, Tabakhane Neighborhood, and various gates, including Çankırı, Istanbul, Izmir, Namazgah, Erzurum, and Kayseri Gates

(Tekeli, 2011). Until the late 19th century, the wall served as a main morphological element defining the settlement area's borders. It acted as a boundary between the city and the rural area around it while physically separating the city's relationship with its environment. This can be seen in the Pitton de Tournefort's gravure (Figure 3.7.) and von Vicke's 1839 map (Aktüre, 1994). The engraving was drawn by Claude Abreit while traveling with Tournefort in 1702 to Ankara (Akder, 2020). According to depictions of Kadioğlu and Görkay (2007), the engraving, as shown in Figure 16, may represent a mirrored image.

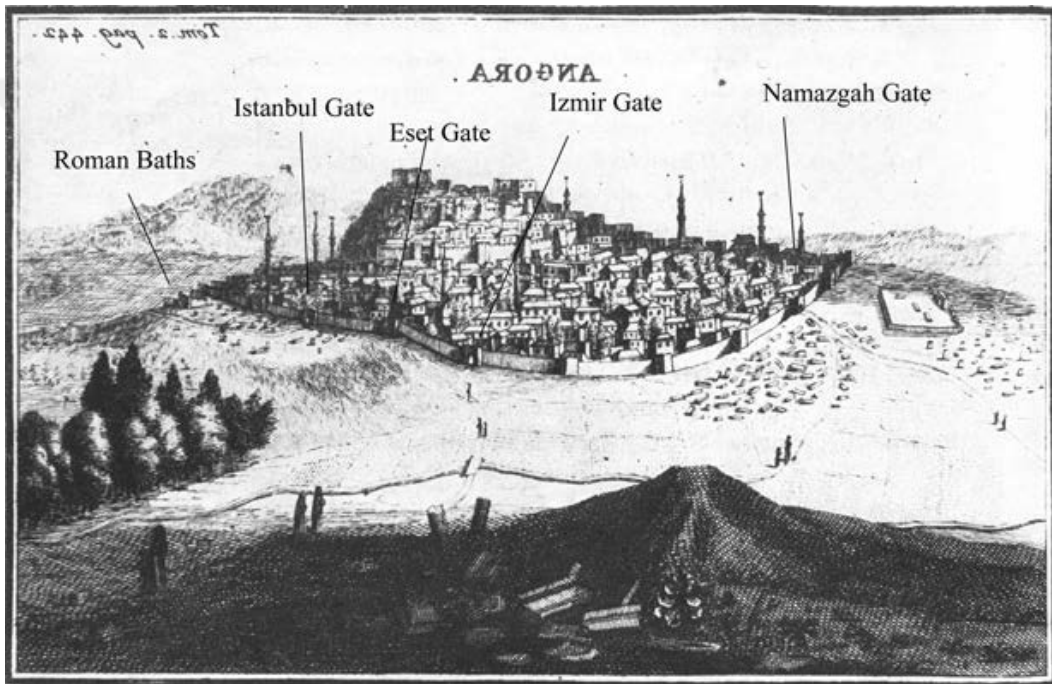


Figure 3. 7. Ankara engraving, beginnings of 18th century (derived from Kadioğlu&Görkay, 2007)

In contrast to the open city depiction in Dersnschwam's sketch, Tournefort's engraving reveals a more isolated image because of the third wall. The engraving provides detailed descriptions of the city's castle walls and minarets. According to Şahin Tekinalp and Karaaslan, the composition includes the castle gates and the roads leading from these gates in various directions, notably the Namazgah Gate, the Erzurum Gate, and the Çankırı Gate. The composition also depicts Namazgah Hill on the left and Hıdırlık Hill on the right. Additionally, it draws attention to the

agricultural areas beyond the walls and ancient ruins in the foreground (Şahin Tekinalp & Karaaslan, 2023).



Figure 3. 8. View of Ankara, anonymous, 1700–1799 (derived from <https://www.rijksmuseum.nl/en/collection/SK-A-2055>)

Furthermore, the Rijksmuseum Amsterdam houses an anonymous 18th-century painting of Ankara (Figure 3.8.), which provides a valuable glimpse into the city's social life, architecture, urban planning, and commercial activity. It is about the mohair trade, which made Ankara and its surroundings a wealthy region almost on its own between the 16th and 18th centuries. Aubriet's drawing and the city view of the Rijksmuseum Ankara View are similar to each other because they use the same language: the city wall that defines the city's borders, the gates used for entering and exiting the city, the roads leading to the city, and the essential architectural structures within the city are emphasized. Both Ankara views are like the symmetry of each other, drawn according to an axis drawn on Hıdırlık Hill. While Hıdırlık Hill was created with hatchings in the upper right part of the drawing, it is created with hatchings in the upper left part of the painting, next to the city walls behind the city, in the Rijksmuseum Ankara View (Akder, 2018). Therefore, Dersnschwam's sketch, Aubriet's engraving, and anonymous painting result from different persons' perceptions of Ankara. Although the time of Dersnschwam's sketch is from 16th

century, the three drawings clearly show that the citadel is a focus of urbanity in the city image.

In the 18th century, industrialization had a detrimental impact on the Anatolian cities. Ankara's economic strength began to decline in the first half of the 19th century, mainly due to the loss of its dominant position in global mohair production. By the 1880s, Ottoman modernization efforts began to influence Ankara. Starting from the mid-19th century, new zoning laws were implemented, gradually replacing the pre-industrial urban layout characterized by cul-de-sacs with more organized structures. This transformation was not the outcome of comprehensive zoning initiatives but rather the result of post-fire reconstructions and the addition of new neighborhoods (Tekeli, 2011). In the mid-19th century, the old walls of the outer city were still intact, and the city did not offer the opportunity for urban development because of marshland in the western terrain of the city. However, with the growing need to extend the railroad deeper into the Anatolian peninsula, Ankara became the first center for this expansion in 1892 (Günay, 2012). The arrival of the railway significantly influenced the city's modernization. This development revitalized the city's economy and strengthened its connections with Istanbul and the wider world. The opening of an Ankara branch of the Ottoman Bank in 1893 further supported these relations. By 1902, the city's population had grown to 32,000, with the railway becoming a new focal point for urban development. The central business district expanded towards Karaoğlan Bazaar and Taşhan. However, the First World War had a devastating impact on Ankara, as it did on many cities across the Ottoman Empire. The destruction was compounded by the 1917 fire, which caused further damage to the city's infrastructure and economy (Tekeli, 2011).

The Von Vincke Map (Figure 18) provides a broad overview of the settlement and geomorphological structure of 19th-century Ankara. However, it has no detailed information about the city's urban spatial structure. Previous engravings depicted the distinct landform of the Inner Calyx, characterized by rugged terrain and water bodies, as an image of the city. In 1839, Prussian officer Baron von Vincke created a cartographic representation of these landforms. Vincke's approach emphasizes the

relationship between geomorphological structures and settlement patterns (Yavuz, 2018). The map highlights significant public buildings and city gates, following typical cartographic conventions. It does not depict the narrow inner streets, resulting in the representation of unified, larger quarters defined by significant avenues and streets rather than individual building blocks (Mihçioğlu Bilgi, 2010).



Figure 3. 9. Von Vincke Map, 1839 (derived from Mamboury, E. (1934). *Ankara: Gezi Rehberi: Haydarpaşa-Ankara; Boğazköy, höyük, Sivrihisar ve çevresi, Çankırı, Yozgat, vs.* (Translated 2014). Ankara Üniversitesi Ankara Çalışmaları Araştırma ve Uygulama Merkezi, p. 75)

Moreover, 19th-century engraving of Ankara is featured in the travel book "Russie, Tome Deuxieme De La Russie D'europe, La Crimée, Les Provinces Russes En Asie Circassie Et Georgie," published in 1862 and co-authored by Chopin, C. Famin, and E. Bore, and there is a depiction of a gravure belonging to the 19th-century Ankara panorama. The engraving, drawn by Preaux and Ales, provides a broad view from the city rather than a bird's eye view. The image shows structures in the distance, with minarets being the most prominent architectural elements. Notably, according to Şahin Tekinalp and Karaaslan, the depiction seems to coincide with the locations of the Augustus Temple and the Hacı Bayram Mosque, suggesting that these

structures are represented in the engraving. Şahin Tekinalp and Karaaslan suggested that if the structures in question are Hacıbayram Mosque and Temple of Augustus, then the minaret structure right next to the Hacı Bayram Mosque is also likely to be the Zincirli Mosque. One of the essential elements in the engraving is that the artist presents sections from daily life, which is revealed by the depiction of people and animals standing among cemeteries in the foreground of the painting (Şahin Tekinalp & Karaaslan, 2023). Similar to earlier engravings, the citadel, hills, and minarets are prominent in this 19th-century gravure, indicating the enduring preservation of the city's image over time. The view of Ankara from the west is frequent in drawings, engravings, and photographs. However, there is a drawing (Figure 3.11.) by an anonymous who is a British prisoner of war from the east in 1918. The viewpoint can be from Ulucanlar Hill. This view, although taken from the opposite direction, complements earlier engravings by furthering the understanding of the city's layout and major buildings. It confirms the persistence of the citadel, hills, and minarets as dominant features of Ankara's cityscape.

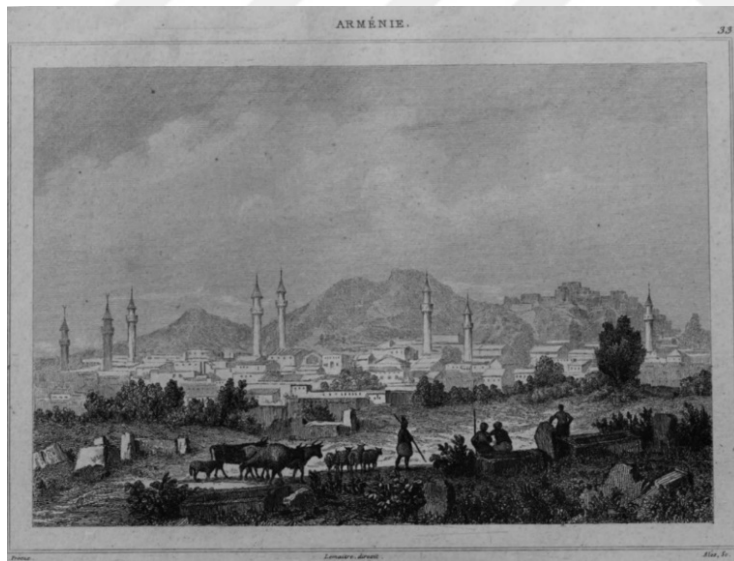
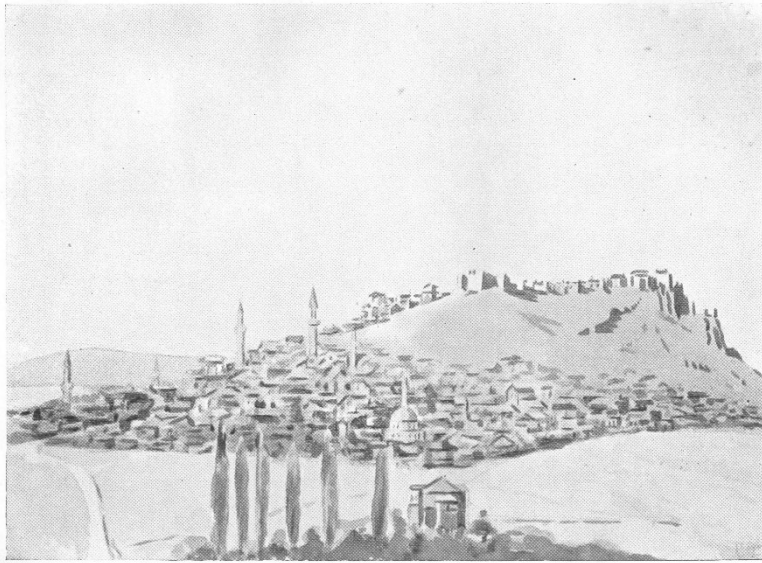


Figure 3. 10. 19th-century gravure of Ankara, drawn by Preaux and engraved by Ales, Chopin, C. Famin, E. Bore, Russie, Tome Deuxieme De La Russie D'euope, La Crimée, Les Provinces Russes En Asie Circassie Et Georgie, Armenie, Paris 1842. (derived from <https://www.digitale-sammlungen.de/en/view/bsb11122120?page=676>, as cited in Şahin Tekinalp and Karaaslan, 2023)



ANGORA: VIEW FROM THE BARRACKS.

To face p. 48.

Figure 3. 11. View of Ankara, anonymous, drawn by a British prisoner of war from his barracks (derived from https://scholarworks.wmich.edu/wwi_pow_camps/1246/)

Another point is that with the introduction of the railway, newcomers first encountered the city at the train station. Hence, the train station became the initial point from which the city's image was perceived and experienced as a whole. Numerous photographs (see Figure 3.17. and 3.20.) were captured from this vantage point, serving as valuable tools for understanding the city's evolution over time. This underscores the significance of approaching points within the city's visual representation and image. As Çalışkan (2010, p.100) suggested, for the first time, an attraction point had been constructed outside the area of the city walls.



Figure 3. 12. View from Train Station to the city, the 1900s (derived from Günel et.al, 2007)

There is a panorama (Figure 3.13.) from the point that the first assembly building is located towards the city from 1880 in the archive of editor J. Ludwingsohn compiled by Cangır 2007 in the Cumhuriyetin Başkenti album. The panorama captures the

cemetery in the foreground while notable landmarks appear in the distance. In the photograph to the left, the two-story building that served as the first post office is visible, with the two-story structure featuring a hooded roof adjacent to it on the right, marking the site of the present-day Hükümet Square. Further along, the Redif Barracks, Julien's Column, and the minaret of the Hacı Bayram Mosque are discernible. In the second photograph of the panorama, Taşhan and the minaret of Zincirli Mosque are seen in the background. The settlement along the slopes of the Hisar before the 1917 fire is also visible, offering a glimpse of Ankara's urban fabric before the destruction.

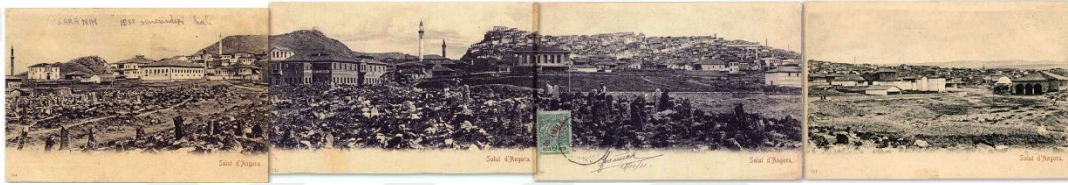


Figure 3. 13. View from the cemetery to the city, 1880 (derived from Cangır, 2011)

In conclusion, Ankara's historical panoramas, engravings, and cartographic representations provide insights into the city's urban and architectural evolution. These visual depictions illustrate Ankara's urban landscape continuity and transformation. The prominence of the citadel consistently served as a dominant element of the city image. The construction of the railway in the 19th century can be considered a significant turning point for the vitalization of the urban environment due to its role as a part of the global trade network. It also became a point that offers newcomers a first impression of the city as a whole. After becoming the capital of the Turkish Republic, the city's fate started to change rapidly. It was another breaking point in Ankara's spatial and visual history. To read the transformation of urban space, the archival photographs taken from key vantage points highlight both the continuity and changes in the city's structure, offering an essential lens through which to study its historical and spatial development. These sources contribute to a deeper understanding of Ankara's complex urban narrative.

3.3 Republican Period

The 20th century became a turning point for Ankara because the Independence War was ruled from the city, and after that, it became the capital city of the Republic of Turkey. This transition led to the development of new infrastructure and the formulation of Ankara's first urban plan, known as the Lörcher Plan. Prior to this, the earliest map of Ankara was drawn in 1839 by Baron von Vincke for military purposes during the Ottoman period. In 1924, Ankara Municipality commissioned a map on a 1/4000 scale to facilitate the development of avenues, streets, and new routes, laying the groundwork for future urban planning efforts. The 1924 map (Figure 3.14.) had planning decisions about the road network, including the part from Taşhan to Train Station. However, the map was not sufficient to create potential construction areas. According to Ali Cengizkan, perhaps for the first time in Anatolian and Turkish planning history, the city was planned and thought of as a whole, with its future formation, urban scenarios, and establishments (Cengizkan, 2003). Following the Lörcher plan, Hermann Jansen proposed a new plan for Ankara in 1928 and concluded the final master plan of Ankara by the year 1932 (Yavuz, 2018). Within the framework of these two plans, the urban layout started to change and develop over time. However, the city's population experienced rapid growth, deviating from Jansen's projected estimates. Although Jansen anticipated a population of 300,000 by 1978, the population had already reached 455,000 in 1957, necessitating the design of a new plan (Sargin, 2012).

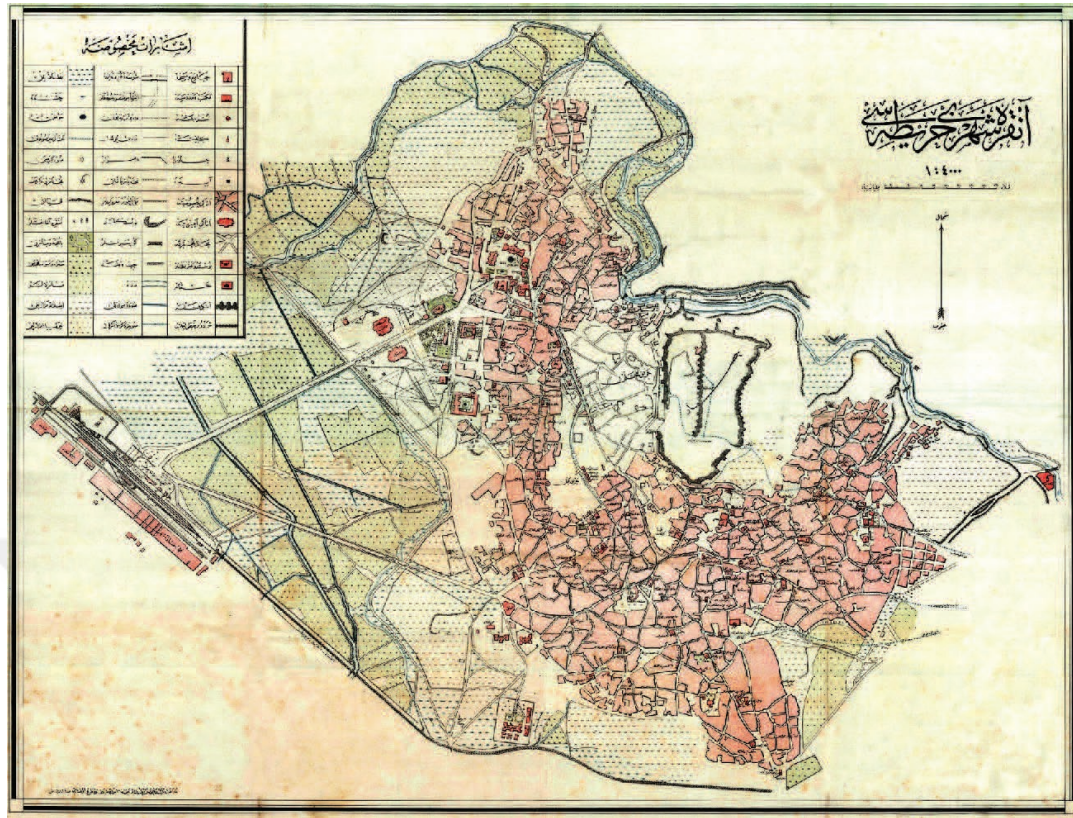


Figure 3. 14. 1924 Ankara Map (Ahmet Yüksel Archive, as cited in Günel & Kılıcı, 2015)

The third plan of Ankara was the Yücel-Uybadin Plan, which was applied between 1958 and 1968. With this plan, the city extended to the east and west axes. Nonetheless, this expansion was not enough to prevent the squatter housing problem. Hence, the 1990 plan scheme followed as the next planning process, and it was developed by the Ankara Planning Metropolitan Bureau from 1977 to 1982. Following this plan, in 1986, a study group from Middle East Technical University introduced a broader 2015 Ankara plan, which was intended more as a policy or structure plan than a conventional master plan. This plan proposed a decentralized structure along the northern, northeastern, and southern axes and the western development corridors. However, the fragmentary approach of the public institutions and municipalities did not adhere to these later plans (Çalışkan, 2004). Subsequent planning decisions following the Yücel-Uybadin Plan were inconsistently

implemented, making it challenging to fully evaluate Ankara's urban environment's spatial and visual characteristics.



Figure 3. 15. Urban Process of Ankara (derived from Ankara Kent Atlası, p.40-41)

3.3.1 Lörcher Plan

Carl Christoph Lörcher, working under the Exploration and Construction Turkish Joint Stock Company (Keşfiyat ve İnşaat Türk Anonim Şirketi), prepared the first comprehensive plan for old Ankara in 1924 on a scale of 1/2000. Then, in 1925, a plan for Ankara's new town (Yeni Şehir) plan was designed on a scale of 1/1000. These two foundational plans established the framework for Ankara's new settlement and can be considered as instrumental in setting the stage for the later Jansen plan (Figure 3.18.). Lörcher plan (Figure 3.16.) introduced new urban spatial elements such as streets, squares, axes, and zones. New roads like Denizciler, Anafartalar, Çankırı, and Bankalar avenues and streets are extended to become avenues such as İstasyon Avenue were proposed for the old town. This new street layout inevitably shaped the development of new districts. For instance, between Anafartalar and Hisar Avenues, Kale Önü district was planned for the first time after 1917 when a considerable area was burnt (Cengizkan, 2004).



Figure 3. 16. Lörcher Plan (adapted from Cengizkan, 2004, legend and indications are edited by the author)

The plan offers a dense and compact form, aims to train the station and its environment as a new center, and suggests significant renewal for a large portion of the existing city (Günay, 2005). Notably, the public recreational and cultural spaces were concerned in the marshland area of Hippodrome, Atatürk Cultural Center, and 19 May Stadium. Additionally, the plan demonstrates an awareness of the city's natural topography. Lörcher (1924) described the city's natural potential, highlighting how the İncesu and Tabakhane streams naturally encircle the settlement areas, creating a green belt or parkland around the urban space. Aerial views or photographs of the city can reveal the impact of these water sources on the city's

overall layout and appearance. Lörcher stated that if effectively utilized, this natural feature presents a unique opportunity to transform the city—currently seen as arid and lacking vitality—into a garden city with a green belt surrounding it (Lörcher, 1924, cited in Cengizkan, 2010).

In addition to the new spatial proposal, the concept of a "Beautiful Citadel" is emphasized in the plan as a visual focus. The eruptive hilltop, where the Old Town is located, was a monument with a visual focal point that governs the spatial and visual orientation for the rest of the urban formation through the basin (Figure 3.17). The "Beautiful Citadel" concept emphasizes the orientation of urban spaces to the citadel for the urban panorama from every possible vantage point. (Cengizkan, 2004; Yavuz, 2018). For instance, in the western flat area of old town City Park (Şehir Parkı), the Exhibition Garden (Sergi Bahçesi), and sports areas are formed as significant recreational urban spaces for the public realm, and the orientation of these spaces was designed according to relations with the citadel (Cengizkan, 2004).



Figure 3. 17. Views from the train station to the citadel, 1925 (derived from Cangır, 2007)

Although there was no holistic spatial-visual characteristic proposal for the design, topographic structure, and visual concern for the citadel can be considered decisive design elements for the overall plan schema. In other words, there was a spatial-visual emphasis only on the citadel and the hilltop. The previous emphasis on the citadel and the city's topographical features, as depicted in engravings, maps, and

photographs, was preserved in the development of this plan. This continuity is essential for maintaining the city's overall image.

3.3.2 Jansen Plan

Following the Lörcher Plan, Hermann Jansen proposed a new plan for Ankara in 1928, which was started to be applied in 1932. Whereas the Lörcher plan offered an extensive renewal for the existing city, the Jansen plan did not intervene in the old fabric. Nevertheless, the plan preserved the formation of Yenışehir in the Lörcher plan. Old and new parts of the city were connected within a single-spine road, which is Atatürk Boulevard. In the new plan, the city was envisioned in a garden city model as a circular form surrounding the citadel, drawing on neighborhoods separated by continuous green belts (Günay, 2006). According to this formation, the citadel was a focal point of urbanity as it was in the Lörcher Plan. Jansen defined the citadel as the "crown" of the city in the plan report (1937, p. 7). Ulus was designated as the city center in the plan, to preserve the traditional urban pattern around the Citadel. The citadel was preserved as an aesthetical visual landmark, influencing the layout of streets and squares to enhance visual connections with it. The proposal included various design elements about the city's holistic image. The topography of the city, its nature, and its conservation of historical layers were significant design elements for the proposal (Jansen, 1937; Çınar Özdi, et. al, 2019). Nevertheless, the aesthetic concerns remained superficial, for instance, the citadel was the only physical-visual center of the city instead of integrating the functions to this center (Tankut, 1993).

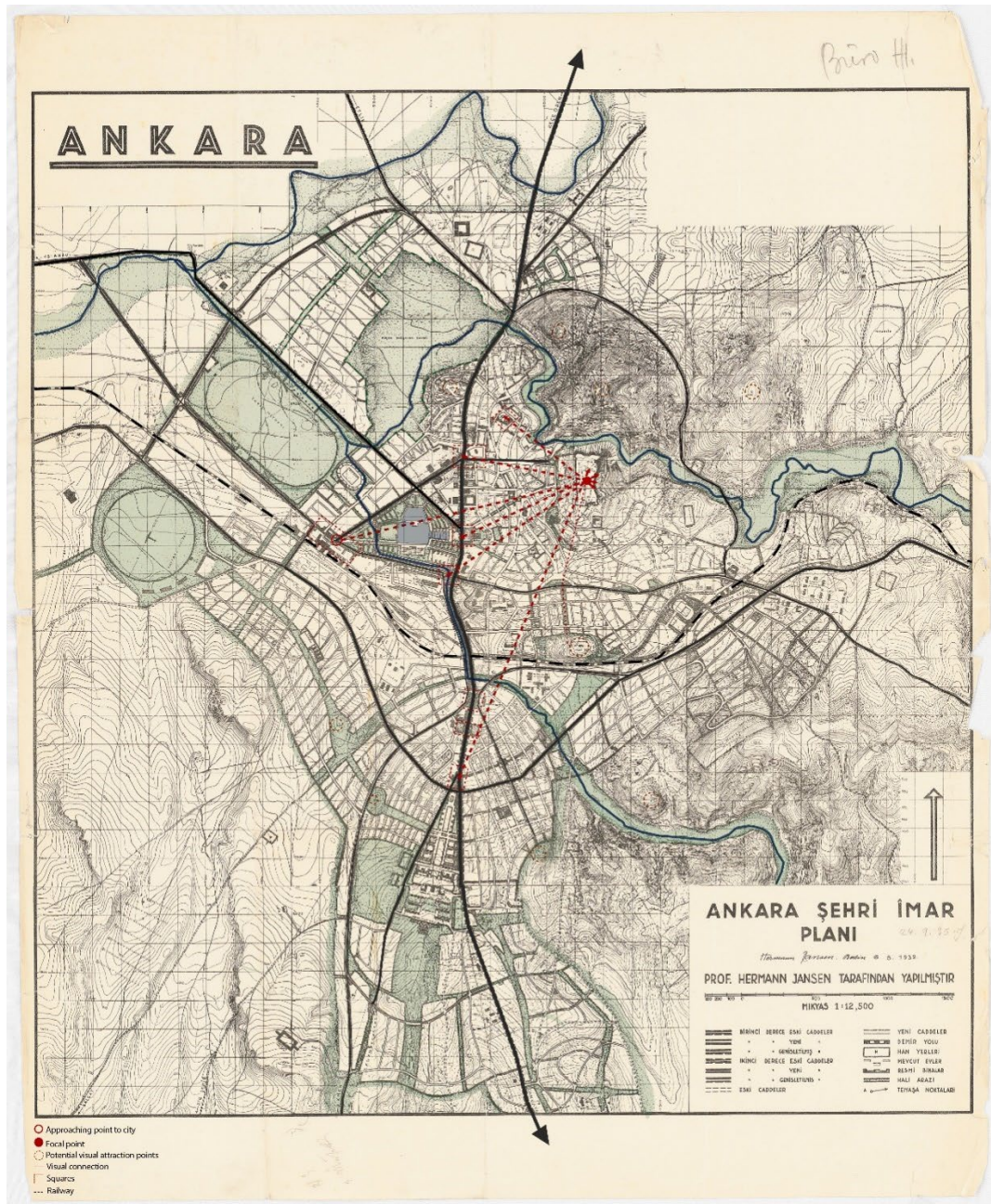


Figure 3. 18. Jansen's Overall Development Plan, 1932 (1/12.500) (adapted from the Architectural Museum of Berlin Technical University, legend and indications are edited by the author)

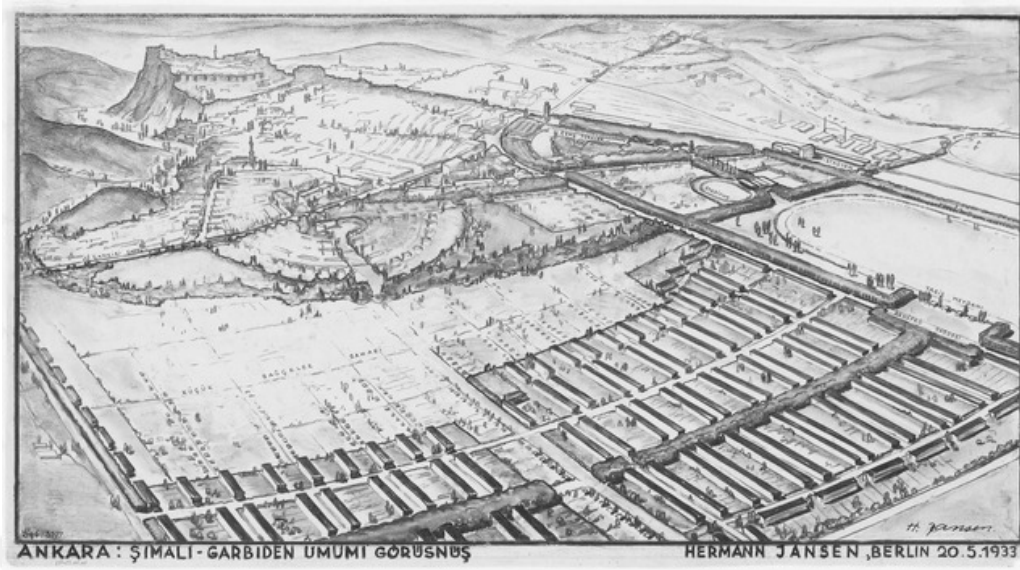
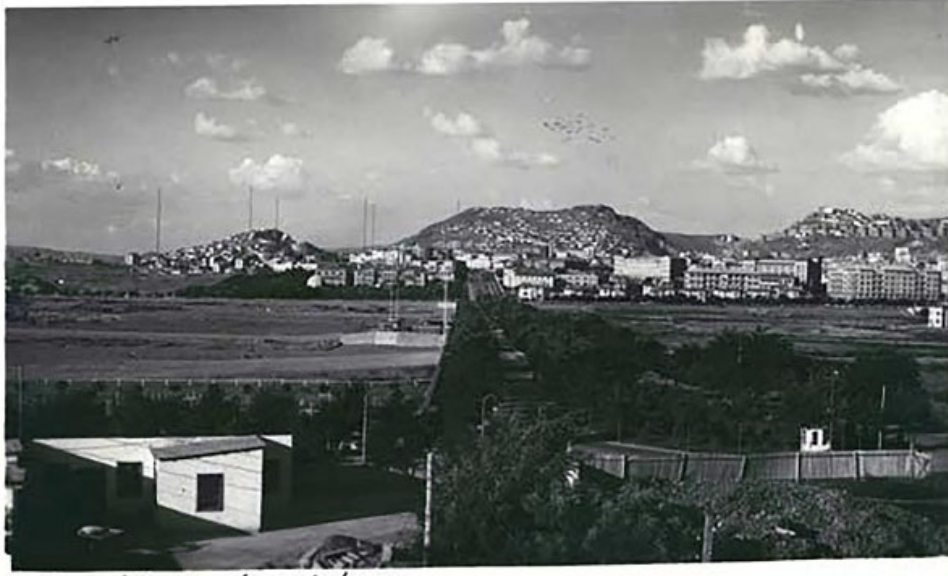


Figure 3. 19. View from the Northwest (derived from the Architectural Museum of Berlin Technical University)

The train station's relationship with the city image was considered as an approach point to the city (Figure 3.19). It was defined as a welcoming image of the city and designed according to this consideration. The castle and ridges form the background, while the extension of the Çubuk stream and the pools of the Youth Park (Gençlik Parkı) are supported by walking paths. Both the walking experience and the experience of approaching the city are elaborated in the plan. The landscape and experience produced were also created by utilizing the city's topography (Jansen, 1937). The green infrastructure approach of Jansen designed a network of landscape elements throughout the city, creating a series of open spaces. Youth Park, Hippodrome, Cebeci Stadium, 19 May Stadium, and Exhibition House are essential elements of the network in the plain between the old city and the train station. The irrigation for the gardens and parks was supplied by the Incesu, Bent, and Çubuk rivers. Along these rivers, as well as in valleys and on hillsides, areas were planted with trees and designed for leisure, walking, and viewing. These spaces were integrated with the city center through greenways that follow the riverbanks, enhancing pedestrian movement throughout the city (Çınar Özdi, et. al, 2019).



29. İstasyondan Ankara

Figure 3. 20. View from the train station to the citadel, 1934 (derived from Cangır, 2007)

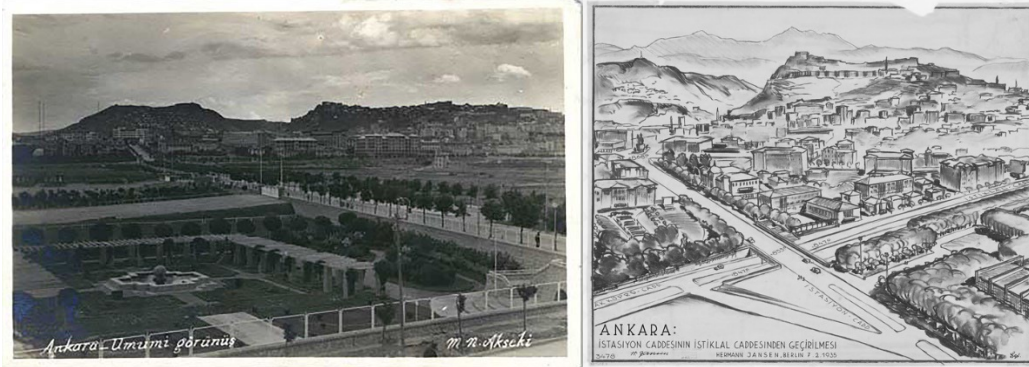


Figure 3. 21. View from the train station to the citadel, 1938 (derived from Cangır, 2007) and Jansen's sketch on the intersection of İstasyon and İstiklal Avenues (derived from the Architectural Museum of Berlin Technical University)

Furthermore, Jansen's plan highlighted the unique spatial and visual qualities of Bentderesi, crafting an image meant to captivate both visitors and residents. Bentderesi, described by Jansen (1937) as offering "the strongest imagery that a foreigner could witness," was envisioned as a revitalized urban landscape. The plan proposed clearing the Bentderesi Stream (Hatip Valley) of stone quarries, restoring the historical Roman dam to the north, and creating a natural pool to the east of the dam. Additionally, an urban park, Cumhuriyet Bahçesi (Figure 3.22), was to be

established along the banks of Bentderesi near the Tabakhane neighborhood, while the basin floor further north was designated for vegetable gardens (Jansen, 1937; Yavuz, 2018).

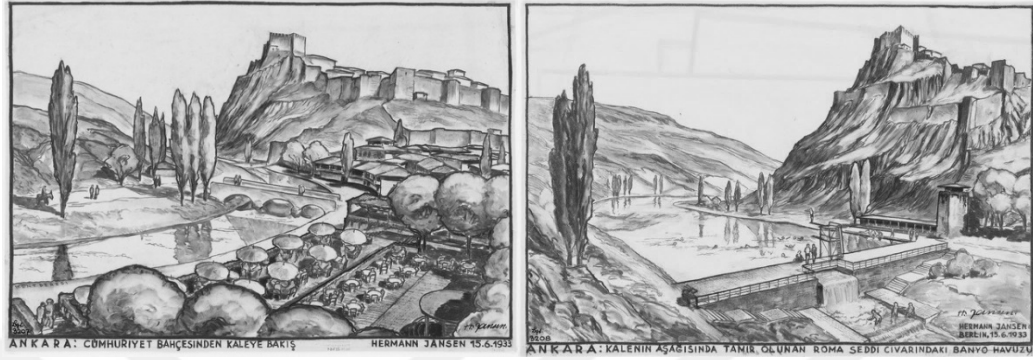


Figure 3. 22. Jansen's Bentderesi Sketches (derived from the Architectural Museum of Berlin Technical University)



Figure 3. 23. Bentderesi, the left side is dated 1928 (derived from Cangır, 2007) and the right side is dated 1937 (derived from Koç University, VEKAM Library Archive)

The Jansen Plan Report (1937) demonstrates a sensitivity to spatial-visual considerations. Jansen's vision for Ankara took into account the city's unique topography, with its hills and ridges, providing an opportunity to create a dramatic and unique urban landscape. It is argued that constructing the city on these slopes would yield a more striking and dynamic cityscape than could ever be achieved on a flat plain. Jansen also emphasized the strategic placement of public buildings on the surrounding ridges, which would naturally create prominent and impressive viewpoints throughout the city. The view of the train station was considered the first and most significant impression of Ankara for visitors. To enhance this experience,

the area around the station, including the Youth Park, was carefully designed to provide a welcoming and visually impactful entrance to the city (Figure 3.24). The partial drawings of Jansen's plan underscore his subtle approach to the spatial and visual design problem. These elements demonstrate how Jansen's plan respects the city's spatial and visual qualities, ensuring the comprehensive and experiential depth of the urban structure. Additionally, as shown in Figures 3.22 and 3.23, the sketches may have been produced based on photographs of the respective urban spaces because of their similarities. If the sketches are indeed derived from photographs, this could be evidence of photography being used as a design tool.

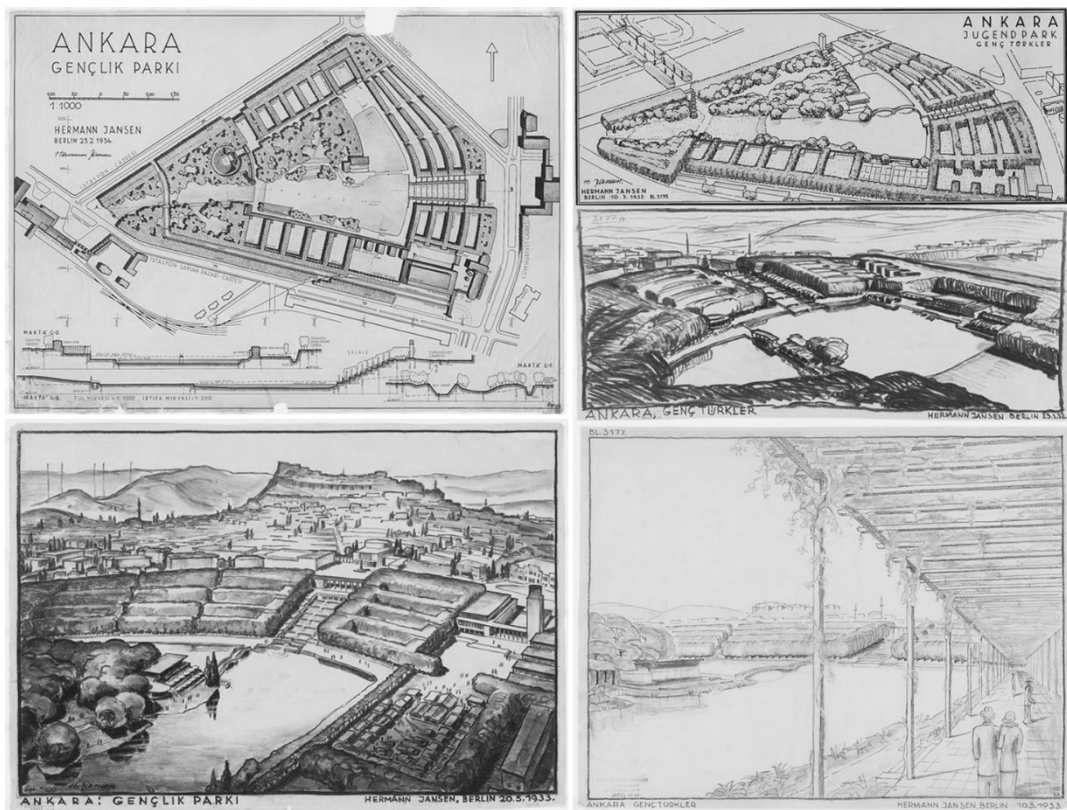


Figure 3. 24. Jansen's Youth Park drawings (derived from the Architectural Museum of Berlin Technical University)

3.3.3 Uybadin – Yücel Plan

In the 1950s, Lörcher and Jansen plan borders reached their limits, and new expansions were developed, including districts like Yenimahalle, Bahçelievler, Gazi Mahallesi, Varlık, and Aydınlıkevler. In districts that were excluded by the previous plans, like Altındağ and Yenidoğan, on the hills that are unsuitable for settlement, and on the ridges of Kurtuluş and Cebeci, squatter housing began. During this period, Mamak and Kayaş also became suburban areas with squatter housing. The restriction of the city's expansion to the north-south axis, confined within a basin, hindered urban growth and led to pollution and transportation issues. The plans did not account for future population densities, contributing to the understanding of demolition and reconstruction. Therefore, a new plan (Figure 3.25) for Ankara was developed by Raşit Uybadin and Nihat Yücel, who won a competition in 1957 and applied between 1958 and 1968 (Günay, 2006).



Figure 3. 25. Uybadin-Yücel Plan, 1957 (derived from Koç University, VEKAM Library and Archive)

Although the Uybadin- Yücel plan considered the topographical structure of the city, there were no specific design objectives for the visual-spatial structure of Ankara.

Elements emphasized in the Lörcher and Jansen Plans—such as the “Beautiful Citadel,” green bands, perception corridors, open spaces, viewpoints, and public urban spaces like squares and marketplaces—were not the scope of the Uybadin-Yücel Plan. Cengizkan (2006) argued that perhaps the lack of contribution to the urban space of the 1957 plan is the biggest shortcoming. Spatial-visual elements of urban space were no longer mentioned, resulting in a lack of social vitality and spatial existence (Cengizkan, 2006).

The plan aimed to expand the city by raising the heights of the existing settlement formation. Housing cooperatives have become the determinant of urban space. This approach permitted the construction of higher buildings while allowing for rent on the land. Besides, the plan allows the rise of height in Ulus and Kızılay too, stating that building heights may match the width of the roads. This means that the building heights can be 30 meters, and the visibility of these central urban spaces was not considered at all. Overall, the plan overlapped with the city administration's desires, but these propositions did not have a position on the spatial-visual quality of the city. Unlike Jansen's emphasis on aesthetics, this plan showed no concern for such matters. Consequently, the overall image of Ankara, its identity, and its macroform were disregarded (Cengizkan, 2006). This may be a breaking point in Ankara's spatial and visual design history because starting with this plan, the overall image and macroform of the city ceased to be a matter of design.

Furthermore, during the planning process railway policy has started to lose its importance with the development of new roads. Highways connecting İstanbul, Çankırı, Konya, and Samsun were incorporated into the plan. The city expanded along the east and west axis and the west corridor of the city started to form with this plan (Cengizkan, 2006). These new roads represented a modern approach to the city, with automobiles and buses becoming the primary modes of transportation. Jansen envisioned the city's welcoming image centered around the train station as a pivotal access point. However, Uybadin-Yücel plan did not include these new approach points to be designed.

3.3.4 Post-1950s Urban Developments

In the 1970s, while the Yücel-Uybadin Plan had initially projected a population of 750,000 for Ankara, the Height Regulation plans expanded development rights to support up to 2 million residents. However, low- to middle-income groups could not afford the development costs due to the high land prices in the planned inner city. As a result, these groups were pushed to settle in unplanned areas adjacent to the inner city. According to Çalışkan, this led to an unplanned urban compaction pattern, where unauthorized developments emerged not only in low-density zones but in medium- to high-density areas, closely integrated with the existing urban fabric (Altaban et al., 1980, cited in Çalışkan, 2004). This issue became a significant challenge for the Ankara Metropolitan Area Master Plan Bureau (AMANPB), led by Haluk Alatan. The bureau approached urban planning as a continuous process, emphasizing the importance of the city's macroform, its capacity for growth, and the design of new transportation systems. Rather than producing a comprehensive, finished plan, the AMANPB, beginning its work in 1969, focused on developing policies that would open the city to its periphery. By the 1970s, the city's core area had reached topographic limits to the north, south, and east. The Bureau adopted a strategy that integrated planning decisions with implementation, assuming that the Yücel-Uybadin plans, particularly regarding building regulations, would continue to guide the development of the core area while focusing on the expansion of the periphery (Günay, 2006).



Figure 3. 26. 1990 Plan (derived from Ankara Metropolitan Municipality)

In the 1990 plan (Figure 3.26.), the population targets were carefully considered, and a reasonable analysis was conducted, leading to the selection of the western corridor as the preferred direction for growth beyond the basin. Priority was given to the area north of the Istanbul Road near Batıkent, while further west, the preference shifted from the northern surroundings of the Istanbul Road to the quieter area around Ayaş Road, where the presence of existing settlements like Etimesgut and Sincan, along with the suburban train line, was emphasized. The preliminary concept for the Batıkent metro also emerged from this plan. The western corridor was envisioned for residential development and industrial functions, including areas like OSTİM and Şaşmaz. Some analyses and objectives were established regarding the core area, but implementation was left to local administrations. Transportation networks were proposed between the core area and the newly planned periphery, but these proposals were mainly limited to connecting with existing main arteries without introducing new solutions. The issue of squatter settlements remained unresolved. Areas such as Atatürk Forest Farm (AOÇ), Middle East Technical University, and Hacettepe University became part of the green belt (Günay, 2006).

The studies for the 1990 master plan began in 1969 and were approved in 1982. The Bureau was closed in 1983, and the responsibility for planning was transferred to the municipalities. After this change, the planning decisions of the city remained piecemeal. In 1986, due to the lack of a long-term urban plan for Ankara, the municipality commissioned the Middle East Technical University (METU) Department of City and Regional Planning to prepare a "Structural Plan" for the city's macroform changes, targeting 2015, which was not approved. While the 1990 Master Plan's principles were maintained, the 2015 plan proposed a decentralized structure with residential, commercial, and institutional areas distributed along northern, northeastern, and southern axes and the western development corridor (Tekeli, n.d.).

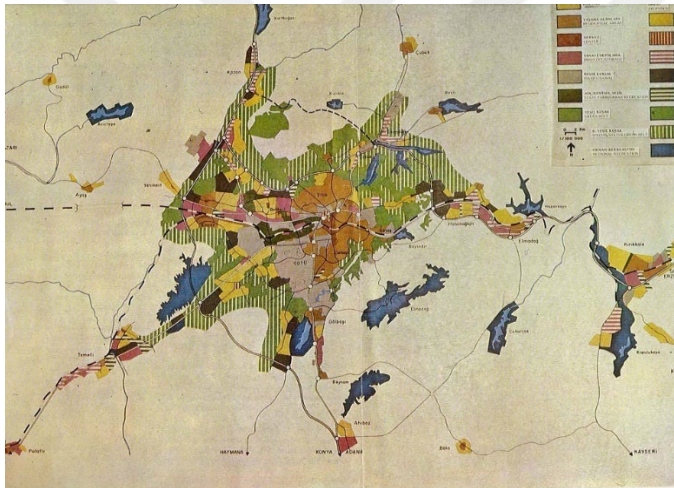
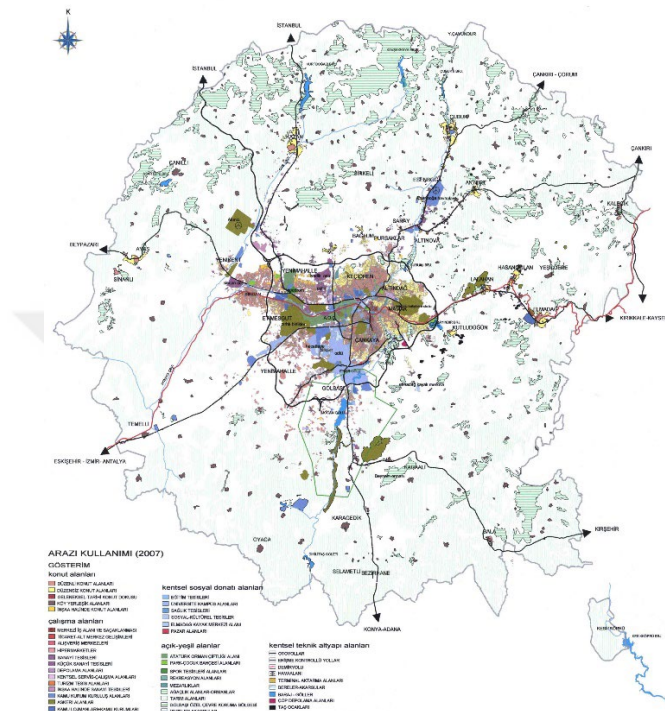


Figure 3. 27. 2015 Structural Plan Schema (derived from Ankara Metropolitan Municipality)

Furthermore, Ankara's population experienced significant growth from the 1920s to the 1990s, expanding nearly 100 times to reach 4.8 million. Concurrently, the city's area expanded from 250 to 80,000 hectares, approximately 320 times its original size (Ankara Metropolitan Municipality, 2006). Despite a gradual migration from rural areas and a decrease in the natural population growth rate below the national average, building densities continued to rise, and private developers exerted increasing pressure in the early 1990s. Previous squatter areas were transformed into multi-

processes of the 2000s gave rise to a formless urban structure characterized by disconnected, independent developments instead of a coherent urban form, making it nearly impossible to describe the urban image and legibility of the urban space.



Since the 2015 and 2025 plan schemes were not approved, in 2006 a new 2023 master plan, was developed by Ankara Metropolitan Municipality to guide urban growth, aiming to create an integrated urban form and enhance public transportation (Figure 3.29). The plan aimed to accommodate a projected population of 6 million, control fringe development, and support sustainable growth along key corridors with mixed-use, residential, and recreational zones. The planning area is divided into six districts, each guided by specific environmental plans. According to Sınacı's urban fringe analysis (2016): The urban periphery includes a mix of high-rise residential zones, low-rise rural communities, mass housing, squatter areas, state and educational campuses, recreational and industrial spaces, agricultural land, and natural resource sites. Starting from Uybadin-Yücel Plan, transportation investments

and a market-driven planning approach have significantly impacted Ankara's urban landscape and fringe areas. This expansion has not necessarily resulted in public benefit, with building stock increasing in all directions around the city. Many fringe areas, especially along the Eskişehir, Konya, and Istanbul highways, have been opened to urban renewal and development projects. The proliferation of shopping centers and isolated facilities has further driven urban sprawl through decentralization, resulting in a fragmented network of transformed areas linked by connecting roads (Sinacı, 2016).

3.4 Prominent Viewpoints and Approaching Points

In order to read the spatial and visual characteristics of Ankara and its transformation, looking at the urban panoramas throughout history will be significant. As discussed in this chapter, Ankara has experienced numerous changes, particularly following the establishment of the Turkish Republic. The frequent viewpoints used to take photographs and postcards including the general view of the city become significant to give clues about the spatial and visual structure. This section will be divided into two main headings: the high viewpoints offering panoramic views or a wide range of visibility and street-level vantage points that enhance urban experience.

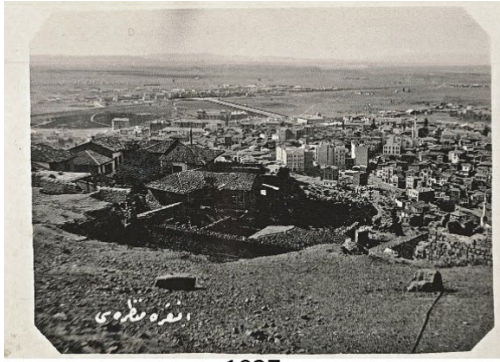
3.4.1 High Vantage Points

High points in Ankara, like Ankara Citadel, Anıttepe, Hıdırlıktepe, Kocatepe, and Hacettepe provide a panoramic view of the city and its environment. These elevated locations offer several vantage points to understand the topography of Ankara, its spatial layout, and how different urban elements are structured. These include the main architectural landmarks in the city, the street layout, and natural features that create an overall perception of the urban landscape.

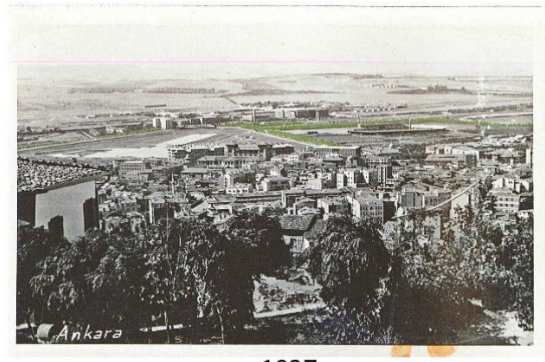
3.4.1.1 Citadel

The citadel is one of the significant elevated viewpoints of the city because of its central location. Throughout the history of Ankara, it has been a focal point of urban space, as it can be understood from gravures, old photographs, and emphasis on Lörcher and Jansen plans. As such, this high vantage point has been frequently used for photographs and postcards, making it a crucial site for analyzing the city's evolution. The citadel provides a broad view of the city's historic core and its environment, including districts like Mamak, Altındağ, Çankaya, and Keçiören. Figure 3.32 demonstrates the transformation of views from the citadel towards various directions between the years 1919 and 1950 in general. Photos from the 1920s show Ankara at the start of its development under the early Republic: the Citadel looks out over a modest urban landscape and by the 1930s, under the influence of the Lörcher and later Jansen plans, Ankara's urban layout began to develop.

From 1924 to 1932, the Lörcher Plan influenced the urban landscape and laid the groundwork for Ankara's modern development. It proposed new roads and public spaces that preserved sightlines to the Citadel, reinforcing its role as a focal point in the city's early layout. Starting from the 1930s, based on Hermann Jansen's plan, the landscape around the Citadel started to change in terms of integrating the Citadel into a series of green spaces while visually linking it with the growing urban fabric of Ankara. For instance, Istasyon Avenue is considered in both plans and Jansen's green belt interpretation can be read in Figure 3.30.



1927



1937

Figure 3. 30. The view from the Citadel to the Railway direction for a decade (photographs are derived from Atılım University Archive, Ankara Municipality Collection)

Furthermore, during the early stages of Ankara, Yenışehir was planned for residential expansion. The first photograph in Figure 40 illustrates the new settlements established following the planning by Jansen and Lörcher, which aimed to foster growth. However, since Jansen's population growth did not align with the rapid urban migration, the residential areas started to become insufficient or not proper for low/middle-income groups. Hence, planned residential zones like Yenışehir became insufficient or financially inaccessible to these populations and the squatter housing problem started to rise in the city. In Figure 3.31., the second photograph shows the informal housing at Hıdırlık Hill. The organic and haphazard nature of squatter settlements was a contrast to the planned part of Ankara.



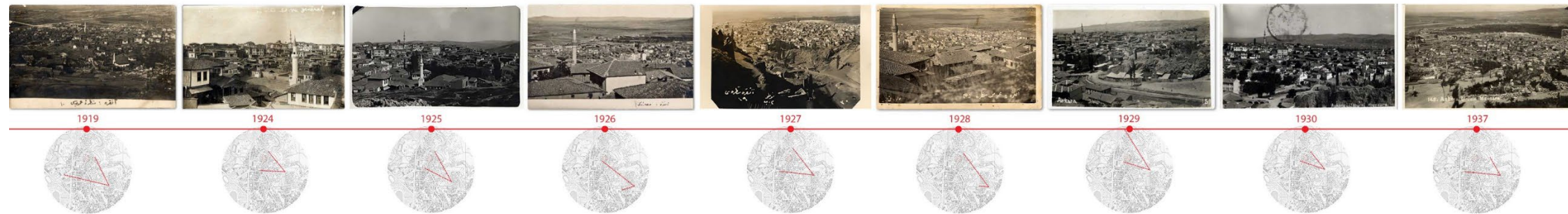
From citadel towards Yenışehir, 1930



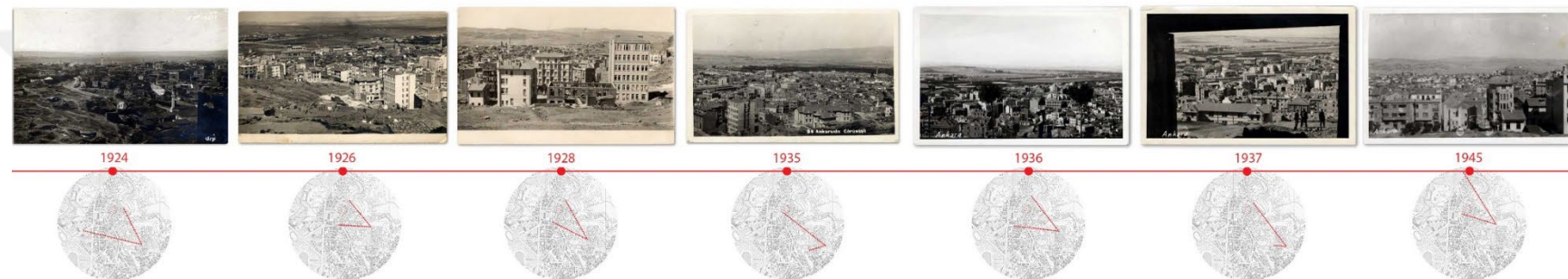
Towards Hıdırlık Hill, 1938

Figure 3. 31. Planned residential zone and squatter housing (derived from Koç University, VEKAM Library and Archive)

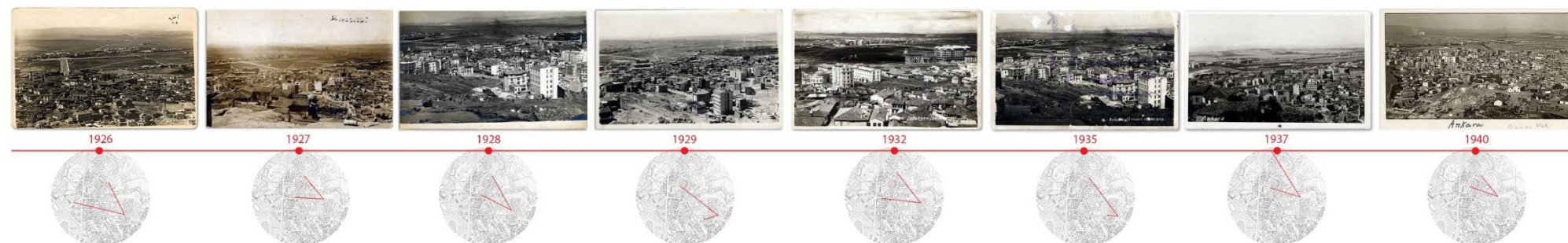
FROM CITADEL TO HACIBAYRAM



TO ULUS



TO TRAIN STATION (ISTASYON)



TO CEBECI

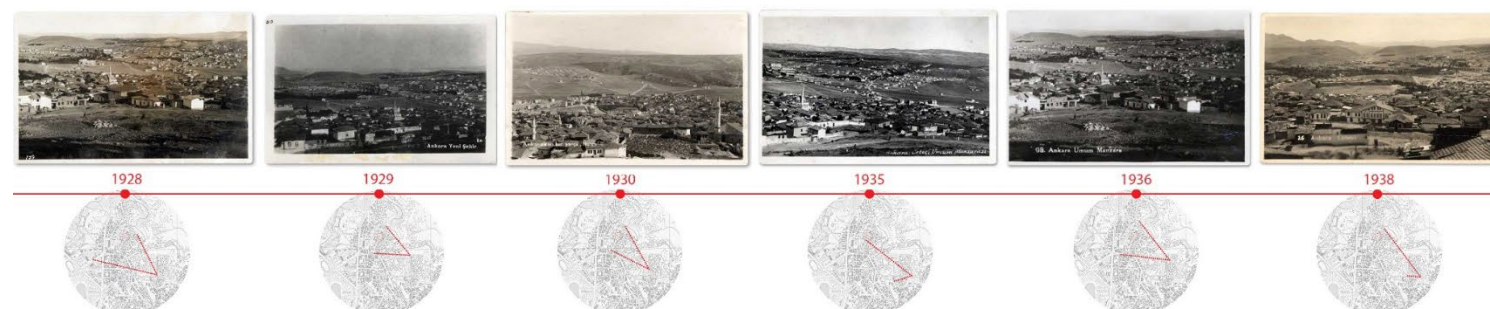


Figure 3. 32. Views of Ankara from Citadel between 1919-1945 (photographs are derived in Cangır, 2007)



After the 1950s, the photographs that were found in the author's archival research were relatively less than before the 1950s. However, it may be possible to read the effects of the Uybadin-Yücel plan as a new phase in the city's urban development, focusing on vertical growth and residential expansion along the city's main axes. Further, squatter housing around Bentderesi can be seen in Figure 3.33. The photographs from the citadel towards Bentderesi direction and starting from 1930 to 1990 provide a visual narrative of Ankara's urban transformation, particularly around the Hacıbayram and Bentderesi districts.

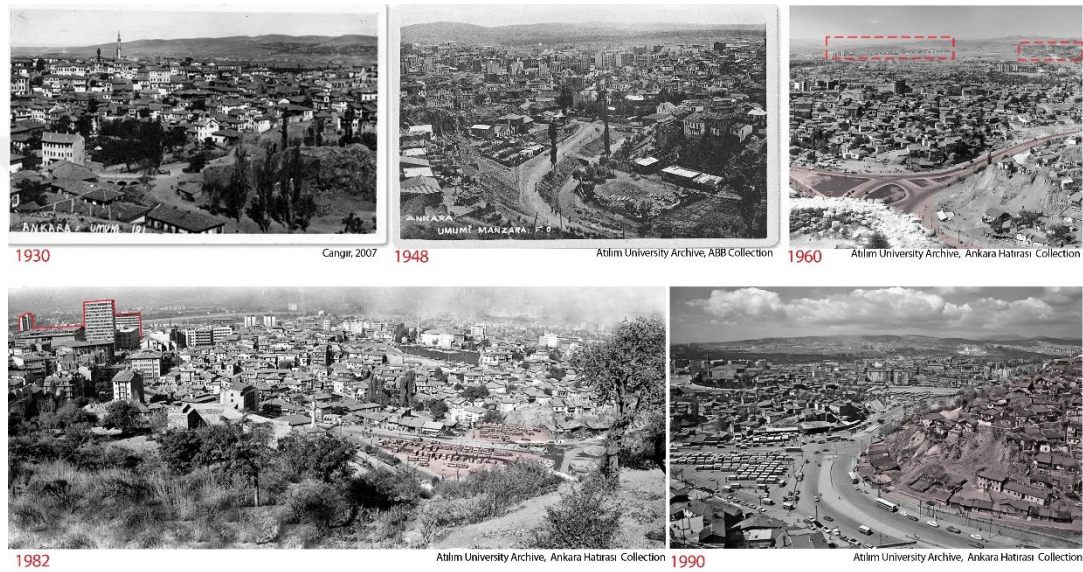


Figure 3. 33. Transformation around Bentderesi district between 1930-1990

In the 1930 photograph, low-rise urban fabric dominated by traditional residential structures can be seen. The 1948 photograph indicates the vertical growth even before the Uybadin- Yücel plan in the historical core. The image in the year 1960 introduces clear indicators of the extension of the metropolitan area and shows certain characteristics of squatter construction on the slopes of the Hıdırlık hill. By 1982, the transformation is more evident. The growing number of higher structures stands for the further vertical expansion of the Ankara city over the years. Additionally, informal settlements remain visible, reflecting ongoing housing pressures and urban sprawl. The 1990 image captures a city transformed by urban expansion, modernization, and infrastructure development. Notably, the former path of the Hatip River, which had been altered following the flood disaster in 1957, now forms a major roadway,

integrating this area into the city's transportation network. The transformation around Hacıbayram and Bentderesi can be considered an example of broader districts in Ankara's urban landscape.

3.4.1.2 Surrounding Hills

In addition to the citadel, the surrounding hills were frequently used as viewpoints for photographing. Notable examples include Kocatepe, Hacettepe, Namazgah Hill, Anıttepe, Hacıbayram Hill, and Hıdırlık Hill, which were determined as prominent elevated locations in the archival research. While Namazgah Hill has conserved the buildings on it, Halkevi's function changed into a museum. Yet, the quality of being a significant landmark of the city remained the same. Similarly, Hacıbayram Hill has conserved its religious characteristics over centuries.

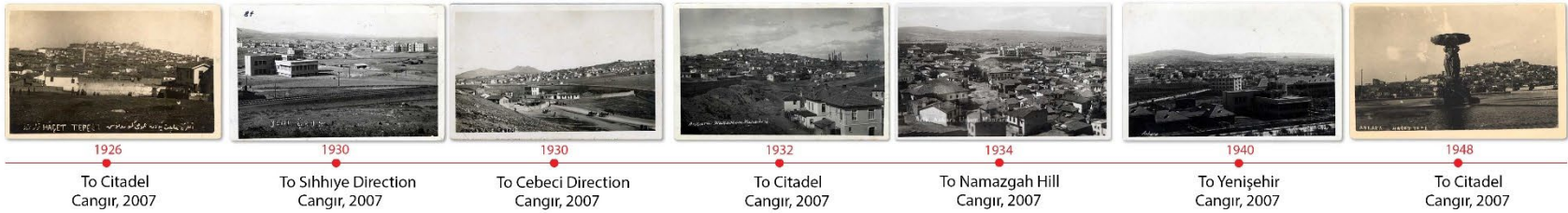
Some of the hills' uses, and physical features have changed over time. Kocatepe is one example of these changes with the establishment of a mosque on top of it in 1987. While it was a vantage point, after the mosque, it became a landmark in the urbanscape. Jansen considered Kocatepe and Hacettepe hills ideal for viewing terraces due to their panoramic views of urban space. Similar to Kocatepe, Hacettepe Hill has become integrated into the health complex with the establishment of Hacettepe University's medical campus.

In addition to these hills, Anıttepe, formerly known as Rasattepe, became the site of Mustafa Kemal Atatürk's mausoleum with the construction of Anıtkabir in 1953. Anıtkabir was intentionally designed to be visible from various points across Ankara, reinforcing its status as a central landmark in the city's spatial identity. Before Anıtkabir, Rasattepe hosted ancient Phrygian tumuli which was part of Ankara's layered historical character. The choice of this hill and the monumental scale of Anıtkabir underscore the importance of visibility and elevation within the cityscape.

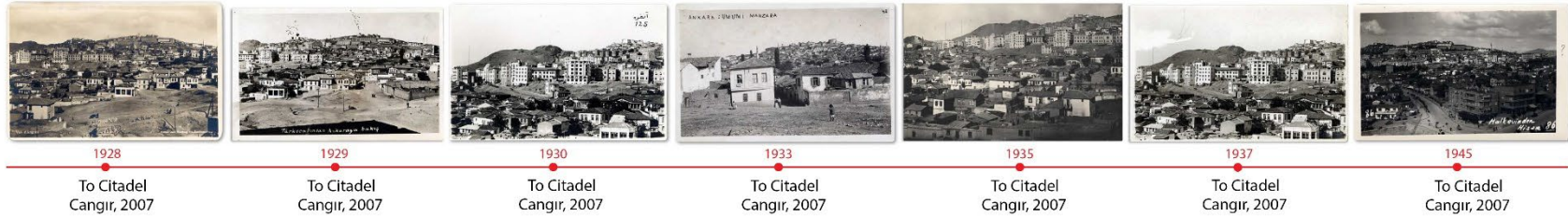
FROM KOCATEPE



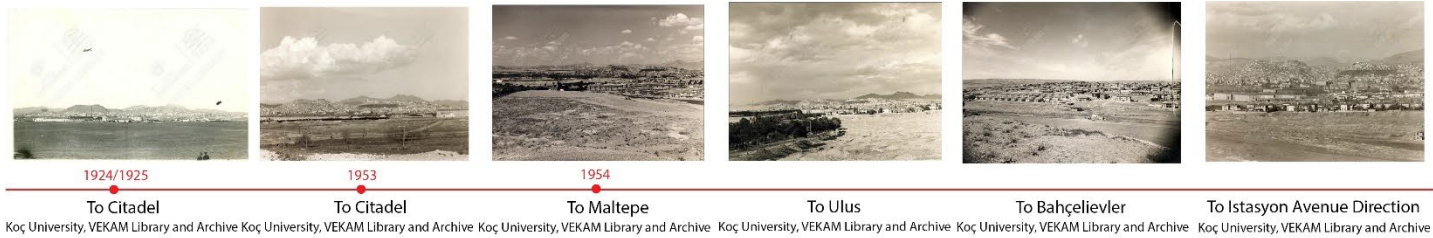
FROM HACETTEPE



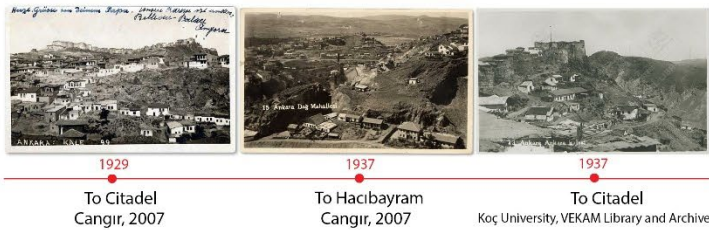
FROM NAMAZGAH HILL



FROM ANITTEPE



FROM HIDIRLIK HILL



FROM HACIBAYRAM HILL



Figure 3. 34. Views of Ankara from different hills



3.4.2 Street-Level Vantage Points

Street-level viewpoints are part of the daily urban experience and offer a more direct perception of urban space. The street-level views are very different from elevated ones and emphasize the human scale and details of architecture. In reference to the archival research conducted, this section will be analyzed in two main headings: approaching points and nodes. Approaching points to the city offers a holistic image of the city before the rapid urban expansion and that is why the photographs taken from these points are essential to discuss the holistic urban image. Additionally, nodes that are photographed frequently include spaces within the historic Ulus district, Kızılay Square, and various nodes along the Atatürk Boulevard. It offers sequential views that reveal different architectural eras, showing the development of Ankara's built environment. Such vistas create a closer connection between the residents and visitors and the visual elements of the city.

3.4.2.1 Approaching Points

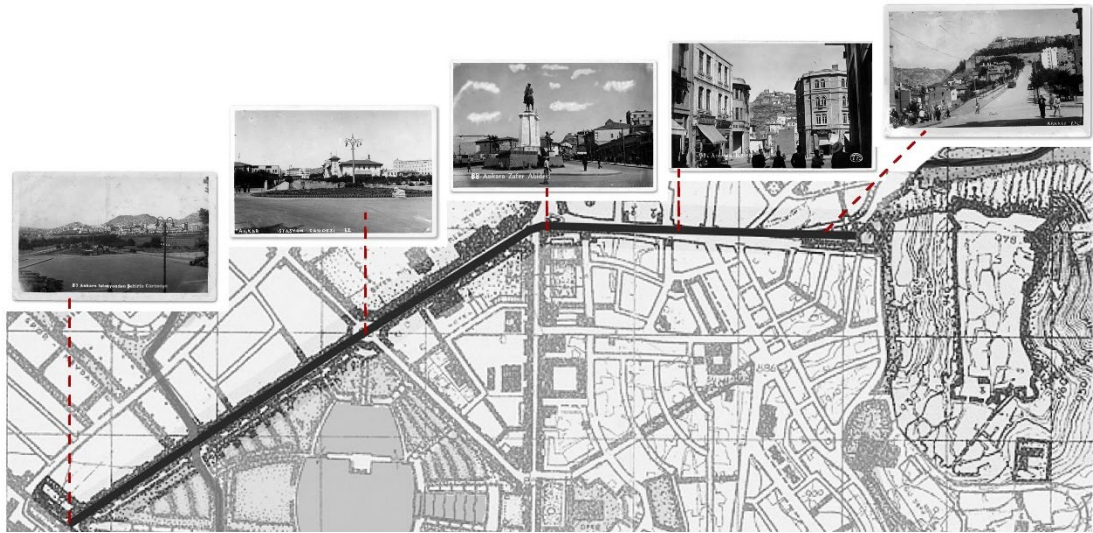


Figure 3. 35. Route from the train station to the citadel (photographs from 1920s are derived from Cangır, 2007, the Base map is Jansen's 1932 plan, derived from the Architectural Museum of Berlin Technical University, edited by author)

Approaching points offer an initial impression of the urban form and these viewpoints include key access routes such as the train station and major paths. In the early Republican period, train station served as primary entry points to the city. The Istasyon Avenue was carefully designed and the axis starting from the station ended with the Ulus square. This was an intentional view of the city that guided the observer's eye toward one of the major nodes of the city with a citadel background (Figure 3.35.). This design intention emphasized Jansen's plan, as well as Lörcher's earlier urban interventions with the enhancement of the surrounding recreational areas like the Hippodrome and Youth Park. Before the rapid urban expansion, it was also possible to perceive the city as an integrated whole from the outskirts (Figure 3.36.).

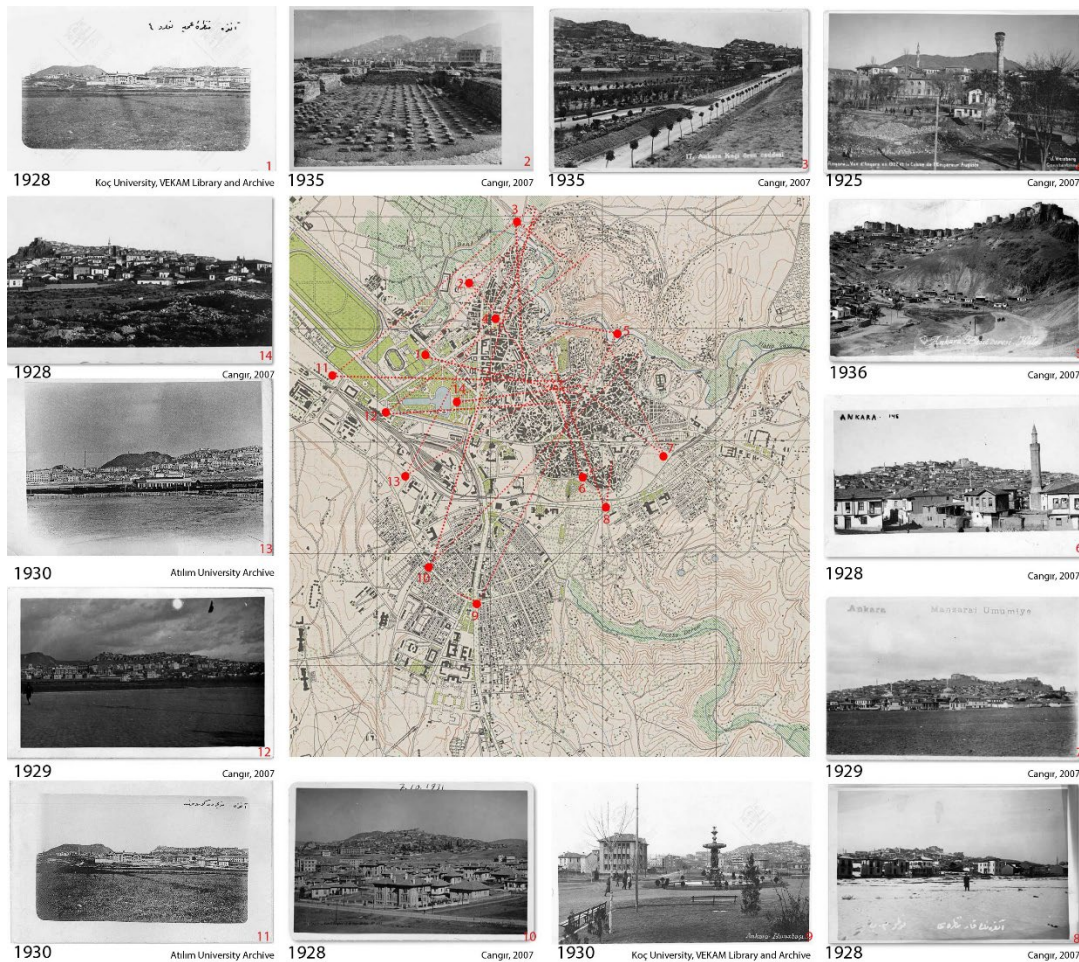


Figure 3. 36. Viewpoints towards the city between 1925 and 1935. (the base map derived from https://farm6.staticflickr.com/5481/12178069884_5007f6d9e5_o.jpg, date is indicated as 1940)

When automobile mobility patterns for Turkish cities began to emerge in the 1950s, highways started to become approaching points to the city. With the Uybadin-Yücel plan, six major outer connecting roads were introduced to the city. The proposal designated a central terminal for buses, AŞOT, as an entrance into the city for newcomers near the train station. In the middle of the 1980s, a new terminal, AŞTİ, was constructed at the intersection of the city's west, north, and south corridors. Centrally located within Ankara's urban fabric, its location on its periphery made it an entrance gate to the city. However, for many years, due to the lack of a coherent design policy, the western corridor remained of poor visual and spatial quality; being Ankara's most important western approach. Nevertheless, no comprehensive urban design code was prepared to determine the visual character of this axis. As a response, almost a decade after the plan was put into practice, the municipality embarked on a series of design competitions, under the name "Beautiful Ankara Project," to improve the city's entrances but the selected projects were never realized (Çalışkan, 2010).



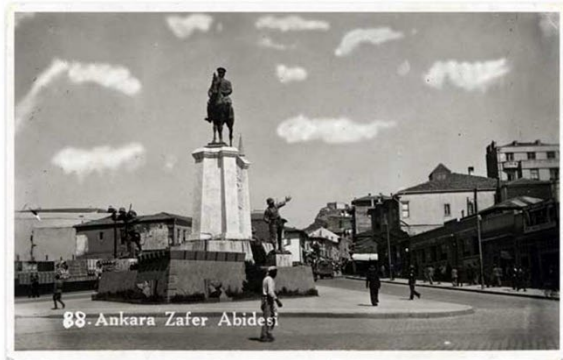
Figure 3. 37. View from AŞOT to city in 1990 (derived from Antoloji Ankara)

Therefore, the changes in the main gateways into Ankara—from the train station-based design of the early Republican period to the automobile-scale entrances of the

1950s and beyond—signal broader transformations in the spatial and visual form of the city. Early plans by Lörcher and Jansen had considered the unified visual experience of the city and designed approaches and vistas toward the city. The Uybadin-Yücel plan and new mobility based on highways meant this experience was increasingly fragmented. This marked a change with the addition of bus terminals like AŞOT and AŞTİ, while the lack of a coherent design policy for the corridors—for example, the western axis—left crucial entry points without a designed urban image.

3.4.2.2 Nodes and Landmarks

Nodes and landmarks are important in urban experience, providing points of orientation and enhancing the city's legibility. Also, these points are parts of frequent points for taking photographs. In the spatial and visual context of Ankara, various significant nodes and landmarks have emerged while creating a multi-layered structure that reflects the city's evolution over time. The transformation of such spaces can reflect the changing structure of the city, due to early Republican ideals, mid-20th-century modernization, and later urban expansion. As Ankara developed, the structure and function of these spaces changed.



1939

Cangir, 2007



1975

Atılım University Archive,
Ankara Hatırası Collection

Figure 3. 38. Changing position and background of Zafer monument in Ulu Square

During the early Republican era, Ulu was a significant nodal point of the city, and the square connected the main streets such as Atatürk Boulevard with Çankırı Street and İstasyon Boulevard. It wasn't until the 1950s with the application of the Uybadin-

Yücel plan that the urban context surrounding it began to transform, as building heights increased, the spatial and visual structure of Ulus Square changed to allow taller buildings, interrupting visibility and changing the experience of pedestrians. For instance, the citadel served as a background to the Zafer monument in the early period. However, with the establishment of Ulus İşhanı in 1963, it started to act as the background for the monument and the view of the citadel has been blocked. This condition was a sign of the changing symbolic context of the country, the historical image of the square left its place for the modern image. Following the establishment of Ulus İşhanı, Yüzüncü Yıl Çarşısı was created in 1981 to replace the Millet Garden. While the lower block of the building complex defined the square, the higher office block set back to the west, and the terraces of the building were oriented towards the direction of the train station. However, with the demolition of the building in 2023, the square became undefined in today's Ankara and lost its quality of being square.



Figure 3. 39. Views from Kızılay Square to old city

Kızılay Square was also an important node as a part of Ankara's expansion beyond its historical center and functioning as a modern focal point along Atatürk Boulevard. The boulevard acted as a visual connector between these central nodes, creating a sequential sense of Ankara's spatial development. During the early Republican era, Yenışehir primarily served as a residential area; however, with the relocation of parliament buildings and ministries, the character of the area began to shift. After the legalization of higher building blocks, the Emek İşhanı building as a skyscraper that was built has given the square a new definition and a different scale. Following this, the Kızılay building that was identified with the square was demolished and replaced by a shopping mall. This transformation significantly changed the square's image over time (Bayraktar, 2013).

Furthermore, the introduction of higher buildings and increased density along Atatürk Boulevard has altered the visual and spatial experience of the square. The high-rise developments started to affect its visual prominence and make it integrate into a closed urban corridor. In the earlier period, visual experience along Ulus to Kızılay clearer, and beyond, post-1950s urban developments disrupted the visibility of the boulevard. This led to a more enclosed, linear urban experience that accommodated various functions and activities along it.

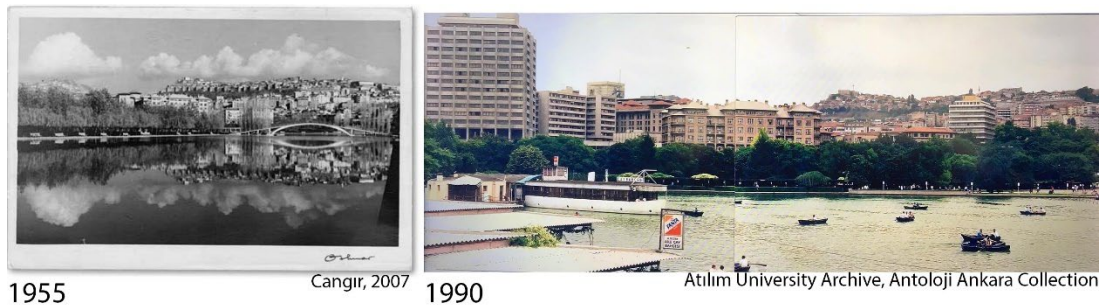


Figure 3. 40. Views from Youth Park towards the citadel

In addition to squares, Parks like Youth Park and Güvenpark are significant public spaces and recreational areas along the Atatürk Boulevard. Youth Park was designed by Jansen as a part of the welcoming city image while approaching the city. However, due to rising density within the city limits and the building of more infrastructure projects, it became enveloped by dense urbanism. While it provides a view towards the old citadel, its relation to the larger urban space has changed in that the higher building profiles and surrounding traffic corridors partially insulate the park from the city's visual flow. Similar to Youth Park, Güvenpark was designed as a public space in Kızılay, reflecting the early Republican ideal of creating green. Designed within the Jansen plan as a central green area complementing the surrounding low-rise buildings, Güvenpark was altered by post-1950s development pressures which built high-rise buildings around Kızılay. However, it preserves its role as a part of green infrastructure along the boulevard and a significant defining element of Kızılay Square.



1930

Koç University, VEKAM Library and Archive



1964

Atılım University Archive, Ankara Hatırası Collection

Figure 3. 41. Views from Güvenpark to north

3.4.3 Concluding Remarks

This chapter analyzed the transformation of Ankara's spatial and visual structure through historical periods with an emphasis on how the city's form and visual perception have changed in response to both natural landscapes and urban planning decisions. Prominent vantage points were considered by using archival photographs to understand the historical narrative of Ankara's urban development. This archival research aimed at high and street-level views that show Ankara's transformation from an early Republican framework through the 1990s.

High viewpoints, such as the Citadel, Anıttepe, Kocatepe and Hıdırlıktepe, provided panoramic views that documented changes in topography, urban density, and architecture—how these constituent elements come together to create the image of Ankara. The street-level views, with entry points including the railway station and nodes like Ulus and Kızılay Squares, represented the historic core of the city and the symbolically important landmarks characterized the visual and spatial experience for both the city's residents and visitors. Over time, these views changed as building heights changed, new public spaces were added, and the road network was developed, often producing visual fragmentation. From an initial plan stressing unity between the natural and urban landscapes, rapid urbanization and changing mobility needs presented various problems to this integration.



CHAPTER 4

AN ASSESSMENT OF CONTEMPORARY ANKARA

With the unpredictable population growth of Ankara, squatter settlements became a prominent issue in the city. Planning efforts did not respond to the problem and after the 1990 plan proposal, the planning efforts remained piecemeal. Although a comprehensive “urban transformation” process has begun with Jansen and Lörcher plan, it resulted in unregulated development and lacked a holistic approach. Hence, the city’s overall spatial structure disrupted, and this directly impacted on its visual structure and overall image. Starting from the 1960s, in the city center, uncontrolled high-rise buildings created visual barriers, affecting the overall coherence of the urban landscape. On the periphery, unplanned and fragmented interventions led to disjointed and "alien" developments to the city image, making it challenging to discuss a sense of urban spatial unity. One aspect contributing to this fragmentation was the alteration of the historical city center, leading to the loss of spatial values in the collective memory of the city's inhabitants. The disruption of continuity and constant change made the city nearly illegible. This chapter aims to analyze the current spatial and visual structure of the city by using urban panoramas and comparing them with historical photographs. While the thesis aims to take a holistic approach, it seems challenging without first re-evaluating what constitutes the "whole" in the context of contemporary urban conditions. Nonetheless, this chapter will try to present the current situation through an analysis of the most perceptible vantage points in the city.

4.1 Composition of Ankara's Urban Spatial and Visual Elements

As detailed in Chapter 3, Ankara's spatial organization has undergone significant changes over the past century and the city's growth reflects the various phases of urban planning, socio-political, and economic decisions. Because of the rapid population growth, housing production in the city has become a significant determinant of current urban morphology. The expansion of the city started from the core to the periphery and according to Çalışkan (2009), the core-periphery dichotomy remains a significant framework for analyzing Ankara's urban morphology. The city's historical core, centered around the Ankara Citadel, has traditionally served as the focal point of social, economic, and cultural activities until the core expanded to Kızılay. However, rapid urbanization, particularly after the 1950's, led to a sprawl of activities and the formation of new suburban areas. This process created a fragmented urban space where the distinction between the inner core and the outer periphery has grown blurred (Çalışkan, 2009). As such, the compact city formed before transformed into a sprawling metropolitan area, characterized by isolated clusters of development with limited integration into the overall urban fabric.

Moreover, the relationship between natural elements and the built environment is another determinant of Ankara's spatial and visual structure. However, after the Jansen plan, the city experienced rapid population growth, financial constraints, and challenges in housing processes. Although the Uybadin-Yücel plan formed concerning the calyx form of Ankara, after urban expansion extended beyond the city limits, disregarding the underlying geomorphological characteristics. These issues resulted in the loss of the geomorphological context, where natural spatial features and structural components no longer acted as reference points for orientation within the urban landscape (Yavuz, 2018).

4.1.1 Urban Spatial Structure

The contemporary spatial structure of Ankara reflects the complex interplay between historical planning frameworks, rapid expansion, and market-driven development practices. Built-sell (yap-sat) approach starting from the 1950s, disrupted the spatial and visual continuity of the historical core, and piecemeal decisions about urban expansion break the sense of wholeness in the urban context. While this model answers the population pressures, it has also introduced new spatial dynamics, transformed Ankara's core-periphery relationships, and reshaped its urban landscape.

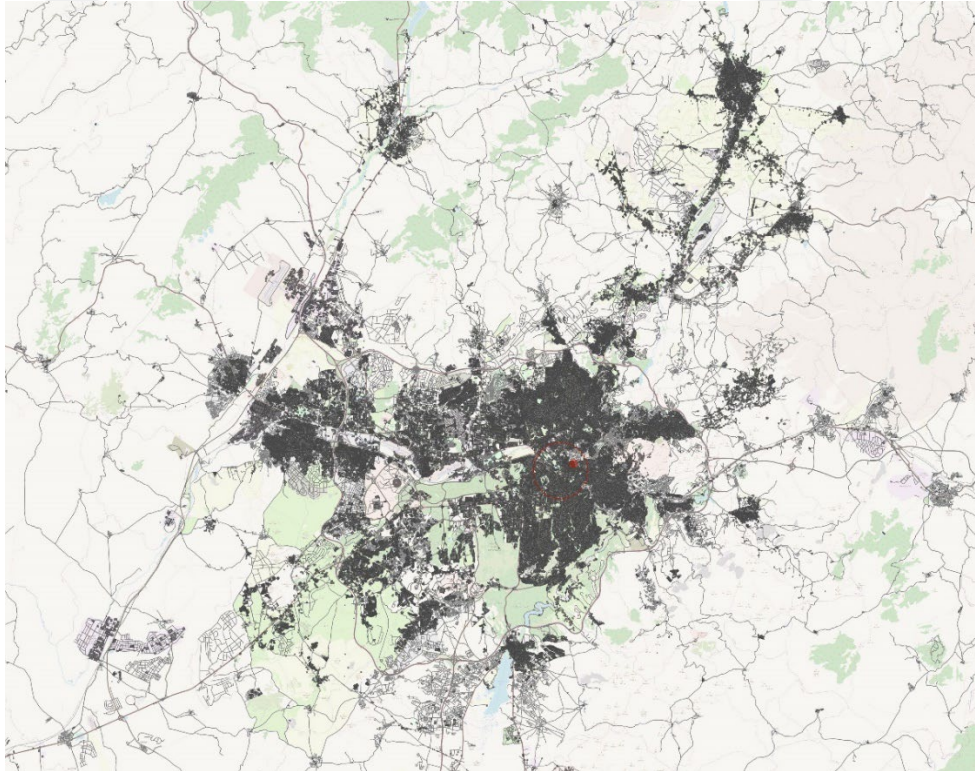


Figure 4. 1. Contemporary urban structure, citadel, and historical core are marked (produced by the author using QGIS based on open street map data)

The central areas of Ankara, especially Ulus and Kızılay, are the major centers within the urban spatial structure including governmental, commercial, and cultural activities. However, the historical continuity in these main areas has changed since

later developments have introduced different architectural typologies and population densities. This phenomenon of peripheral expansion, mainly following major transportation axes, has resulted in new residential and commercial zones, each with different levels of connectivity to the core. Such outer areas accommodate a polycentric urban form and are spatially distinct from the historic city center. As such this condition created a multi-level urban setting with both concentrated and dispersed activity zones. Areas such as Çukurambar, Söğütözü, and Ümitköy have developed very rapidly over the past few years due to private sector investments in office buildings, housing estates, and shopping centers. These areas have often developed independently, without any overall urban design plan, and result in separate activities that show limited interaction with the broader urban context, along with sprawling highway systems that prioritize car access.

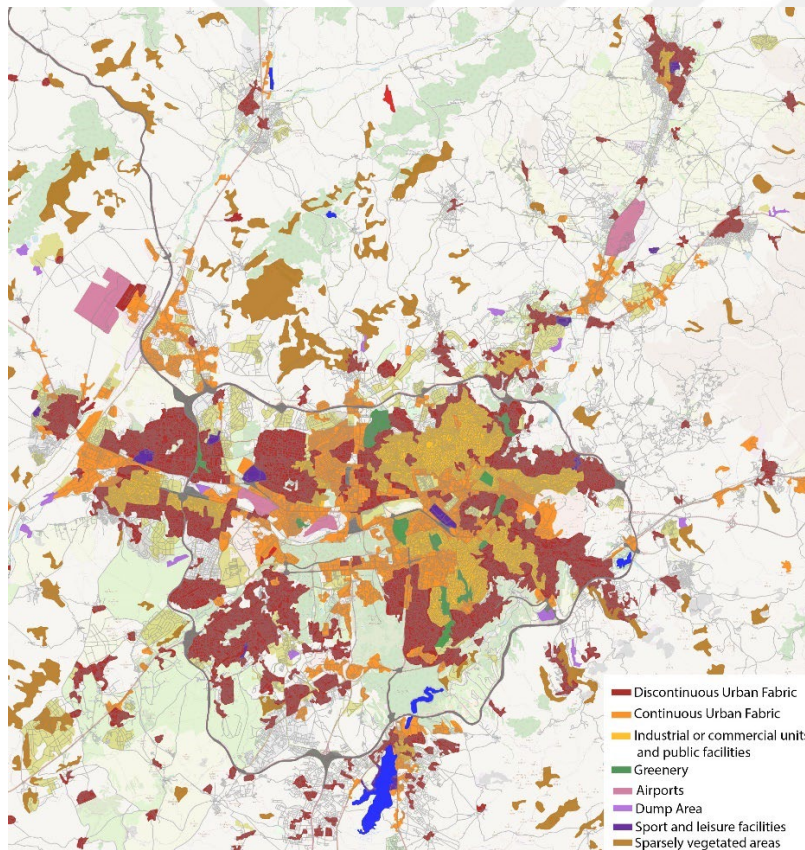


Figure 4. 2. Land use map (produced by the author using QGIS based on CORINE Land Cover 2018 data)

Furthermore, the main functions of Ankara's old city center have tended to spread to the new Central Business Area, which has formed along the west axis. This development has been directed to form plazas and shopping centers due to the absence of a comprehensive urban planning scheme, contributing to the decay of traditional central districts. Although the government at the national level has taken actions to protect and revitalize the old center, these actions have largely focused on the rehabilitation of buildings. Nevertheless, an integrative approach to renewal is needed, one that includes social inclusion, improvements in public open areas, traffic regulation, and increased accessibility for residents (Ankara City Context Report, 2018).

The new developments, characterized by high-rise office buildings, shopping malls, and highly concentrated residential zones, have considerably changed the city's spatial structure. The lack of a holistic urban planning policy has deepened the problems of rapid development based on private enterprise has been pioneered more often by short-term financial gain rather than long-term sustainability concepts for urbanization. Due to the absence of comprehensive regulations, inconsistent and disorganized developments have resulted in unequal distribution of services, infrastructure, and amenities throughout the city. In summary, contemporary Ankara is formed by a fragmented urban landscape, and an integrative planning approach is needed.

4.1.2 Natural and Built Elements in Visual Structure

The visual structure of Ankara is a result of the complex interrelationship between its natural and the built environment, which includes landmarks, public spaces, and residential districts. This composition affects the city's overall legibility and spatial experience. It is essential to examine how these natural and built elements interact, to understand the aspects of the city's visual coherence.

The natural topography of Ankara has always been prominent for its visual structure, acting as both a boundary and a generator for visual and spatial orientation. The hills within the city, especially the Ankara Citadel, are known as major viewing points from which one can gain panoramic views that reveal the spatial structure of the urban core and its environs. The elevated terrains, together with depressions and flatlands, create a layered visual hierarchy that enhances the spatial structure of the city, in line with Norberg-Schulz's idea of *genius loci*, which emphasizes the character that comes from the natural environment (Norberg-Schulz, 1979). However, recent urban developments have begun to hide some natural features. High-rise buildings obstruct historical lines of sight, thus diminishing the visual importance of Ankara's natural landmarks. This weakens the ability of these natural features to act as reference points and disrupts the visual continuity that formerly made it possible for Ankara to be legible and imageable.



Figure 4. 3. View from the citadel towards the west (photo by author, 2024)

High-rise developments in flat areas are driven by economic motivations, such as proximity to major transportation routes and commercial centers. These areas, like the Central Business Area along the western axis, accommodate dense commercial activities. However, the concentration of skyscrapers in these zones creates a new, vertical skyline that competes with, rather than complementing, the city's natural

topographical features. Similarly, the Merkez Ankara project near the train station merges as a dominant visual feature. The height and proximity of these buildings to one another significantly impact the visual and spatial structure of the urban environment. The high-rise developments on the plain obstruct views towards the Akköprü district, disrupting the continuity of the cityscape. Detail photographs show that the architectural language of the building group did not match its context, and the height contrast directly disrupts the coherence of the context.

The construction of tall buildings on hills or higher ground is motivated by the desire for scenic views and the power associated with elevation. However, this approach has led to the obstruction of historical sightlines and disrupted the visibility of natural landmarks. The location of high-rise buildings on higher ground might be used to emphasize the skyline and possibly create new landmarks, but this does not usually translate into enhanced spatial or visual quality within the urban environment. The use of high-rise residential buildings on top of the hills breaks the harmony of the existing urban landscape and diminishes the visibility of already formed natural landmarks.



Figure 4. 4. View from the citadel towards Hatip Hill (photo by author, 2024)

For instance, Hatip Hill housing blocks (Figure 52) break the continuity of the surrounding pattern, creating visual interruptions that affect the area's overall legibility. The hill, without the presence of these high-rise blocks, would otherwise break the visual field more gradually, allowing a sense of depth and spatial continuity. As Kepes (1951) and Higuchi (1975) emphasized, the representation of overlapping elements indicates depth by creating a sense of space. Overlapping objects establish a receding spatial relationship, where each figure appears parallel to the picture plane and contributes to the perception of depth. However, the introduction of vertical structures on Hatip Hill changes this relationship. Higuchi theorizes that the spatial dimension is a function not only of visible intersections but also of what he calls the "depth of invisibility." Indeed, the height of these vertical structures can act as visual obstructions to increase the level of invisibility for the areas beyond them. The proximity of these high-rise blocks to the viewer's eye therefore results in a strong influence on perceived depth and space relations behind and around them, even if there is only a small difference in height. This results in a visual impression that is more disorienting and fragmented, since the natural stratification of the landscape is dismissed by the dominance of artificial structures.

Similarly, two rising blocks in the background of the Ulucanlar Prison Museum remain foreign to the context (Figure 4.4.). The modest museum complex is located on a hill and recognized as a local landmark. The contrast in height directly affects the scale and proportion of the context and creates a disharmonious visual experience. This not only breaks the visual hierarchy but also changes the apparent interaction of the natural topography with the built environment. The high-rise structures overshadow the museum visually and spatially weaken the museum's role as a focal point within the urban landscape.

In conclusion, the current urban developments in the city mostly ignore the natural topography and its potential. This creates tension between natural topography and high-rise developments. While economic reasons push for the construction of tall buildings on flat and elevated terrains, these developments often compromise spatial legibility, visual coherence, and order. The lack of sensitivity toward the urban fabric

already in place not only interrupts sightlines but weakens the visual prominence of landmarks. In order to develop spatial and visual structure, Ankara needs a more holistic and sensitive urban planning approach—one that balances new development of urban spaces with preserving its natural and historical attributes. In other words, future planning policies should consider the preservation of view corridors, the integration of natural topography into development frameworks, and strict height limits within areas having historical and cultural values. This would help restore a balance between urban growth and the preservation of the aesthetic and morphological qualities of the city.

4.2 Visual Analysis of Contemporary Ankara

Since the perception of space is related to the visual field that has spatial elements within it, visual analysis of Ankara provides an examination of the interplay between natural and built elements that shape the city's spatial and visual structure. This analysis includes main viewpoints, approaching points, urban panoramas, and city silhouettes. Together, these elements reflect the spatial-visual dynamics of the urban structure, they are crucial to assessing the city's legibility, coherence, and potential, and problems for creating a holistic urban image. While historical landmarks and natural features give continuous points of reference, the rapid high-density developments and fragmented growth concluded with visual and spatial inconsistencies.

4.2.1 Viewpoints

According to Higuchi's (1975) definition of visual structure, it is the appearance of a given scene from a chosen point of observation. As such, viewpoints are the main determinants of the perception of the visual structure of any space. In Chapter 3, according to the archival research of urban panoramas, the most frequent viewpoints were determined. These viewpoints provide insights into the city's spatial and visual

dynamics and serve as observation points that offer perspectives ranging from panoramas to street-level vistas. Therefore, it is significant to evaluate these viewpoints in today's Ankara. The accessibility and publicity of these viewpoints are crucial for understanding how they contribute to the collective urban experience.

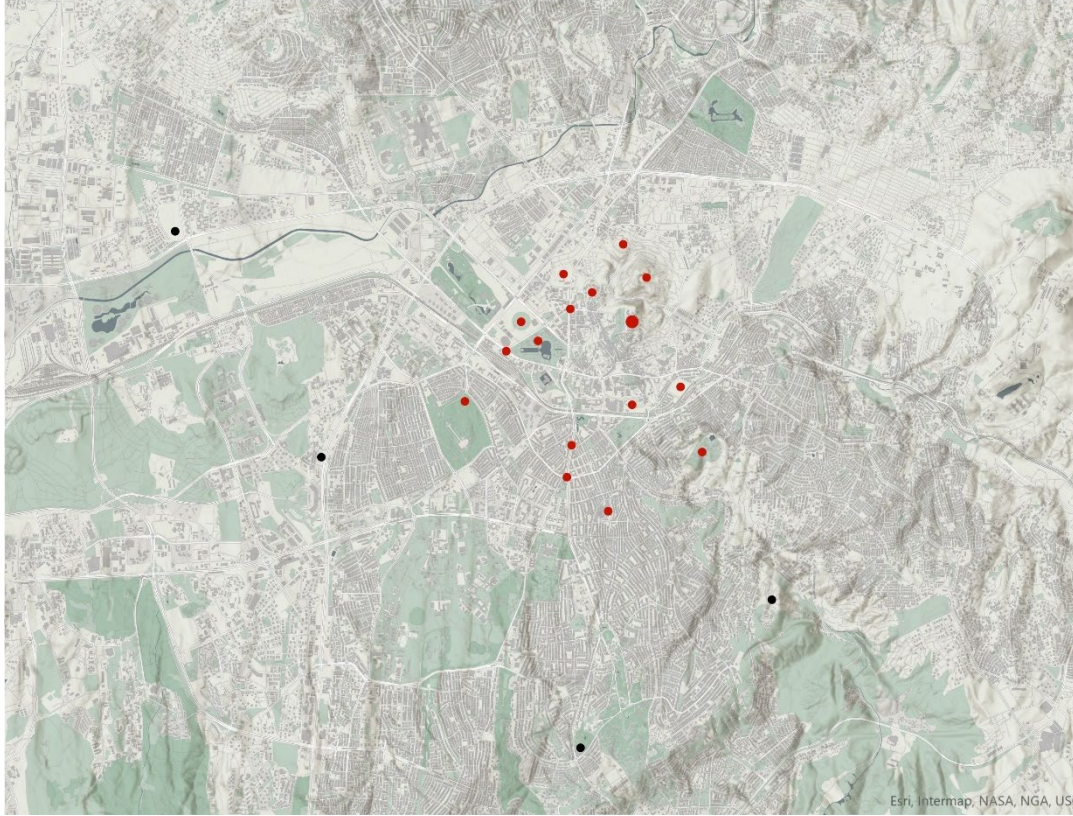


Figure 4. 5. Viewpoints (red dots indicate the frequent viewing points; black dots indicate certain natural and built high vantage points) (map produced using OSM (Carto) data and ESRI topographic data by the author)

In addition to the frequent viewpoints, there are certain high places, such as Atakule, Bademlidere Park, Yumurtatepe, and the Great Tumuli next to AŞTİ (indicated by black dots in Figure 4.5.). These viewpoints also offer broad views of the urban formation of Ankara, in which different parts of the city can be observed. By re-evaluating these critical points of observation, this study aims to contribute to a deeper understanding of how viewpoints shape urban perception.

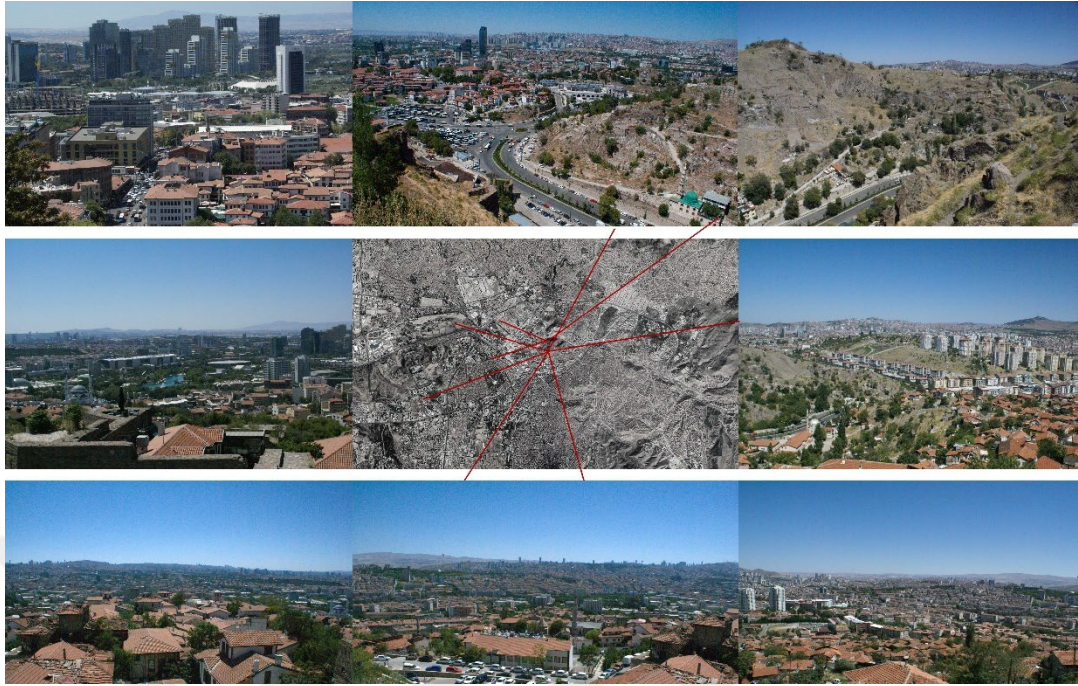


Figure 4. 6. Views from the Citadel (Map is derived from Google Earth Satellite View and photos by author, 2024)

Even though these prominent viewpoints have drastically changed in the urban context in contemporary Ankara, they remain relevant. Especially, the Citadel remains a focal point for viewing urban formation because of the panoramic views. As can be seen in Figure 4.6., there is a contrast between the restored, red-roofed houses in the foreground and the high-rise buildings dominating the skyline. The clusters of higher structures in the background fragment the urban image interrupt visual continuity and disrupt the city's skyline order. As such, there is a lack of hierarchy in spatial structure, and this affects the skyline directly. This issue is the result of partial planning decisions and a lack of proper height regulations that could have preserved the balance between natural, historical, and built elements. Nonetheless, the Citadel remains an important observation point for understanding Ankara's spatial and visual structure.

In contrast to Citadel, surrounding hills lost their visibility because of the undesigned urban developments. This has resulted in visual obstructions and a diminished sense of connection between the natural landscape and the urban environment.

Nonetheless, the 2023 100th Anniversary of the Republic Monument Idea Project Competition for Hıdırlık Hill can be a significant initiative to reimagine the role of peripheral hills. Halil Soysal Cirit and Şimal Avcı's project, a third project of the competition, started to build in 2023. The project includes an event area and city path on the south, a circular platform on the north, and two isosceles right triangle section towers on the north. The towers will be 65.5 meters tall and 6 meters wide, defining a direction and orientation extending to Anıtkabir (Ankara Municipality, 2023). The design for the project includes tall, symbolic towers with integrated public spaces to encourage a renewed sense of place, and visual accessibility.

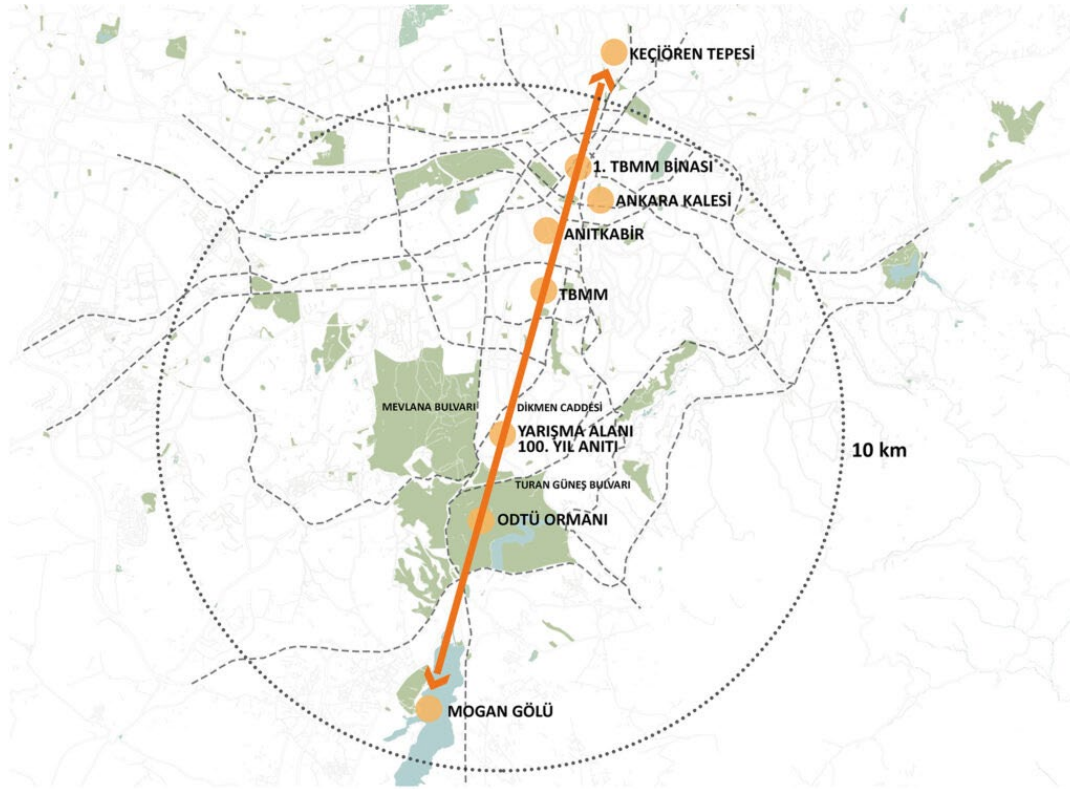


Figure 4. 7. Visual axis that defined in 100th Anniversary of the Republic Monument Idea Project Competition (derived from <https://www.arkitera.com/proje/yarisma-projesi/ucuncu-odul-2023-cumhuriyetin-100-yili-aniti-fikir-projesi-yarismasi/>)

Although there is a defined visual axis in the project (Figure 4.7.), it does not adequately address the relationship with the Citadel. The height of the structure on the Hıdırlık hill will affect the silhouette and became a landmark for the urban

environment. The project could serve as a pioneer for reclaiming and redefining Ankara's peripheral hills, transforming them from overlooked features into integral components of the city's spatial-visual identity. These natural elements can regain their status as landmarks while contributing to Ankara's broader aesthetic and functional urban landscape.



Figure 4. 8. Views from Roman Bath (Map is derived from Google Earth Satellite View and photos by author, 2024)

Furthermore, the Roman Bath is one of the significant historical landmarks in the city. Its elevated position offers a wide range of views across the city, especially towards the northwest. Nevertheless, the visual relationship between this historical site and its surrounding urban fabric has been compromised by high-rise developments. As illustrated in Figure 4.8., modest buildings in the northern part create a more harmonious relationship with the historical site. The view is more open from that part and the city can be perceived more. On the other hand, higher blocks interrupt the urban perception and the site's legibility within the broader urban landscape. Also, they offer fragmented and inconsistent backgrounds for the site and disrupt its prominence. Notably, the view towards the citadel is blockaded entirely and the continuous visual axis between the citadel and the Roman bath is now lost (Figure 4.9.).

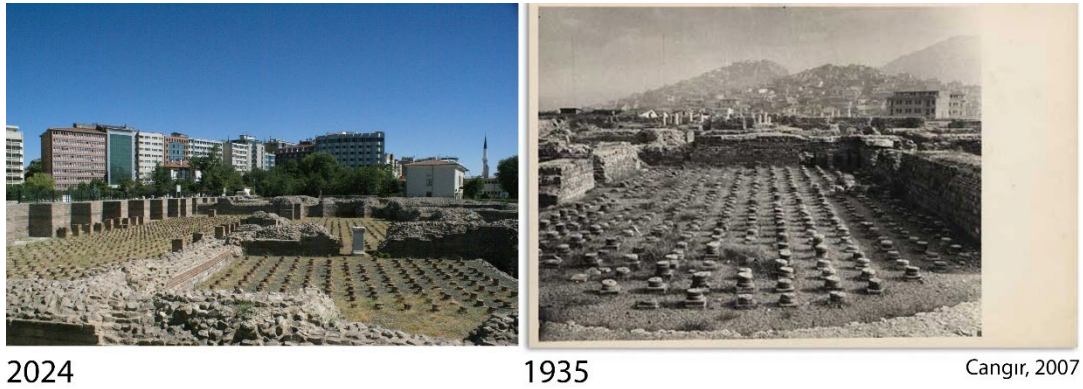


Figure 4. 9. View from Roman Bath towards the Citadel (first photo by author)



Figure 4. 10. Views from 50. Yıl Park (Map is derived from Google Earth Satellite View and photos by author, 2024)

Open spaces on the hills like parks are significant for Ankara's visual and spatial structure. Near the historical core, 50. Yıl Park can be considered as a significant nodal point that offers panoramic views of Ankara. Its accessibility and program as a public space enhance its quality of being an observation point. The park provides visual axes connecting several prominent landmarks, including the Citadel, Hacettepe, Kocatepe, and Anıttepe, enhancing its importance within Ankara's spatial-visual structure.



Figure 4. 11. Views from Bademlidere Park (Map is derived from Google Earth Satellite View and photos by author, 2024)

In addition to 50. Yıl Park, new Bademlidere Park, located near Kırkkonaklar, offers expansive views of Ankara's southern and central districts. However, the view from Bademlidere to the Citadel is blocked by a high residential building, in parallel to the challenges involved in preserving sightlines within the dynamics of urban developments. In contrast to its topographical advantage to be a vantage point, vitality of the park should be increased with various program. There is a need for integration of such spaces into Ankara's recreational and cultural structure. Such parks on the hills should be enhanced by accessibility, programming, and landscape design to integrate the city's spatial and visual structure.



Figure 4. 12. Views from Yumurtatepe and the Great Tumuli (Map is derived from Google Earth Satellite View and photos by author, 2022)

Moreover, due to their heights and designed visual relation, tumuli have importance within the urban landscape. However, under rapid urbanization, some of the tumuli have been left under construction (Alanyalı Aral., et.al., 2023). Even though some of them conserve their spatial continuity like Yumurtatepe and the Great Tumuli, the visual axis between them was disturbed by urbanscape. The Great Tumulus near AŞTİ offers wider views towards the western districts of the city. This tumulus remains as both an archaeological site and a vantage point. Similarly, Yumurtatepe Tumulus in Yenimahalle-Demetevler is one of the significant vantage point that provides views toward the northern and western districts. As depicted in Figure xx, the views provided by these tumuli underline their importance within Ankara's spatial and visual narrative. Tumuli integration in the urban design process can be essential to retaining their value as heritage and enhance their vitality as public spaces and visual landmarks.

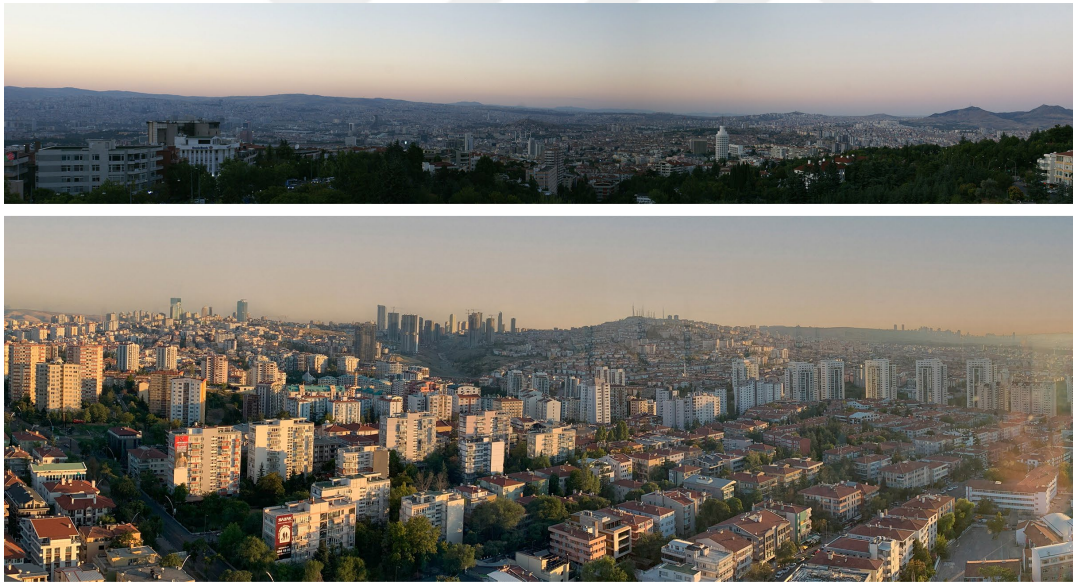


Figure 4. 13. Views from Atakule towards North (first photograph) and South (second photograph) directions (photos by author, 2024)

Atakule preserves its quality of being a landmark in the city. The top of the tower provides a panoramic view of Ankara and is designed in such a manner as to provide an uninterrupted 360-degree perspective of the city. The privileged position of the tower makes it possible for a viewer to reach and observe key urban districts and

landmarks. However, Atakule's commercial aim constrains its public potential in terms of being a more inclusive space.

The prominent viewpoints of the city include historical landmarks in natural and built environments, which contribute to the perception of the urban landscape. Main vantage points, including the Citadel, Atakule, higher urban parks, and tumuli, allow views toward the structure of the city's morphology and its historical and natural narratives. Pressures of urban expansion and piecemeal planning have brought about visual fragmentation and disturbed sightlines. To preserve and enhance these elements, there should be a holistic approach, which would focus on height regulations and accessibility, integrating all these spaces with Ankara's cultural and recreative structure. Such an effort would serve to protect the spatial and visual structure of Ankara.

4.2.2 Approaching Points

Kostof (1991) indicates that approaching the city is a visitor's direct experience of the skyline. It was possible to perceive the city as a whole in the past from the approaching points. However, it is not possible for contemporary cities. Today, the approach to a city often reveals fragmented impressions of its urban fringes rather than a unified image. In contrast to fixed viewpoints that provide stationary vision, approaching points emphasize the dynamic visual experience of urban space. As one approaches the city, the landmarks and distinctive urban features are brought into prominence; distant elements are concealed. With the definition of Nijhuis, slow and fast motion vision reveals the layers of urban structure sequentially as the observer moves closer. The entryways into a city, whether through major roads or train lines, act as essential components of a welcoming image of the urban landscape.

In the context of contemporary Ankara, the entryways provide a serial vision of the city's development, as they reveal the transition from peripheral areas to the dense urban core. For instance, the approach from Eskişehir, Konya, or Istanbul Roads into

the city offers a skyline, marked by high-rise buildings and distant views of significant landmarks like Atakule, Ankara Citadel, Anıtkabir, et cetera. On the other hand, entry from the eastern axis, such as the Samsun Road, introduces the city's visual character through a combination of natural hills and densely built environments, reflecting a different spatial experience. The northern axis which concludes with the airport starts with the Kuzey Ankara housing project on a valley with high-rise housing blocks. The axis extends on the Atatürk Boulevard as a spine. Nonetheless, the experience through the axis was not designed coherently.

The analysis of approaching points also emphasizes the role of natural elements in shaping spatial perception. The sloping topography and varying elevation of Ankara create a series of visual layers that are revealed as one moves through the city. For example, the approach from the east, where Elmadağ rises in the background, offers a unique sense of enclosure that gradually opens into the central plain of the city. This interplay of natural and built elements serves to define the observer's experience, creating a distinct sense of arrival and orientation.

4.2.2.1 Slow-Motion Vision: Route from Train Station to Citadel

As a case study, the view from the train station to the citadel will be analyzed as a slow-motion vision. This approaching route was prominent for early plans like Lörcher and Jansen's Plans. This route was designed to create a strong first holistic impression of the city. In the early Republican Period, the citadel as a destination point of the axis could be seen clearly and there is sequence of squares along the axis: Istasyon, Baruthane and Ulus. This spatial organization provided visual coherence and hierarchy, particularly the integration of paths, nodes, and landmarks to enhance urban legibility (Lynch, 1960; Norberg-Schulz, 1971). The Citadel, serving as a focus-center-goal (Higuchi, 1975), was designed to dominate the axis and create a strong sense of spatial and visual orientation.



Figure 4. 14. View from Istasyon Square towards Citadel direction (first photo by author, 2024 and second photo is derived from Cangır, 2007 and dated 1937)

Today, Istasyon Avenue is named Cumhuriyet Avenue and its characteristics also altered, with the enhancement of different periods' architectural styles. Today, when one walks along the axis, instead of the Citadel, Hıdırlık Hill and the new 100th Anniversary of the Republic Monument can be seen directly. From Baruthane Square, is perceived as a rising monument in the background of the old Sümerbank Building (nowadays the building is used by Ankara Sosyal Bilimler University). The citadel can be seen clearly from the starting point of Anafartalar Avenue at Ulus Square. While walking in contemporary Ankara, the shifting image is more diverse than before with the new landmarks but also disrupting historical sightlines.



Figure 4. 15. A route from train station to the Citadel (Map is derived from Google Earth Satellite View and photos by author, 2024)

Moreover, with the demolition of 100. Yıl Çarşısı the defined visual corridor along the axis and the definition of Ulus square are lost. These changes bring into light more extensive issues within Ankara's process of urban transformation about how historical visual corridors can be preserved amid developments in a contemporary context. The train station-to-citadel axis shows that urban design strategies should aim at prioritizing the continuity of historical elements by providing space for modern landmarks, taking into consideration the interrelation between the spatial structure and visual structure, as is underlined throughout this study.



Figure 4. 16. Change of the Ulus Square with the demolition of 100. Yıl Çarşısı

4.2.2.2 Fast-Motion Vision: Approaching from West

Furthermore, views from the West have consistently emerged as significant in archival research, reflecting their importance in Ankara's visual and spatial perception. Historically, western approaches to the city provided a holistic view of

Ankara. Today, the Istanbul and Eskişehir highways are the primary routes for approaching Ankara from the west. These highways play a crucial role in shaping the initial perception of Ankara, providing sequential layers of urban vistas as one moves closer to the city center.

The approaching road to Ankara from Istanbul presents a fragmented and visually disjointed urban experience, towards an entrance into the city due to piecemeal planning. As illustrated in Figure 65, the sequence of views lacks a focus-center-goal relationship, resulting in an absence of spatial hierarchy, narrative progression, and sense of arrival. The diverse architectural forms and irregular landscaping illustrated in the photographic series do not succeed in creating coherence or clarity, which are fundamental elements highlighted by Lynch (1960) in the analyses of urban environments. In addition, the surrounding development seems to be a response to immediate needs and fragmented, lacking the chance to composition of natural and constructed elements within a cohesive structure. Parallel to this, the gateway of the city needs a strategy that has defined the city entrance not only symbolically, but also contextual relationships regarding a holistic approach to enhance the arrival experience.

The comparison in Figure 66 indicates that the highway and infrastructural developments around Akköprü visually isolate it, diminishing its prominence as a landmark. Hıdırlık Hill and the Citadel were a background for this approach and give the impression of arriving at the city. Nonetheless, this potential is lost with urban developments, especially high-rise formations around the historical core.

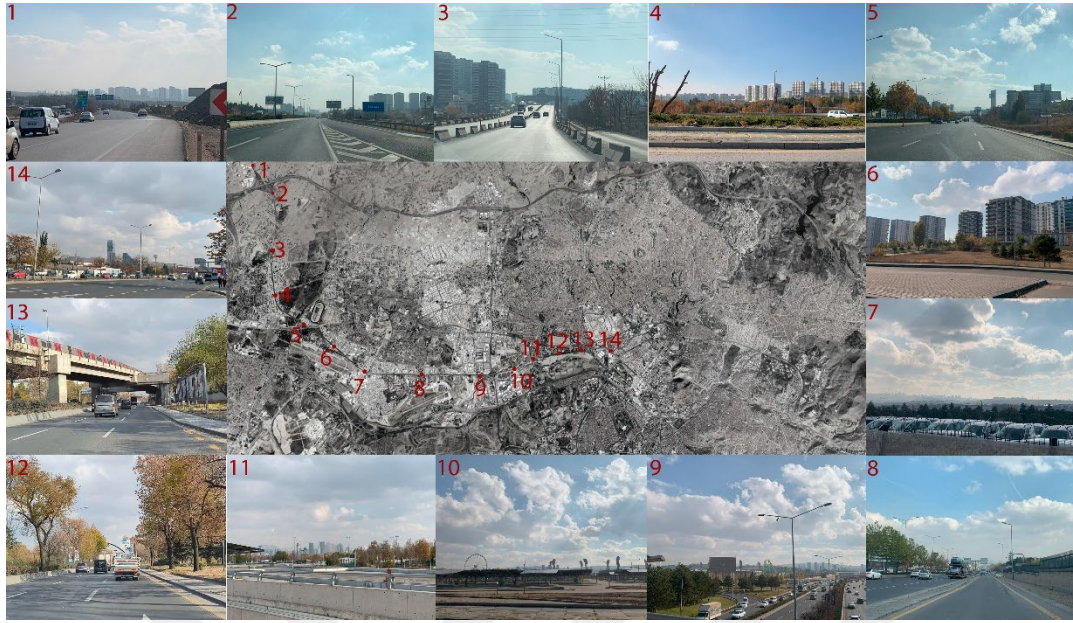


Figure 4. 17. Sequential views from Istanbul Road towards the city center (Map is derived from Google Earth Satellite View and photos by author, 2024)



Figure 4. 18. Views from Akköprü towards the Citadel, the 1900s vs. 2024 (the first photo is derived from Cangır, 2007 and the second photo by the author)

The Eskişehir Road approach to Ankara's city center presents a more legible urban sequence compared to the Istanbul-Ankara entrance. This axis demonstrates somehow a focus-center-goal relationship, enhancing the sense of arrival between images 5 and 8 (in Figure 4.17). The Central Business District in Söğütözü is consistently visible, defining a destination point. This continuous visual connection provides narrative progression and aids in orienting the viewer. In image 11, Hüseyin Gazi Mountain can be seen while approaching towards Milli Kütüphane. However, because of the weather conditions and photograph quality, it cannot be seen at all. Additionally, the route's open characteristics change while approaching Atatürk

Boulevard because of the boundary condition of ministries or administration buildings. With the arrival of Boulevard, a defined corridor welcomes the perceiver, but the visibility of the axis decreased compared to historical panoramas. Therefore, while the Eskişehir Road achieves more defined and narrative continuity compared to the fragmented Istanbul-Ankara entrance, it could further benefit from a holistic strategy to strengthen its symbolic and contextual relationships.



Figure 4. 19. Sequential views from Eskişehir Road towards the city center (Map is derived from Google Earth Satellite View and photos by author, 2024)

The transition from suburban areas to the denser urban core allows the observer to perceive Ankara's changing spatial structure and evolving visual narrative. Key landmarks, including topographic features and built elements, become reference points making the city legible. However, this current urbanization pattern introduces disorder and confusion in the coherence of the sequence of vision. Irregular building heights and uncoordinated development along these routes have disrupted the continuity and coherence.

4.3 Transformation of Spatial-Visual Structure

The transformation of the spatial-visual structure of Ankara reflects the urban development from a planned Republican capital into a sprawling city formation. Key spatial and visual elements have either been conserved, modified, or overshadowed by new developments: natural landmarks, historical monuments, and urban corridors. The loss of visual coherence in certain areas contrasts sharply with the emergence of new landmarks and infrastructure that redefine the city's skyline and image. Piecemeal decisions and uncontrolled high-rise formations around both the historical core and periphery, break historical sightlines and disrupt spatial continuity. This section synthesizes the results from both archival and contemporary analyses by outlining the major shifts within the spatial-visual hierarchy of Ankara.

4.3.1 Comparison of Urban Panoramas

Archival research has revealed that one of the main view directions from Ankara Citadel is towards the Train Station and Hacıbayram Hill. Between the 1920s and 1950s, the Ulus quarter and its surroundings underwent significant development aimed at improving the general image of the new capital. A review of historical panoramas indicates that the density of the built environment had increased substantially by 1940, with further growth by 1953.

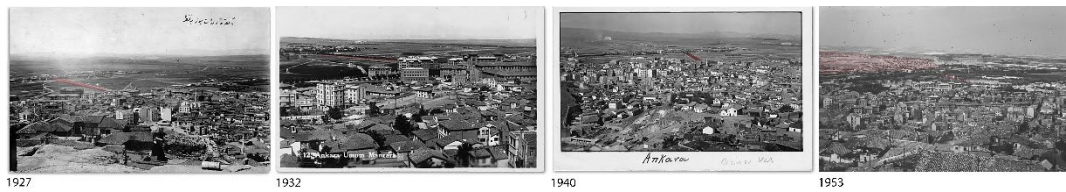


Figure 4. 20. Views from Citadel to Train Station direction (the first three photographs are derived from Cangır, 2007 and the last photograph is derived from “Eski Ankara” Resimleri Antolojisi in Facebook)

As seen in Figure 4.20., the earliest panoramas exhibited a composition of natural and built environments with open sightlines that stretched from the Citadel to the

Train Station. As urban development rapidly altered in the Ulus quarter by the 1940s, it created a denser built environment, but one that retained the legibility of the urban silhouette. However, beginning in the 1950s, this balance started to change as newly constructed buildings began to dominate the skyline, marking the rise of visual contrast within the cityscape.

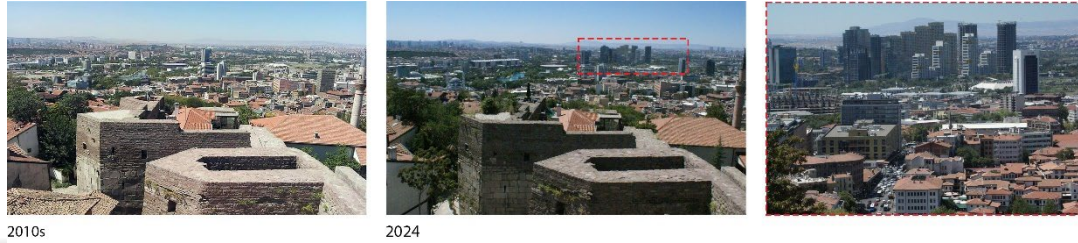


Figure 4. 21. Contemporary views from Citadel to Train Station direction (the first photograph derived from Facebook, Ankara Kalesi, and the current photographs are by author)

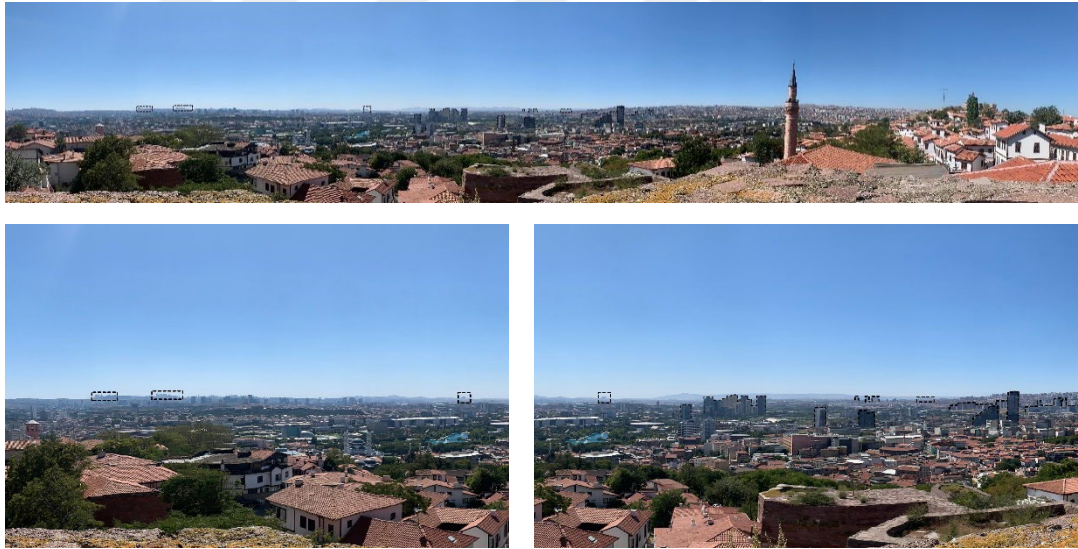


Figure 4. 22. Panoramic view from the citadel to the west, 2024 (Photos by author)

Current views ranging from the Citadel to the Train Station highlight significant alterations to this visual axis. As shown in Figure 4.22, large-scale developments, such as being representative of this is the Merkez Ankara project have introduced substantial changes. These buildings' dimensions and volumetric forms affect the spatial and visual relationships in the district, blocking sightlines toward Akköprü and disrupting the seamless course of the city's historical silhouette. The architectural

style and scale of these buildings differ from the surrounding context, thus a noticeable contrast. This divergence affects the overall harmony of the urban texture and introduces new dynamics to Ankara's spatial and visual framework.

The view from the Citadel to Hacıbayram Mosque provides a valuable perspective on the interplay between Ankara's historical and modern elements. In archival panoramas, the mosque and its surroundings stood out as a cohesive and harmonious ensemble, with clear visual connections to the Citadel. The sightline between these two points emphasized their cultural and historical significance, reinforcing the spatial hierarchy of the city. The natural path of the Hatip River transformed into a major roadway and the unique view of the area changed notably. Contemporary views indicate significant changes in this axis. While the mosque remains a prominent feature, the surrounding urban environment has become more fragmented. High-rise developments and inconsistent architectural styles in the vicinity disrupt the visual and spatial relationship between the mosque and the Citadel.



Figure 4. 23. Views from the Citadel towards Hacıbayram

Youth Park, situated near the city center, serves as an important green space offering panoramic views of Ankara's urban structure. Historically, the park's open spaces provided a visual axis connecting several landmarks, including the Citadel, Ulus, and Hacettepe districts. Archival images depict a cohesive urban environment, with the park acting as both a recreational hub and a key node in Ankara's spatial-visual framework.

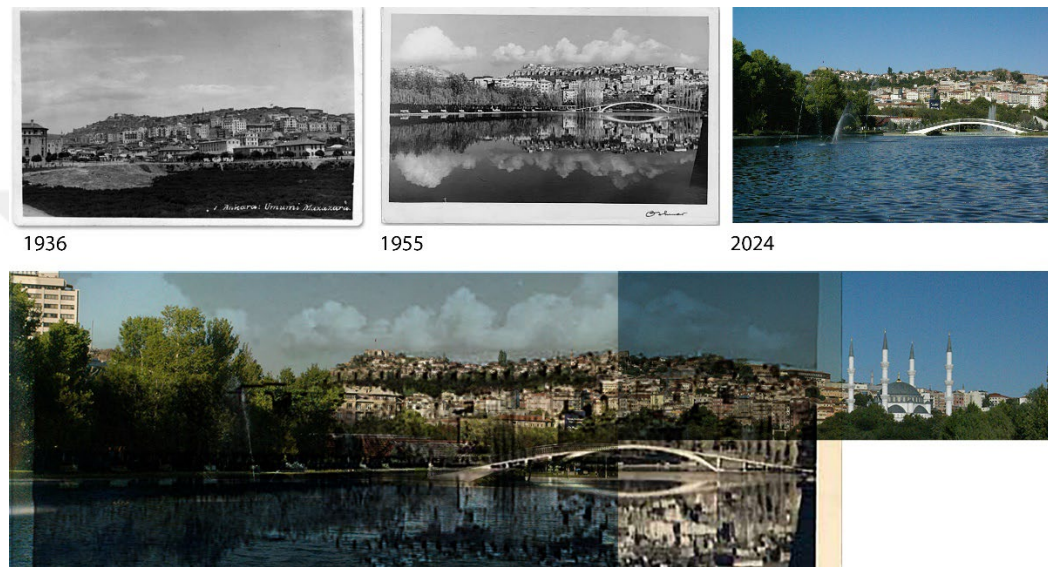


Figure 4. 24. Views from Youth Park to Citadel (photographs from 1936 and 1955 are derived from Cangır, 2011; 2024 dated photograph taken by the author, and the collage is produced by the author)

Contemporary views indicate that the park itself retains its green and open character. However, the construction of the Melike Hatun Mosque designed by Hassa Architecture, has significantly altered the visual composition of the surrounding skyline. Its imposing mass and architectural style now dominate the view, overshadowing the historic prominence of the citadel. This shift is particularly evident in the view from Youth Park, where the mosque's towering structure has transformed the spatial dynamics and skyline.



Figure 4. 25. Views of Melike Hatun Mosque, the first photo is from Istiklal Avenue and the second one is from in front of the Youth Park (photos by author, 2024)

4.3.2 Problems in Spatial-Visual Qualities

Ankara's spatial-visual structure has experienced significant shifts during the urban process. The transformation of the city reflects urbanization, modernization, and the evolution of planning priorities. Considering the Republican era, it can be argued that Ankara was characterized by a coherent urban image with the integration of natural and built environments. Early plans by Lörcher and Jansen, tried to emphasize significant landmarks, visual connections, their continuity, and spatial legibility. Sightlines, spatial coherence, and hierarchy were design concerns for these plans. However, contemporary developments disrupted significant sightlines and visual and spatial hierarchy, which led to an uncoherent skyline

Firstly, the absence of effective height regulations has allowed the proliferation of high-rise buildings that obscure historical landmarks and disrupt established sightlines. Key perspectives, such as those from the Citadel to Hacıbayram Mosque or the Roman Bath, no longer provide clear visual connections, undermining the historical narrative embedded within the city's spatial framework. For example, the view towards Engürü Plain from the Citadel reveals the emergence of large-scale projects like Merkez Ankara, which disrupt historical sightlines and spatial relationships. Such developments do not match with their immediate context,

affecting the visibility of space and diminishing the legibility of the urban environment.

Another significant problem is the change in the perception of surrounding hills and natural landmarks, which historically have importance for urban spatial and visual structure. The Hıdırlık Hill, for instance, now features the 100th Anniversary of the Republic Monument, through its size and placement, competes with the Citadel's historic role as a visual anchor. Similarly, the urban developments on Hatip Hill do not consider the natural formation of the hill, introducing structures that did not match the context and diminished the hill's characteristics. Additionally, Yumurtatepe and the Great Tumuli near AŞTİ face challenges of visibility and accessibility because their potentials are not considered and are lost in the rapid urbanization.

Moreover, the historical axis from the Train Station to the Citadel, once a welcoming sightline for Ankara, has been fragmented by inconsistent urban interventions. For example, the demolition of structures like the 100th Year Bazaar in Ulus has disrupted the historical spatial sequences, further contributing to the incoherence of the urban experience. On the other hand, the contemporary approaching highways to the city are not evaluated as once Train Station axis was. There is no designed image from surrounding highways, instead, doors are welcoming to visitors at each city entrance, which do not have any design logic behind them.

This difference between historical and present-day urban planning practices underlines a greater shift in the urban development of Ankara: from a cohesive synthesis of past context and modernity to disjointed and opportunistic expansion. The dynamic characteristics of Ankara's spatial-visual structure bring into light the conflict between conservation and urban development. The early Republican emphasis on vistas, spatial balance, and a unified urban aesthetic is being lost today by rapid urbanization and piecemeal decisions. This kind of transformation challenges Ankara's urban structure as a city that once successfully balanced its rich

history with modern aspirations, thus calling for a much more deliberate and subtle approach toward urban planning.

4.4 Visual Urban Design Guideline Examples

Urban design guidelines are essential for shaping cities to balance historical conservation, contemporary needs, and sustainable growth. Cities like Seville, San Francisco, and Florence provide various examples of guiding principles that respond to spatial and visual challenges. By examining the global approaches, Ankara can adopt principles about conservation and sustainable urban growth. This section aims to explore the urban design principles behind these cities. The Seville guidelines concentrate on the protection of historic sightlines while integrating natural and built environments. On the other hand, the guidelines developed for downtown Florence represent a thoughtful approach to redeveloping historic districts with adaptive reuse and the creation of people-oriented streetscapes. Lastly, in San Francisco, contextual sensitivity comes forward with the integration of public spaces to emphasize the urban experience.

Seville's Historic Urban Landscape Guide (GHULS) was developed by the Andalusian Institute of Historical Heritage (Instituto Andaluz del Patrimonio Histórico, IAPH) between 2008 and 2015. GHULS stands for Historic Urban Landscape Guide (Guía de Paisaje Urbano Histórico), a strategic framework developed to address the preservation and management of historic urban landscapes. It emphasizes the layering of cultural and natural heritage in urban development, including the conservation of historic views, integrating the Guadalquivir River into the urban framework, and employing multiscale analysis to connect the historic core with surrounding urban areas. For analyzing the city, thematic studies conducted in the report focus on territorial and heritage categories, perception and impact, and production of new architecture in the city of Seville and its relationship with the landscape (Guide to the Historic Urban Landscape of Seville, 2017)

According to the report, key principles include:

- **Preservation of Historical Sightlines:** Focal areas of attention include significant historical elements such as city walls and gates. The study emphasizes restoring such remnants, especially in areas like the Macarena District, the Jewish Quarter, and near the Reales Alcázares. Proposals include cohabiting these structures with the new urban uses and improving public accessibility.
- **Contextual Integration of New Developments:** New parallel urban interventions need to respect the historical quality and spatial continuity of the city. Urban design guidelines at Seville emphasized new constructions falling in line with precedent architectural patterns in the city and alignment with historical landmarks-one of them being main sightlines to landmarks.
- **Landscape and Green Space Preservation:** Green spaces, typically imbued with historic importance, are an instrumental part of the urban scenery of Seville. Such guidelines tend to ensure that green public areas are ever included in the urban pattern, serving functions as much as culture.
- **Collaborative Frameworks:** Seville involves multiple stakeholders, including local authorities and cultural organizations, to ensure holistic urban design.

As a second example, the Downtown Design Standards for Florence provide a framework that aims to maintain the historical and architectural integrity of the urban environment. The study is dedicated to the revitalization of the district Downtown Florence and publication, partially funded by the National Park Service and U.S. Department of the Interior. Although standards were drafted in 2005, to stay up to date these standards have been updated every five years. The 2024 draft edition of standards mainly includes design principles on: maintaining a unified and improved identity, establishing place-making within downtown districts, respecting the historic character, encouraging mixed uses, enhancing gateways and corridors, avoiding suburban or rural land use patterns, focusing on pedestrian-centered

mobility, creating pedestrian spaces for the vitality of downtown. The design principles of Florence's Downtown Design Standards prioritize a cohesive integration of spatial and visual structure to support vibrant, functional, and sustainable urban development (Downtown Design Standards, 2024). Key principles can be summarized as:

- **Contextual Integration:** Align new construction and renovations with district-specific urban design principles, historic character, and established building placement, ensuring harmonious development.
- **Public Realm Enhancement:** Emphasizing the streetscapes of pedestrian-friendly streets, public spaces, and placemaking elements such as wayfinding systems, public art, and landscaping that encourage community engagement and visual interest.
- **Building Design and Placement:** Encouraging architectural coherence through façade design requirements, activation of the ground floor, and height limits so that scale and alignment contribute to urban experience.
- **Landscape Management:** Integrating native plantings with creative green infrastructure that improves ecological sustainability, and manages runoff, and visual aesthetics.
- **Accessibility and Connectivity:** Ensuring public spaces and streetscapes remain accessible by providing clear pathways and connections to adjacent properties, further enhancing downtown usability and cohesiveness.
- **Placemaking and Identity:** Strengthen district identity through consistent but adaptable design elements, emphasizing gateways, corridors, and streetscape features to create a unique and welcoming downtown character.

Furthermore, San Francisco's urban design guidelines emphasize the importance of the city's topographical characteristics, historical values, and the vibrancy of public places. The guideline aims to create a coherent urban environment that composes landscapes, neighborhoods, and urban core. The guidelines set a framework for overcoming spatial and visual challenges while encouraging sustainable urban

growth and vibrant urban experiences (San Francisco Planning, 2018). Key principles of San Francisco's urban design approach can be summarized as follows:

- **Topographical Integration:** Hills and waterfront are the defining elements of San Francisco's urban structure. According to guidelines buildings should be integrated with natural topography and framing visual connections to key features. For instance, architectural designs ought to seamlessly merge with the inclined landscape, thereby conserving the interaction between the constructed and natural environments.
- **Conservation of Historical Sites:** Similar to the approaches taken in Florence and Seville, San Francisco places significant emphasis on the preservation of its historical landmarks. The guidelines promote the adaptive reuse of heritage structures, guaranteeing their functionality for contemporary needs while upholding their historical significance.
- **Contextual Awareness:** Each district has a distinct architectural character, cultural identity, and spatial organization. New developments are encouraged to consider these contextual conditions. For instance, the existing scale, materials, and patterns of neighboring buildings should be considered. Also, instead of imitating specific historic styles, new designs should respond contextually through thoughtful massing, scale, materials, and integration with public spaces.
- **Public Space Activation:** San Francisco's policy emphasizes the importance of public spaces as extensions of sidewalks and urban settings, much like Florence's pedestrian-priority streetscapes. These spaces are designed to be visually and physically accessible, connecting sidewalks with adjacent uses, and open space networks. Ground-level and rooftop public spaces should offer inviting environments with clear pathways that guide users from interior to exterior spaces.
- **View Corridors:** Public view corridors, especially hilltops, open spaces, and waterfronts should be considered. It is because this helps orient and connect both residents and visitors alike to the city. According to guidelines, urban

design should recognize and enhance these views by shaping buildings, pedestrian paths, and street facades to frame or create vistas and by creating new views wherever feasible. Features such as bay windows and accessible rooftops can maximize long-distance and skyline views, ensuring that these unique views remain part of the character of the city.

The examples of Seville, Florence, and San Francisco contribute valuable insights into historical conservation and contemporary needs with sustainable growth that can be balanced by urban design principles. Seville focuses on integrating cultural and natural heritage by maintaining historical sightlines. Florence emphasizes coherent spatial and visual structures through pedestrian-friendly designs, place-making, and adherence to historic integrity. San Francisco brings to the forefront the importance of topographical integration, adaptive reuse of historical sites, and revitalization of public spaces. These examples are significant for presenting a diverse and interrelated framework for Ankara.

CHAPTER 5

CONCLUSION

This study has examined Ankara's spatial and visual structure by analyzing and comparing urban panoramas. The transformation in the structure and the challenges that rapid urbanization brings about were discussed. With the comparison of archival and contemporary views, the thesis aimed to explore how urban developments have transformed Ankara's spatial and visual structure starting from being the capital of the Turkish Republic, constituted by its topography, early urban planning efforts, prominent landmarks, and viewpoints. Even though there was an effort to structure urban space visually and spatially in early plans (Jansen and Lörcher Plans), with the Uybadin-Yücel plan and afterward these concerns were lost and rapid urbanization negatively affected Ankara's spatial and visual structure.

The findings demonstrate that the spatial and visual structure of Ankara has undergone obvious fragmentation since piecemeal planning decisions interrupted historical sightlines, reduced the visibility of landmarks, and changed the skyline of the city. While the citadel was a primary visual focus, nowadays its visibility is dominated by high-rise developments, showing a shift in urban priorities. Similarly, peripheral hills and natural features, which are historically integral to the city's visual structure, are being increasingly overshadowed by dense and uncoordinated urban growth. These transformations underscore the challenges of maintaining spatial and visual coherence amidst rapid urbanization. Despite these challenges, the study also searches for opportunities for restoring and enhancing Ankara's visual and spatial coherence. Conservation and contextual consideration of historical landmarks such as the Citadel and Hacıbayram Mosque, natural vantage points like Hıdırlık Hill, and green spaces such as Youth Park and Bademlidere Park may provide a more coherent relationship between fragmented urban elements.

5.1 Evaluation of Spatial-Visual Structure of Ankara

The spatial-visual structure of Ankara reflects a layered historical process, a calyx-formed natural landscape, and the ongoing process of piecemeal urbanization. For a deeper evaluation, it is significant to discuss the city's past, today, and future. The historical background of the city extends to the Phrygian Period. Although there is no adequate information on the overall urban formation of that period, Phrygian Men Temple ruins under the Augustus Temple and tumuli show that burial sites and ceremonious concerns for the dead were decisive for establishing a settlement as Mumford (1961) stated. Similar to this period, during the Roman period, the city center concentrated around Hacıbayram Hill, where the Temple of Augustus was located. The city became the capital of the Galatian State within the Roman Empire and the power of the empire affected the formation of the city. Roman Ancyra expanded along a northwestern axis, featuring civic structures like baths, a marketplace, and defensive walls, which defined its urban form.

Following the Roman Period, The Byzantine Period had significant development in the conversion of the Temple of Augustus into a church, showcasing the adaptive reuse of historical sites. By the late 15th century, the Turkish people preserved the temple's remnants and constructed the Hacıbayram Mosque adjacent to it. This layering of religious and civic functions on Hacıbayram Hill can be considered evident that the history of urban spaces reveals significant milestones that shaped how cities were conceived and experienced. The historical evolution of Ankara reflects its transformation through various eras, marked by major urban and architectural developments. After the Seljuks took over Ankara, leaving structures like the Arslanhane Mosque and Akköprü, while Sultan Alaaddin restored the citadel in the 13th century. This period introduced a Turkish and Islamic socio-cultural character to the city.

Under the Ottoman Empire, Ankara became an important trade hub along the Silk Road, sustained by Bedesten and Hans. The Celali Rebellions of the 17th century required the construction of a third wall, marking the boundaries of the city and

shaping its depiction as a walled-closed settlement. Visual representations of Ankara, from the 16th to the 19th century, show drawings, engravings, and maps that indicate the citadel's importance and reveal the urban fabric. Major works—like the 16th-century sketch by Dernschwam, the 18th-century engraving by Tournefort, and the 1839 map by von Vincke—provide clear evidence for the spatial transformation of the city's open settlement to a more enclosed form. These representations emphasize prominent sites, including the Citadel, the Hacı Bayram Mosque, and the Temple of Augustus, as well as the city's connections to both its natural environment and built landscape. Another breaking point of the period is the railway that was built in 1892. This marked an important step in the modernization of the city. This development revitalized economic life and shifted the direction of urban growth outside of the old city walls until the First World War.

Being the capital of the newly established Turkish Republic in 1923, changed Ankara's evolution. This may be considered the most prominent breaking point of the city's history. The first official planning history of the city started in order to form the new image of the republic. For the Lörcher Plan, Ali Cengizkan stated that this marked an important milestone in the history of town planning in Turkey, where Ankara was carefully planned out with considerations for its eventual urban structure (Cengizkan, 2003). Following the Lörcher Plan, Hermann Jansen developed a master plan for Ankara in 1928. Both German planners produced the plans in reference to the Garden City model and emphasized the Citadel as a spatial and visual focus because of its long historical prominence. In the suggested plans, critical issues of urban design were highlighted including approaching the city, first impressions, and the integration of natural and built environments. Besides, public and recreational spaces were carefully planned to make the Citadel the center of the urban panorama. Indeed, in Jansen's proposal, green belts were introduced and highlighted the conservation of old fabric while establishing and promoting connections to new development through the Atatürk Boulevard. This approach reinforced an integrated spatial and visual relationship between the historical values of Ankara and its evolving role as a modern capital.

By the 1950s, Jansen's plan reached its limits, and squatter settlements emerged on the city's periphery. The plan proposed expansion of the city along the east-west axis. Unlike the prior plans, this plan lacked spatial and visual considerations and instead focused on housing problems. The expansion of urban space was both in vertical and horizontal dimensions, the height regulations did not consider skyline and the overall visual structuring. As a result, this plan can be considered a shift in the planning history of Ankara, prioritizing functionality over design and leading to challenges of spatial coherence and visual appeal. The plans afterward continued to disregard the spatial and visual structure of Ankara and implementations remained inconsistent. By the decade of the 1980s, control of the planning process underwent the authority of the municipality. In 2006, the Ankara Metropolitan Municipality prepared a new 2023 Master Plan in order to guide urban growth as the earlier plans prepared for 2015 and 2025 were not approved. The plan, which was prepared for the projected population of 6 million, promoted controlled fringe development and sustainable growth along the key corridors with mixed-use zoning. The planning area was subdivided into six districts, each governed by the environmental plans. However, transportation-oriented investments and a market-oriented planning strategy caused decentralization, leading to fragmented areas linked by highways and marked by the growing number of shopping centers and isolated facilities.

It is hard to define the contemporary urban structure of Ankara, the piecemeal developments and the lack of a comprehensive urban plan resulted in fragmented urban formation. This fragmentation also affected the overall skyline with not designed heights, especially towers scattered everywhere without considering the contextual relationships. Issues identified within the spatial-visual structure of Ankara demonstrate the need for comprehensive design guidelines that enhance the city's spatial and visual structure and historical context. These guidelines should focus on preserving historical sightlines, integrating natural and built elements, and creating cohesive urban spaces with the aim of a sense of the whole.

One major problem is the discontinuity of historical sightlines due to the uncontrolled development of high-rise buildings. Another problem is the loss of the visual hierarchy. Piecemeal urban developments and lack of height regulations resulted in disproportionate scales. The prominent structures, like the Citadel and Hacıbayram Mosque, lose their prominence, and the city presents a disintegrated and uncoordinated urban visual structure. In addition, the interruption of spatial continuity along meaningful historical axes weakens the sequential spatial experience of the city. For instance, the historical axis extending from the Train Station to the Citadel, which once was an essential part of the urban narrative of Ankara has been interrupted with inconsistent interventions and incongruous developments. The visibility of the Citadel has already been disrupted but the new monument on Hıdırlık Hill will change drastically the sightlines through the axis. A new monument will dominate the view of the Citadel. Additionally, the drastic change in Ulus Square is one example that affected the urban experience through the axis. After the demolition of 100. Yıl Bazaar, the historic square remained undefined, and it is hard to define the place as a square today.

Therefore, this assessment of Ankara's spatial-visual structure underscores that a comprehensive visual and spatial urban design framework is necessary to protect and enhance the structure of the city. Nevertheless, the future of Ankara is ambiguous today because there is no holistic urban plan for it and the city is changing rapidly. This change is a result of uncontrolled urban development. To prevent more urban discontinuities, and this fragmentary approach, there should be a new city plan regarding future possibilities. Such a plan should consider the topographical characteristics of Ankara, landmarks, and monuments, and should be integrated into future urban planning actions to ensure a coherent visual hierarchy, protecting its skyline - redesigning major problems -, and creating integrated visual experiences for inhabitants and visitors. Also, the plan must adopt a participatory, inclusive process, engaging stakeholders to ensure broad support and effective implementation because today, urban interventions remain isolated from city inhabitants. By fostering integrated visual and spatial experiences for residents and visitors, Ankara

can transform its urban fabric into a more cohesive, vibrant, and sustainable environment.

5.2 A Framework for Visual Design Principles in Ankara

Based on the international cases discussed in the previous chapter and the spatial-visual analysis of Ankara presented in the thesis, this section offers a framework for Ankara's visual and spatial structure. The framework tries to align with the city's spatial dynamics, historical layers, and visual narratives. Also, to achieve these objectives, there is a need for the involvement of stakeholders like urban planners, architects, historians, and public representatives because the top-down decisions have resulted in piecemeal urban development and a lack of coherent urban structure.

A key principle of the model is the **conservation and enhancement of the historical and natural features** of Ankara. Landmark structures, such as the Citadel, Atakule, Anıtkabir, and major buildings from different periods, must be conserved and respected since they are viable parts of the structure of the city. Also, the continuity of such landmarks enhances the legibility of the urban environment. Visual corridors that link these key landmarks with the urban context around them should be created and retained, with a focus on key viewing points including Hıdırlık Hill and the Citadel. The topography of the city—its hills, valleys, and plains—should naturally lead the urban planning process to successfully integrate open green spaces, such as Bademlidere Park, which provides potential urban panoramas, or Youth Park with its historical significance into the overall urban structure. Additionally, historical sites like the Roman Bath and Tumulı need to be considered as recreational spaces that have the potential to enhance the vibrancy of the urban environment. The interaction between the built and natural environment contributes not only to visual cohesion but also to spatial structure in Ankara. That is why they need to be considered together and how spatial and visual structure relate to each other should be a design concern.

The spatial-visual coherence of Ankara can be strengthened by methods encouraging panoramic integration and defining urban edges. Urban panoramas—especially those from higher viewpoints defined in the thesis—should be a concern of urban planning to integrate special vistas into the urban experience. Addressing visual barriers, such as unregulated building heights, is essential to maintaining clear sightlines and ensuring the legibility of Ankara's urban form. It is also significant that urban edges give shape to the delimitations between historical and contemporary developments so that the characteristics of each are preserved while, at the same time, ensuring a sense of spatial coherence. Today, it is hard to define edges in the urban space of Ankara.

Furthermore, **the adaptive integration of new developments** with the existing urban pattern is another critical aspect of the framework. New constructions should respect the contextual scale and skyline, materials, and possess similar aesthetic qualities to the historical environment to ensure that urban extensions do not disrupt established spatial patterns or compromise the integrity of the skyline. The reuse of older buildings should be particularly emphasized because demolishing the "old" structures is a frequent approach in Ankara or general Turkey. The search for a "new" started to become related to demolishing old and building new. However, adaptive reuse is one way to integrate past architecture with present-day uses while preserving its architectural significance. This approach does not just conserve the historical narrative of the city but also increases its vitality.

The pedestrian-based approach to the design of urban spaces recognizes that the experiential aspects of moving through a city have a significant effect on the perception of space and it should be considered for a comprehensive spatial and visual structure. Pedestrian paths should emphasize the accessibility of major vistas and panoramas to enhance the urban experience spatially and visually. Public spaces in the form of squares, parks, and promenades should be designed and conserved as interconnected nodes within the urban network, serving functional and aesthetic purposes while ensuring continuity within the city's spatial hierarchy.

In conclusion, there is an urgent need for an integrated approach to historic preservation, natural features, and contemporary urban development within a single coherent urban strategy. This approach should be able to enhance legibility and vitality within the urban environment by conserving topography, urban panoramas, vistas, landmarks, or historical values. Adaptive reuse of historic structures, clear urban edges, and pedestrian-friendly spaces are needed to create a harmonious relationship between the past, present, and future of the city. In Ankara, through the collaboration of planners, architects, historians, and the public, the current challenges of fragmentation and piecemeal development by a top-down decision-making process can be overcome to achieve a sustainable and visually coherent urban structure.

5.3 Future Studies

This study tried to analyze the spatial and visual structure of Ankara; however, further research is needed to advance the analysis and project its implications. More advanced pattern analysis based on GIS-based tools is an opportunity to explore the intricate spatial relationships defining the urban fabric of Ankara. Such tools will allow in-depth analysis of specific areas by modeling visibility patterns and identifying spatial dynamics. More detailed visibility analyses, including seasonal and temporal factors such as time of day and weather conditions, would further provide an understanding of how the city is perceived in different contexts.

Further research on serial vision through sequential views would enhance understanding of how specific landmarks and spatial configurations influence urban perception along pedestrian or vehicular routes, especially approaching towards the city. Such comparative analysis with cities that have similar topographic and morphological features can expand the scope of research, providing critical cross-references and design strategies for urban development. Moreover, interdisciplinary approaches such as written document analysis, literature on Ankara's history, and personal narratives can help develop a more complex understanding of the spatial-

visual structure of Ankara. These approaches would not only complement spatial analyses but also include more perspectives, such as subjective experiences and memories of individuals, which may have the potential to enhance urban design strategies.





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APPENDICES

A. Extended Table of Literature Review

Table A. Literature Review of Spatial and Visual Structure in Urban Spaces

Reference	Concepts		Determinants	Notes
Lynch, K. (1960). The Image of the City. Cambridge, MA: MIT Press.	Definitions derived from the source	legibility	coherent and clear pattern	the ease with which its parts can be recognized
		environmental image	identity	distinction from other things, its recognition as a separable entity.
			structure	physical characteristics
			meaning	physical clarity, however, it changes from person to person
		imageability	paths	channels along the observer move, continuity, directionality, hierarchy
			edges	linear boundaries between two phases or linear breaks, visibility, continuity, directionality
			districts	medium to large sections of the city, components: texture, space, form, detail, symbol, building type, use, activity, inhabitants, degree of maintenance, topography.
			nodes	strategic points, junctions, concentrations, spatial form, activity, introvert or extravert
			landmarks	external point-references, physical objects, uniqueness and specialization, spatial prominence: visibility or local contrast
		shifting images	scale of area	continuity in the change is significant because it gives a character to place. sequence
			viewpoint	
			time of day or season	
		visual attention	clear edges and open views	when two strongly contrasting regions are in juxtaposition, and their meeting edge is laid open to view, then visual attention is easily concentrated.
			defined nodes	the achievement of identity by the singular and continuous quality of the walls, floor,

				detail, lighting, vegetation, topography, or skyline of the node.
		physical characteristics	singularity/figure-ground clarity	sharpness of boundary, closure, contrast of surface, form, intensity, complexity, size, use, and spatial location. identification, recognition.
			form simplicity	clarity and simplicity of visible form in a geometrical sense.
			continuity	continuance of edge or surface (street channel, skyline, or setback), nearness of parts, repetition of rhythmic interval pattern. similarity, analogy, the harmony of surface, form, or use. suggests a single identity.
			dominance	in terms of size, and intensity. simplification of the image
			clarity of joint	high visibility of joints and seams. clear relations and interconnection.
			directional differentiation	asymmetries, gradients, radial references.
			visual scope	transparencies, overlaps, vistas and panoramas, articulating elements, concavity (as of a background hill or curving street), clues that speak of an element otherwise invisible
			motion awareness	clarity of slopes, curves, and interpenetrations. experience of motion parallax and perspective: consistency of direction or direction change; visible interval. speed
			time series	the sequence of landmarks, a series structured in time. pattern of elements. succession of space, texture, motion, light, and silhouette
			names and meanings	nonphysical characteristics. identity, local clues. social, historical, functional, economic, and individual meanings
	Inferences of the author from the source	visual hierarchy	order of lines of movement	These aspects are discussed on paths. The hierarchy and order of paths heighten the imageability of an urban environment. Also, they enhance the spatial experience.
			continuity	
			repetition, rhythm	
			clarity and direction	

Lynch, K. (1981). A Theory of Good City Form. MIT Press.			scale	
			slope	
			sequence	
		sense of whole	sequential continuity	the hierarchy, the dominant element, or the network of sequences.
	Definitions derived from the source	performance dimension of the spatial form of the cities	vitality	the degree to which the form of settlement supports the vital functions
			sense	the degree of perception of the settlement, which is mentally differentiated and structured in time and space
			fit	the degree of form and capacity of spaces, channels, and equipment, which should have adaptability to the context
			access	the ability to reach other persons, activities, resources, services, information, or places, including a diversity of elements
			control	the degree to which the use and access to spaces and activities and their creation, repair, modification, and management are controlled by those who use, work, or reside in them.
		sense	identity	common experiences, "sense of place"
			structure	recognition, orientation
			congruence	relation with place and function/environment
			transparency	degree of perception
			legibility	degree of communication with inhabitants
	Inferences of the author from the source	continuity in space and time	openness and connection	for the development of cities
		visual structure	visual harmony	These aspects are mentioned as a part of the perception and cognition of the inhabitants. They affect the image of a space, and its legibility. These are seen as city-building goals.
			expression of continuity	
			orientation and clear image	
			sequential experience	
			contrast	

			coherence	
			human scale	
			vistas and panoramas	
			visual order	
Montgomery, J. (1998). Making a city: Urbanity, vitality and urban design. Journal of Urban Design, 3(1), 93–116. https://doi.org/10.1080/13574809808724418	Definitions derived from the source	physical elements	architectural form	urban quality is bound up in the social, psychological and cultural dimensions of place. not only physical attributes
			scale	
			landmarks	
			vistas	
			meeting places	
			open spaces	
			greenery	
		place-making	activity	
			image	
			form	
		activity	vitality	what distinguishes successful urban areas from the others. pedestrian flows. particular slots of time by programming events and activities.
			diversity	encourages activity, transactions, people-watching, eyes on the street, and therefore natural surveillance. complexity. variety and availability of activities, land uses, etc.
		image	identity	Whilst 'identity' is an objective thing (what a place is actually like), an image is a combination of this identity with how a place is perceived. physical form and setting.
			psychological access	sense of identity for users of spaces. the sense of identifying with a place. sense of belonging.
			receptivity	providing identification of space to strangers
			knowledgeability	to encourage associational activity and to generate greater knowledge about what goes on in a place.
	Inferences of the author	form	fit	complexity, patterns of movement, diversity of primary uses, a fine-grained economy, an active street life, variety in opening hours,

	from the source			the presence of people attractors, legibility, imageability, knowledgeability
			size	varying unit sizes can provide flexibility and adaptability
			human scale	a combination of the ratio of building height to street width, relative distance, permeability, and the sense of grandeur or intimacy of space.
			permeability	more streets and corners, alleys, courtyards
			visibility	transparency at the edges of private and public realms are met. horizontal zoning of street frontages.
			architectural styles	architectural style, that is to say, the design and appearance of individual buildings. the essential task is to design the form of the city in such a way as to achieve city diversity, activity, and urbanity.
Norberg-Schulz, C. (1971). Existence, space and architecture. London: Studio Vista.	Definitions derived from the source	spatial relations	orientation	inside-outside, far away-close by, separate-united, continuous-discontinuous
			position	above-below, before-behind, right-left
		existential space	place	centralization, proximity closure
			direction and path	continuity, verticality, horizontality, linearity
			domain	edges, patterns, the system of paths, topography. natural-social-economic etc. domains
		landscape structure	topography	can be a decisive element. dividing rivers, hills, islands, etc.
			climate	
			vegetation	addition to natural relief
		architectural space	place and node	junction of paths, concentration
			path and axis	continuity, movement, network
			domain and district	closure and similarity
		urban structure	district	area, domain
			street	path, surfaces, proportion, human scale
			square	focal point, center
	Inferences of the author	hierarchy	scale	urban level, landscape level, architectural level

	from the source	architectural space	proximity	clustering of elements
			enclosure	determines a space which is separated from its surroundings as a particular place
			boundary	space-defining element
Norberg-Schulz, C. (1980). Genius loci: Towards a phenomenology of Architecture. Academy Editions.	Definitions derived from the source	genius loci: the spirit of place	identity	distinct characteristics
			meaning	symbolic significance
			structure	built and natural environment
		dwelling	orientation	inside-outside, far away-close by, separate-united, continuous-discontinuous
			identification	identity, understanding the environment
		landscape elements	topography	natural relief. can be a decisive element. plain, basin, valley, ravine, hills and mountains, dividing rivers
			water	acts as an edge
			vegetation	addition to natural relief
		natural place	landscape elements	topography, water, vegetation
			sky	atmospheric character, quality of light and color, and the presence of characteristic clouds.
		man-made place	center	concentration
			path	directionality, vertical-horizontal
			domain	districts, fields
	Inferences of the author from the source	spatial structure	boundary	space defining element
			enclosure	determines a space which is separated from its surroundings as a particular place
			direction	axis, continuity
			organization	layout of spatial elements
			foci	focal point, central, centralization, concentration
			proximity	clustering of elements
		visual structure	architectural styles	forms, materials, facade variations
			man-made place	urban fabric

			natural place	water bodies, vegetation, topography, geological formations, sky
			spatial hierarchy	scale, order, perception, human scale
		sense of whole	composition	layout, organization, coherence
			hierarchy of spaces	order
			integrated totality	the particular relationship between vertical and horizontals, between above and below serves as a unifying force
			spatial identity	continuity, urban layers, heritage
			image	relatively stable system of perceptual schemata or image of the environment
			pattern	rhythm, variation, repetition
Cullen, G. (1961). The Concise Townscape. Elsevier.	Definitions derived from the source	understanding environment	optics	
			place	
			content	
		fabric of towns	color	
			texture	
			contour	
			scale	human scale, scale in context, contrast, harmony
			style	
			character	pattern, geometry, urbanity, multiple use, planting, natural elements, topography
	Inferences of the author from the source	serial vision	contrast	difference between things creates vivid contrast. the experience becomes visible in a deeper sense and the sense comes alive through the drama of juxtaposition.
			existing view	perception
			emerging view	cognition
			topography	
			movement	
		place	sense of position	orientation
			level of the ground	

			sequence	
		spatial characteristics	enclosure	
			depth	
			composition	
			form	
			space continuity	flow
			boundary	physical/visual
			hierarchy of spaces	scale, layout, sense of order, space sequence
		townscape	unity in scale	
			kinetic unity	
			propriety	
			flexibility	
			outdoor publicity	
			surface	floor and wall, connecting, dividing, texture, pattern, material
			level of the ground	
			coherence	
			identity	
			natural elements	
			paths	continuity, network, access, pedestrian or vehicular, movement patterns
			focal points	cross, square
			landmarks	landmarks or focal points, can create visual prominence and help orient and guide people within the space.
			architectural styles	
			vitality	activity
			landscape	topography, vegetation, water
		visual characteristics	vistas and panoramas	direct views
			angle of vision	division of space, sightline

			screened vista	here-there, involves deliberately obscuring or partially concealing a view using elements such as trees, buildings, or other structures. This creates a more obscure and gradual revelation of the view as the observer moves through the space.
			closed vista	refers to a view that is completely obstructed or blocked, typically by a physical barrier or structure
			distance	closure
			sequential perception	arrangement of spaces, vistas and transitions
			visual break	roof line, contours
			silhouette	foreground, background
			depth	below-above, here-there
			level of the ground	ascending, descending, below-above, viewpoint
			visual prominence	legibility, orientation, sense of place, identity
			datum-line	frame of reference
			light and color	time (day-night-seasons), street lighting
			transparency	inside extends out
Kepes, G. (1951). Language of vision. Theobald.	Definitions derived from the source	plastic image	external forces	the visual field, the retinal field: the three-dimensional field, the picture field; the spatial forces
			internal forces	the physiological field and psychological field
		spatial forces	position	induce spatial experiences of further intensity and variety.
			direction	
			size and shape	
			color, brightness and value	
			texture	

		space span of plastic organization	nearness	proximity
			similarity / equality	common qualities
			similarity / equality	
			closure	
		lifespan of the plastic image	rhythm	organization of optical sense
			equivocal space	organization of spatial progression, movement
		movement perception	velocity	
			kinesthetic sensation	
			memory sources	
		visual field	three-dimensional field	spatial position, directions in space
			picture field	boundaries of the picture plane, horizontal-vertical axes, the surface receives its spatial evaluation, its position, direction, and interval
		levels of integration	balance	
			harmony	
			rhythm	
	Inferences of the author from the source	spatial characteristics	orientation	
			depth	closure, horizon line, position, distance
			order	overlaps, hierarchy
			form	size, shape
			direction	
			figure and background	
			texture	
			scale	
			proportion	
		visual characteristics	light and shadow	
			color	

			transparency	
			size	
			shape	
			lines and planes	contour lines
			pattern	
			texture	material
			viewpoint	
			angle of vision	
			vista	
			clearness	
			depth	
			movement	sequence
			balance	
			rhythm	
			unity	the coherence and harmony of visual elements within a composition, creating a sense of wholeness or completeness.
Higuchi, T. (1989). The visual and spatial structure of landscapes. Cambridge, MA: MIT Press.	Definitions derived from the source	visual structure	visibility	what can be seen and what cannot be seen in the given viewpoint. distance, atmospheric conditions
			distance	changes that take place in the appearance of an object as the distance between the observer and the object varies, foreground, background, middle ground
			angle of incidence	when a landscape is conceived of as a concentration of surfaces, the angle at which the line of vision strikes each surface determines to a large degree what can be seen of it
			depth of invisibility	the degree of invisibility in terms of the depth of the unseen section with respect to the line of vision
			angle of depression	viewer's position of looking at a scene from above
			angle of elevation	nature of upward view and the limits of visible space

			depth	the degree of three-dimensionality of the landscape as it unfolds before the viewer
			light	transformations that take place as the position of the light source moves from front to side to back
		spatial structure	boundary	shut the outside world off from view, while at the same time having a high degree of visibility within the domain it protects. difficult to penetrate. continuity is crucial to the formation of boundaries.
			focus-center-goal	landmarks, clear form, contrast with the background
			directionality	directional order can be achieved by means of an image that exists only in the mind's eye. mountains rising from terrain, sloping ground surfaces, valleys or basins, prevailing winds, passages, corridors
			domain	a domain is the total space that is brought together and given order by the conditions of boundary, focus-center-goal, and directionality.
		distinctive view	visual character	composition and harmony between them
			spatial character	
	Inferences of the author from the source	spatial entities	form	
			scale	
			material	
			texture	
			color	
Nijhuis, S., Lammeren, R. van, & der, H. F. van. (2011). Exploring the visual landscape advances in physiognomic landscape research in the Netherlands. IOS Press.	Definitions derived from the source	visibility	field of vision	Humans have an almost 120-degree forward-facing horizontal, binocular field of vision, allowing depth perception.
			range of vision	distance from the observer to an object, depth plan, or skyline. The range of vision depends on the position of the observer (altitude, proximity, and angular size of the objects), viewing direction, and atmospheric conditions
		visible form	structural organization	balance, tension, rhythm, proportion, scale
			ordering principles	axis, symmetry, hierarchy, datum, transformation

		modes of vision	stationary vision	standing still or sitting; frontal perception of a fixed scene
			slow-motion vision	walking, cycling, and horse riding; slow sequential frontal and/or lateral perception of scenes
			fast-motion vision	car driving, motorcycling, and train; fast sequential frontal and/or lateral perception of scenes
E. Bacon's Design of Cities and S. Kostof's The City Shaped books discuss cities and urban design on examples. Direct definitions of related concepts cannot be found. Therefore, the concepts below are inferred by the author.				
Kostof, S. (1991). The city shaped: Urban patterns and meaning through history. London: Thames and Hudson.	Inferences of the author from the source	urban structure	street patterns and layout	grid patterns, organic layouts
			topography	as a determinant of urban form. contours of the ground
			square	
			edges	
			landmarks and monuments	monuments give scale to the city, landmarks form a common identity
			clusters	streets, centers, blocks, neighborhoods
			public spaces	
			architectural styles	
		spatial characteristics	boundary	
			hierarchy	scenographic hierarchies, hierarchy of spaces, geometric order, scale
			layout and organization	patterns, systems, composition
			form	builtscape, natural landscape
			continuity	continuous planes/lines, uniform facades
			depth	
		image	identity	common values
			monuments	
			landmarks	
			squares	
			built environment	

			natural landscape	especially topography: riverline settlement, natural harbor, defensive site, linear ridge, hilltop town, sloped terrain
			skyline, silhouette	
			visual language	connotations
		visual characteristics	viewpoint	bird's eye view, high viewpoint
			focal points	terminal points, vanishing point
			topography	the natural formation creates a distinctive characteristics
			vista	framing of a distant view
			sequential perception	successive viewpoints
			height	height of buildings, natural elements
			continuity	visual directionality, uniformed facades
			visual clarity	legibility
			depth	foreground, background
			skyline	where earth and sky meet, buildings on the horizon
			urban panorama	holistic understanding of city, including both panoramic views of the skyline and street views
			visual hierarchy	proportions, scale
			visual prominence	
			shape	
			approach	direct experience of skyline features by the visitor to the city. urban fringe
			color and light	
Bacon, E.N. (1967). Design of Cities. New York, Penguin Books.	Inferences of the author from the source	sense	identity	spirit of the space
			involvement	shared experiences, collective memory
		movement system	depth	size of space, scale
			sequence	continuity, network, interwoven lines
			modes of movement	pedestrian, vehicular

			movement pattern	rhythm, diversity
			speed	rates of speed
		sense of whole	continuity	relationship of elements
			coherence	context, structure
			composition	harmony, organization, order, layout
			hierarchy of spaces	scale
		spatial structure	form	points, lines, planes
			texture	pattern, material, rhythm
			scale	urban, architectural, and human dimension
			volume	three-dimensional definition
			enclosure	open, closed
		visual structure	light and color	time
			viewpoint	levels
			skyline, silhouette	scale, continuity, order
			focal point	landmarks, monuments
			topography	ascent, descent
			vistas and panoramas	frames of urban space
			shifting views	movement, sequence