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The Morphological Impact of Restructuring Routes: Atatürk Boulevard's Palimpsest Phenomenon

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ABSTRACT

Restructuring routes are significant urban elements that lead to physical changes in cities to meet modern needs, often resulting in traumatic transformations. This study investigates the morphological impact of the palimpsest phenomenon on Istanbul's Atatürk Boulevard, an exemplar of restructuring routes. The Boulevard's construction disrupted the organic urban fabric, creating a new structure and altering the area's identity. By employing a typomorphological analysis based on Conzen's Town Plan Analysis, this research examines changes in the street, building, and subdivision systems. The study utilizes historical and contemporary maps to reveal the effects of Atatürk Boulevard on urban morphology, demonstrating both positive and negative consequences of restructuring routes. Findings indicate that the boulevard increased the economic value of the area but also led to the fragmentation and loss of historical urban elements, contributing to a complex urban palimpsest. The study highlights the need for sensitive urban planning to preserve the city's historical identity while accommodating modern developments. The insights gained are crucial for architects and urban planners in managing urban landscapes, ensuring sustainability, and respecting historical contexts in future developments.

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Highlights:

- The study also highlights the identity-changing role of the traumatic character of the restructuring routes.
- The study emphasizes the impact of restructuring routes on the urban fabric, revealing how they disrupt and reshape urban memory.
- A novel typomorphological analysis is introduced, demonstrating the interplay between modern urban development and historical preservation.
- Atatürk Boulevard serves as a case study illustrating how restructuring routes increase economic value while fragmenting historical urban elements.

Contribution to the field statement:

This study introduces a novel typomorphological analysis of restructuring routes, using Atatürk Boulevard as a case study to explore their impact on urban morphology and collective memory. By uncovering the complex interplay between modern developments and historical preservation, the findings provide a framework for urban planners and policymakers to balance contemporary needs with cultural heritage conservation, thereby enriching the existing literature on urbanization's socio-economic consequences.

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1. Introduction

Cities, as complex living organisms, are subject to change in order to meet current needs. These changes result in a range of morphological transformations within urban environments. The presence of urban artifacts that embody the morphological characteristics of different historical periods ensures the continuity of urban memory. The term "urban artifacts" is used to describe the various physical elements that are a part of the urban fabric. These include streets, buildings, building blocks, territories, and routes. The restructuring routes, which may be considered as an urban artifact, can be seen to result in the formation of traumatic routes that are created within existing urban fabrics as a consequence of changes in current needs. Restructuring routes, which are characterized by a dynamic structure, are formed as a result of the necessity to combine pre-existing poles – social structures that have been formed by the combination of spatial hierarchies – with new ones (Maretto, 2021). These routes serve to create a palimpsest, thereby influencing the formation of urban identity and texture as elements that disrupt the continuity of urban memory. In this study, the concept of palimpsest is employed as a metaphor to illustrate the overlapping and intertwined layers. The palimpsest metaphor represents the multi-layered nature of cities, which is shaped by attempts to erase existing elements and create new layers (Huysen, 2003).

This study examines the impact of Atatürk Boulevard on the identity and memory of the urban fabric, with a particular focus on its role as an example of a restructuring route. The results of the literature research indicate that there is a notable absence of analysis within the urban morphology on this subject, with the exception of the work of Giuseppe Strappa. In the context of urban morphology, Strappa's contributions have highlighted the significance of restructuring routes, yet a detailed examination of this phenomenon remains unworked. This study was conducted to address this gap in the existing literature. The principal objective of this study is to delineate the morphological processes of Atatürk Boulevard, a prominent urban image and a focal point for Istanbul, as a palimpsest. Furthermore, it seeks to elucidate the vestiges and traumatic consequences of restructuring routes in urban memory from a multidimensional standpoint. In order to analyze the dialogue of restructuring routes with regard to the intertwined concepts of texture and memory, situated within the urban context and spatial hierarchy, the Town-Plan Analysis proposed by Conzen (1960, p.43), comprising street, building, and subdivision parameters, is taken as a reference point. This analysis is then used to inform the development of a town plan reading model. In this regard, the study examines the traumatic effects of restructuring routes in the spatial context by employing a typo-morphological approach to the comparative interpretation of data obtained from various maps.

In light of the aforementioned considerations, the following research question is identified as the primary focus of this investigation:

- How can restructuring routes affect palimpsest formation in the urban fabric and memory with their multifaceted outputs?

The study is of significant importance for the protection and management of the urban landscape, as it allows for the identification of restructuring routes. The analysis is of great value in demonstrating that any forthcoming changes should be implemented with the utmost care and sensitivity, in order to ensure that the urban landscape is passed on to future generations in an unaltered state. The outcomes of this study are important for architects and urban planners to assess the built environment from an urban morphological perspective when intervening for new formations to the morphology of the city.

The study consists of three main sections. The initial phase of the study explores the nexus between space and identity, while also investigating the influence of the palimpsest phenomenon on urban collective memory in the context of restructuring routes and Atatürk Boulevard. In the subsequent phase, the palimpsests of Atatürk Boulevard and the restructuring route were subjected to typo-morphological analysis. Finally, the findings of this analysis are interpreted, and a methodological proposal for the interpretation of potential restructuring routes is presented.

2. Materials and Methods

The study is principally founded upon a typomorphological analysis of urban form. The selection of this method is based on the fact that a typomorphological approach allows for a comprehensive analysis of

urban form by integrating the characteristics of buildings and subdivisions. One of the traditions of typomorphological research has its roots in Italy. Consequently, this study is grounded in the taxonomic framework proposed by Strappa, a prominent figure within the Italian school of typomorphological research. Therefore, the concepts of ‘street, building and subdivision’, which are the parameters defined by Conzen’s Town-Plan Analysis and Strappa in his article ‘Reading a Built Environment as a Design Method’ (2018), are categorized among urban artifacts related to the concept of urban fabric. According to Strappa’s conceptualization, the routes consist of buildings -that can be classified as basic and special- and poles. Streets are distinguished by areas formed by ‘sub-divisions’.

In order to present the palimpsest phenomenon in an accurate manner, the study makes use of both contemporary and historical maps. The maps in this study are Ayverdi Maps (1875-1882), Alman Mavileri Maps (1913-1914), Pervititch Insurance Maps (1922-1945), aerial photographs of 1966, and contemporary plans of 2024. The selected maps were selected on the basis of Doğan Kuban's (1969) article, entitled ‘The Historical Structure of Istanbul’.

In the research, the selected maps are to be interpreted through three main layers: the street fabric, the building fabric, and the subdivision systems. These layers may be defined as palimpsests of the study area. By superimposing the selected maps, an analysis of the morphological changes between the palimpsests was conducted. Moreover, the impact of restructuring routes on the urban fabric was examined by comparing the changes observed with the construction of Atatürk Boulevard as a restructuring route.

The following sources were utilized in the analysis of the street fabric: Ayverdi Maps, Alman Mavileri Maps, Pervititch Insurance Maps, Prost Plans, and aerial photographs dated 1966 and present-day -2024- plans. The Pervititch Insurance Maps, and aerial photographs dated 1966, and present-day -2024- plans were employed for the purposes of building fabric and subdivision analysis.

In the street fabric analyses, the street forms in the study area and their relations with the building blocks, the forms of the building blocks after the construction of Atatürk Boulevard as a restructuring route, and the changes in the street fabric were traced through the cause-effect relationships created by the palimpsests.

In the building fabric analyses, the building information was extracted from the identified maps in order to examine the evolution of building distribution among the palimpsests in the study area. Moreover, the influence of restructuring routes on the architectural typology and volumetric composition was investigated. The impact of restructuring routes on the balance of basic and special buildings in the urban fabric was interpreted through the concept of palimpsests.

In the subdivision analyses, the impact of the restructuring routes on the subdivisions in the area was investigated through the use of comparative techniques, with the methodology of following the palimpsests employed.

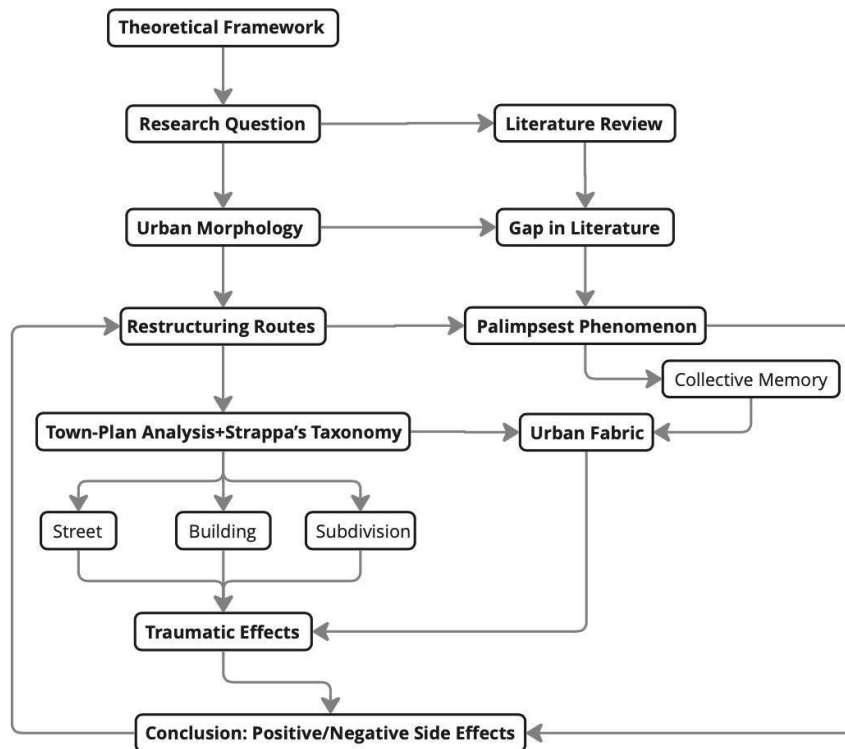


Figure 1. The framework of the study.

3. Literature Review

Space is a conceptual entity that is defined by its physical boundaries and imbued with meaning through social relations. The space is perceived and committed to memory to the extent that it can be visually represented in the minds of its users. The spatial plane represents a significant area where both individual and collective memories are recorded.

On the other hand, the city is a living entity that has been created and developed by humans over time. Aldo Rossi (1984, p.2) defines the city as "a giant man-made object; a vast, complex, time-growing work of engineering and architecture.". According to Aldo Rossi (1984, p.5), the city develops in a manner that is organic and self-conscious. It gains a sense of consciousness and memory, and during the process of construction, the initial themes remain consistent, yet the city modifies these themes in accordance with its own evolution, giving them a more distinctive form. Rossi proposed that the city should be defined in terms of the collective memory of its inhabitants. He further asserts that the city is the locus¹ of collective memory. In brief, the manner in which a location is integrated into one's memory is contingent upon the manner in which individuals perceive spatial relationships. Urban spaces are embedded in memory and transmitted to future generations in the way they can be perceived.

The concept of urban identity can be defined as the sum of a city's unique character, structure, and texture, as well as the characteristics that distinguish it from other cities. As Tekeli (2009, p.84) argues, an abstract place acquires an identity when it becomes meaningful to the people who live there. A space, particularly an urban space, acquires identity to the extent that it can be perceived and imagined. Accordingly, urban space can be located in memory to the extent that it can be identified. The collective memory of a city is formed by the urban fabric, which bears the traces of different periods. This process is the first step of the palimpsest phenomenon. De Quincey, who refers to the human subconscious as a palimpsest, highlights that it is, in fact, the layer that enables the recollection of lost memories, along with the associated contextual values, and that it develops through the addition of new elements (De Quincey, 1998, p.144). In addition to De Quincey's conceptualisation of the relationship between the subconscious and the palimpsest, Baudelaire also established a relationship between the palimpsest and memory (Huysen, 2003, p.24). Although there are similarities in their definitions, palimpsest and memory differ in their practical functioning. A palimpsest is created by inscribing one layer of writing

¹ In Aldo Rossi's definition, locus is the relationship between a particular place and the buildings within it. It is at once singular and universal (Architecture of the City, 1984, p.3).

on top of another, whereas memory is formed by the addition of one layer to another. In contrast, Freud, in a synthesis of the aforementioned theories, posits that cities are palimpsests (Bartolini, 2014, p.523). Similarly, Freud (2001, p.82) emphasises the representation of the layers of the human unconscious through experiences and the expression of overlapping existences, as is evidenced by the layering of a city.

The process of palimpsest formation reveals the principles of urban identity, as the urban memory is formed. The concept of a palimpsest can be defined as a method of accessing the fundamental essence of a given subject matter, whereby the layers of information are gradually revealed through a process of gradual unravelling. Huyssen (2003, p.7) posits that cities represent the primary arena in which societies express their perceptions of the past and present and asserts that cities are, in essence, the oldest parchments of history, the carving of time in stone, and places of memory that expand in both time and space. This perspective offers a compelling insight into the relationship between palimpsest and architecture. The structure of the palimpsest refers to the examination of the layers of a 'thing'. Therefore, the interpretation of the palimpsest in a spatial perspective necessitates an understanding of the layers that comprise the space. The palimpsest phenomenon observed in urban spatial is evidenced by the destruction of city-specific elements and the subsequent creation of new layers. While the multi-layered nature of cities reflects their cultural richness, the inability to fully preserve the traces of past layers and the potential for the "new" to emerge by destroying the "old" can lead to confusion regarding the urban identity. This situation results in the dissolution of the emotional bond between city dwellers and their city, as well as the erasure of their memories of the city.

3.1. Routes as Urban Morphological Elements

Kropf (2009, p.107) defines urban fabric as the urban form, which he describes as the patterns formed by the combination of streets, subdivisions, and buildings. He views these elements as the basic physical components of the city. The field of urban morphology examines the formation and development of cities, as well as the elements that comprise their urban fabric. As outlined by Strappa (2018, p.161), the genesis of an urban fabric is contingent upon the establishment of routes. These routes, which connect the two most significant poles within a defined area, exert a profound influence on the pattern of land use. In essence, the concept of land use patterns is understood in relation to the urban fabrication process, whereby the roads that structure the territory prior to urbanization are taken into account. In accordance with the definition proposed by Caniggia and Maffei (1979), the term "pole" represents an extension of the term "node." It encompasses a greater degree of continuity than a node and refers to two axes that originate and terminate at a single point, with the potential for intersection. The level of analysis is the determining factor in whether something is classified as a node or a pole. In accordance with Strappa (2018, p.167), a route can be defined as the interaction between opposed and complementing poles. The term "pole" is used to denote the source of routes.

The concept of "routes" is employed here to denote the nourishment of objects whose origins are connected to the idea of "fabric." In this sense, the term "fabric" is used to describe the totality of the features that identify the creation of a building fabric, which are decided upon during the process. There are four principal route types that, when represented schematically, correlate with the phases of urban fabric growth and transformation:

- **Matrix Route:** The route in question represents the pre-existing route that was utilized by the city's inhabitants prior to the commencement of the construction process.
- **Building Routes:** The routes are arranged in a chronological sequence that follows the matrix route and is connected to it. They proceed in depth according to the building.
- **Connecting Routes:** These are routes that connect to building routes.
- **Restructuring Routes:** These routes are traumatic in nature and serve to meet the current needs of mature tissues that have completed their functional role (Strappa, 2018, p.162).

Restructuring Routes

Restructuring routes are traumatic routes that settle on dysfunctional urban fabrics to meet current needs. As outlined by Strappa (2018, p.163), restructuring routes occurs at the conclusion of the construction process, with the introduction of new connectivity requirements and the intervention in existing, established

urban fabrics. In this context, the formation of a new fabric gives rise to 'traumatic' changes that coincide with an outdated organism that is unable to respond to current needs or to provide the necessary volume to meet those needs. In the study, the term "traumatic" is employed to describe both its positive and negative effects on language. The restructuring routes that alter the dysfunctional spatial organization of urban fabrics can also have positive effects, including the reshaping of subdivisions and the valuation of buildings. The general characteristics of restructuring routes can be enumerated as follows:

- They have an organic structure that is conducive to the creation of numerous subdivisions of irregular size or shape.
- The areas acquired through demolition experience a significant change in economic value and result in a higher density of special buildings.
- It meets the need by allowing wider road axes on mature tissues that cannot meet the need (Strappa, 2018, p.165).

An examination of the fundamental attributes of restructuring routes unveils their transformative impact on urban morphology, delineated by the reconfiguration of collective memory, alteration of urban architectural typologies characterized by trapezoidal and irregular configurations, proliferation of special buildings, enhancement of economic value, and embodiment of modernity through the development of extensive thoroughfares.

One of the pivotal aspects of restructuring routes is their ability to modify the economic structure of the environment in which they are implemented. The restructuring routes can result in the formation of irregular subdivisions and the demolition of existing structures, which may in turn lead to the construction of special buildings, including those of significant economic value. Once construction is complete, restructuring routes are created, paving the way for subsequent smaller construction processes. The demolition of buildings can result in the creation of empty plots, which may experience an increase in value due to the restructuring routes that reorganize and consolidate urban life. It has been observed that buildings with high economic returns have been constructed on subdivisions located on restructuring routes that have a high potential to attract users due to the needs of users (Strappa, 2018, p.163).

Distinct from conventional routes, restructuring routes emerge as primary catalysts for the transformation of buildings and subdivisions, shaping them through simultaneous processes of formation and demolition, thereby generating irregular subdivision conducive to diverse architectural forms. This dynamic interplay contributes to the diversification of urban planning in terms of both built structures and land subdivisions.

Moreover, restructuring routes play a pivotal role in facilitating the development of large-scale roads, integrating disparate subdivisions and enhancing their functionality, thereby reflecting the imperative of accommodating the evolving needs of urban environments precipitated by the Industrial Revolution and the advent of vehicular transportation (Strappa, 2018, p.163). In this context, the restructuring of routes in numerous European cities served to accelerate the transition to a more modern era.

One of the most evident examples of restructuring routes is the Viale di Trastevere in Rome. Situated between Piazza di San Francesco d'Assisi and Piazza di Santa Maria, the restructuring route is formed on the matrix route, connecting the two poles (Strappa, 2018, p.165). Described by Strappa (2018, p.165) as "*an evident example of the traumatic passage to modernity in Roman fabric*", Viale di Trastevere shattered the building blocks it passed through. While the fundamental building blocks around Viale di Trastevere exhibit a rectangular configuration, irregular plots can be observed in the fragmented building blocks that have been de-fragmented by restructuring routes (Figure 1).

In conclusion, while restructuring routes may induce disruptions to urban collective memory and introduce novel contextual dynamics, they concurrently exhibit the capacity to manipulate both individual and collective memory, engendering diverse urban fabric configurations and contributing to the creation of palimpsests.

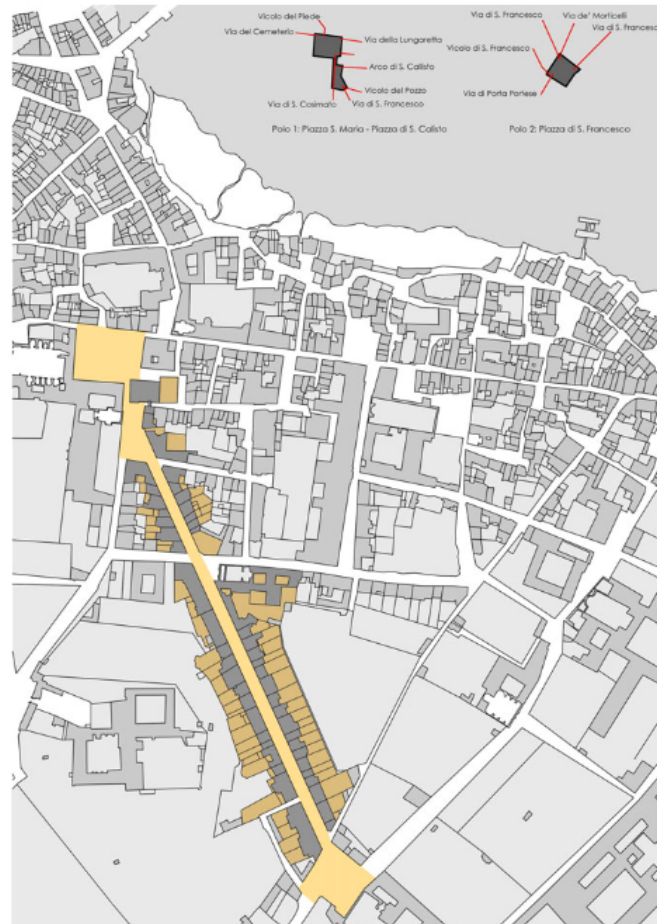


Figure 2. The Gregorian Cadastre's Trastevere region (1816–35) includes markers of Paolo Vaccaro's restructuring route, which runs between Piazza Santa Maria and San Francesco D' Assisi. (Strappa, 2018, p.164).

3.2. Palimpsest of Istanbul Atatürk Boulevard as a Restructuring Route

In Turkey, Istanbul Atatürk Boulevard exemplifies the restructuring route characteristics, and this study finds it necessary to analyze the boulevard in this way. The location of Atatürk Boulevard is in Istanbul's Fatih neighbourhood. The avenue is currently one of the most significant thoroughfares in the historical peninsula, commencing at Aksaray Square and extending to Atatürk Bridge. The study does not encompass the entirety of Atatürk Boulevard, limiting its scope to the section situated between the Bozdoğan Aqueduct and the Golden Horn. The history of the axis where Atatürk Boulevard is located can be traced back to the Byzantine period when the layers beneath it were analyzed. The boulevard axis is home to a multitude of historical sites, as well as public buildings, trade centers, and transit points. In examining the palimpsest on Atatürk Boulevard, the research proceeded according to the historical intervals delineated by Doğan Kuban (1969) in his article on the Historical Structure of Istanbul.

The axis of Atatürk Boulevard is analyzed under the title of Byzantium due to the presence of temples built along the Golden Horn, despite the fact that it was outside the city when the city was named Lygos, Byzantion, and Antonina (Diker and Cünük, 2017, p.19). The period between 330 A.D., when the city of Istanbul was defined as the capital for the first time, and 1453, when the Turks came to Istanbul, was examined under the Byzantine period (Kuban, 1969, p.2). The period from 1453 to 1923 was considered as the Ottoman period. The period from 1923 to the construction of Atatürk Boulevard is studied as the Early Republican period.

A. Pre-Byzantine Period

The city of Byzantium was founded by Byzas of Megara in the 5th century BC and selected the hill where today's Topkapı Palace is situated as its principal residence. Nevertheless, Byzantium is not the sole city within the present boundaries of Istanbul. In addition to Byzantium, there were other settlements in and around Istanbul. These included Halkedon in and around Kadıköy and Sykai in and around Galata (Kuban, 1969, p.28).

It is hypothesized that the city limits of Byzantium during the Byzantine period encompassed the neighbourhoods of Sirkeci-Ahırkapı, as proposed by Müller-Wiener (2001). According to Eyice (1953, p. 250), it is thought that a valley once existed in the area now occupied by Atatürk Boulevard. This valley is located in the area between the third hill, where the Süleymaniye Mosque was built, and the fourth hill, where the Fatih Mosque is located. It is predicted that the valley was filled with earthquakes in history. The two hills are connected by the Bozdoğan Aqueduct (Diker and Cünük, 2017, p.258).

B. Istanbul as a Byzantine City

In 330, Istanbul emerged as the Eastern Roman Empire's capital. Constantinople was designed to serve as a symbol of the Roman Empire and to reflect the traditional Roman character. It was intended to become the new center of the empire and to be recognized as such. As Doğan Kuban (1969, p.28) notes, the imperial city constructed during the reign of Constantine did not develop in a manner that could be considered a "natural continuation of Byzantium." In fact, the architectural style of the Late Roman world was influenced by the construction activities that were carried out in a single, unified effort.

New city walls were constructed to reinforce the city's defensive capabilities. These new fortifications are estimated to have commenced in the vicinity of the Unkapanı area in the Golden Horn, traversing the southern portion of the Sultan Selim Mosque, the western side of the Fatih Complex, and culminating in the vicinity of the Bayrampaşa Stream (Kuban, 1969, p.29). According to İsmailoğlu (2018, p.22), the construction of these walls resulted in the area where Atatürk Boulevard is located being excluded from the necropolis area and entering the city limits. As demonstrated by Procopius' "Structures," the Unkapanı and Cibali region is within the city limits initially established by Constantine (İsmailoğlu, 2018, p.22).

In the Byzantine period, the urban traces left from the Byzantine period enabled the determination that Zeugma and Plateia neighbourhoods, including the Port of Antonius, was formed in the part of Atatürk Boulevard between Bozdoğan Aqueduct and Unkapanı Atatürk Bridge (İsmailoğlu, 2018, p.23).

C. Istanbul as an Ottoman Capital

With Mehmet the Conqueror's capture of Constantinople in 1453, the Ottoman Empire was established in Istanbul. Mehmet the Conqueror designated Istanbul as the capital and initiated a new phase of urban reconstruction to transform it into the administrative, governmental, and religious center of the empire (Çelik and Deringil, 2010, p. 53). In Ottoman Istanbul, particularly during the 15th century, as the city began to develop in an organic manner, with neighborhoods emerging from a central node, a secondary and self-developing street structure emerged in place of the main arteries connecting large squares that had been characteristic of the Byzantine period. Compared to the 15th century, Istanbul's population had grown dramatically by the 16th century. The growth of the population provided the impetus for the emergence of new neighborhoods. The formation of new neighborhoods and the expansion of existing neighborhoods eroded the Byzantine streets that had previously served as the city's arteries. By the end of the 16th century, these streets had shrunk significantly (Çelik and Deringil, 2010, p.58). At the end of the 16th century, the Gazanfer Aga Madrasah was constructed on the site of Atatürk Boulevard. The construction of the madrasah indicates that educational activities were spreading from the Fatih Mosque area to the Atatürk Boulevard axis. Accordingly, as İsmailoğlu (2018, p.48) posits, the proliferation of numerous modest mosques, baths, madrasas, and fountains erected during the Ottoman era signifies the emergence of a residential district in the vicinity of the boulevard's inauguration, situated between the Zeyrek and Süleymaniye neighborhoods. Despite the diminishing political and economic influence of the Ottoman Empire, Istanbul experienced significant growth and transformation during the 17th and 18th centuries. This period saw the implementation of modest reconstruction efforts (Çelik and Deringil, 2010, p.62).

A seminal event in the urban evolution of Istanbul was the occurrence of a series of destructive fires within the city. Despite the city's reorganization and the construction of new roads following the destructive fires, the fire districts became a testing ground for Ottoman urban planners. The dense and wooden construction of Istanbul contributed to an elevated risk of fire incidents within the city. Prior to the 1840s, reconstruction efforts following fires typically entailed restoring the affected area to its original state. However, following the 1840s, activities aimed at preventing fires increased, and it became evident that the street structure of Istanbul required reorganization to prevent fires from spreading over a wide area (Çelik and Deringil, 2010, p.74). In order to organize the street structure of

Istanbul, which was born in the light of daily needs with an organic form and developed in a labyrinth-like manner on its own without being subjected to planning, important engineers and architects from Europe were called to Istanbul.

D. Istanbul as an Early Republican City

It is evident that Atatürk Boulevard represents a tangible manifestation of the modern planning efforts that were initiated during the Early Republican Period. Designed by Henri Prost, Atatürk Boulevard occupies a pivotal position in the historical development of urbanization and Turkish architecture. It reflects the modernisation ideology of the Early Republican Period. The boulevard, which still exists today, represents a modern monument amidst the traditional neighbourhood pattern and historical buildings. With the establishment of the republic in 1923, a distinct climate emerged in Turkey, marking a departure from the past. The 1920s, during which the capital was relocated from Istanbul to Ankara and economic challenges were encountered as a country emerging from wars, were characterized by a lack of progress in Istanbul planning. In the 1930s, following the resolution of the economic crisis and the public acceptance of republican reforms, an official cultural policy was implemented in Turkey, leading to innovations in numerous fields, including architecture (Uluskan, 2007, p.121).

According to İnalçık (2013, p.68), the urban fabric inherited by Istanbul from Byzantium and the Ottoman Empire was not based on social status, but on religious and ethnic distinctions that led to spatial differentiation. The "irregular traditional texture" created by different identities based on class differentiation, which continued in the Ottoman Empire, especially in the Historic Peninsula, is also evident in the Early Republican period (Akpınar, 2010, p.111).

As observed by İpek Akpınar (2010, p.112), Istanbul is a Mediterranean city with a complex ethnic-religious tapestry. In this context, political forces are pursuing urban modernization through a large-scale project. For this purpose, Henri Prost, a "foreign planner" who had previously worked on planning in Mediterranean cities such as Morocco and Italy, was invited to participate in planning studies in the city. Prost was well-versed in Mediterranean cities and had received training in the Western style. Prost was invited to the city through a competition organized by the Istanbul Municipality during the period he was working in Paris. He served as the city's planner until 1950, according to the contract he signed with the Istanbul Municipality in 1936 (Bilsel, 2010). In Prost's planning works, the conditions of Turkey during the period in question are discernible. As stated by İpek Akpınar (2010, p.114), Prost exemplified the reforms of the nation-state in the urban context through the creation of "free spaces" (*escapes libres*).

3. Results

The research consists of superimposing five maps representing the palimpsests of Istanbul's Atatürk Boulevard and analyzing the traumatic impact of the restructuring routes on the urban fabric by following the morphological changes in the study area. By the comparison of the maps, it was possible to observe the changes in the street fabric, building fabric and subdivision system with the construction of Atatürk Boulevard in the study area.

3.1. Street Fabric

The traditional street fabric was analyzed by reading the Ayverdi Maps (1875-1882)- the oldest available map of the study area. Despite the prevalence of labyrinthine street fabrics and organically shaped building blocks on the Ayverdi Maps, the occurrence of grid-planned street fabric experiments on the coast of the Golden Horn attracted attention. A comparison of the two maps revealed that the form of the 64 building blocks had undergone a transformation from the Ayverdi Maps to the Alman Mavileri Maps (1913-1914) (Figure 2). The Alman Mavileri Maps show that the traditional features of the street fabric are largely preserved, although the grid-planned street fabric is beginning to emerge. The large blocks in the Ayverdi Maps are divided and 90 new blocks are created in the Alman Mavileri Maps (Figure 3).

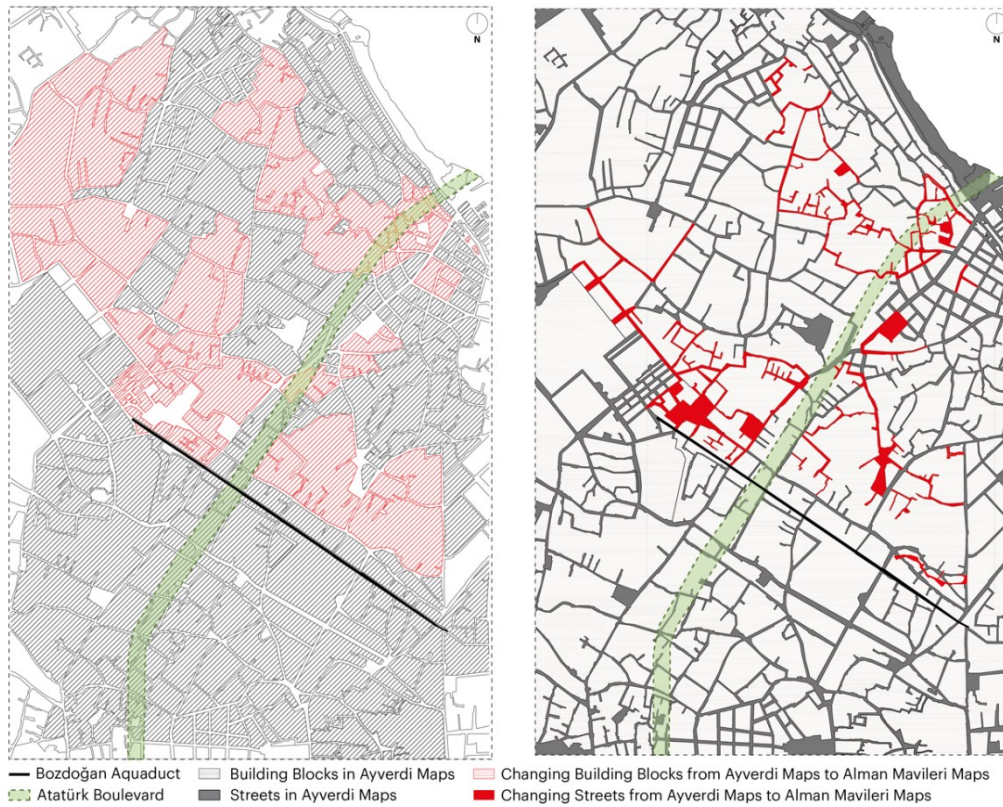


Figure 2. The changes in street fabric and building blocks in Ayverdi Maps (1875-1882).

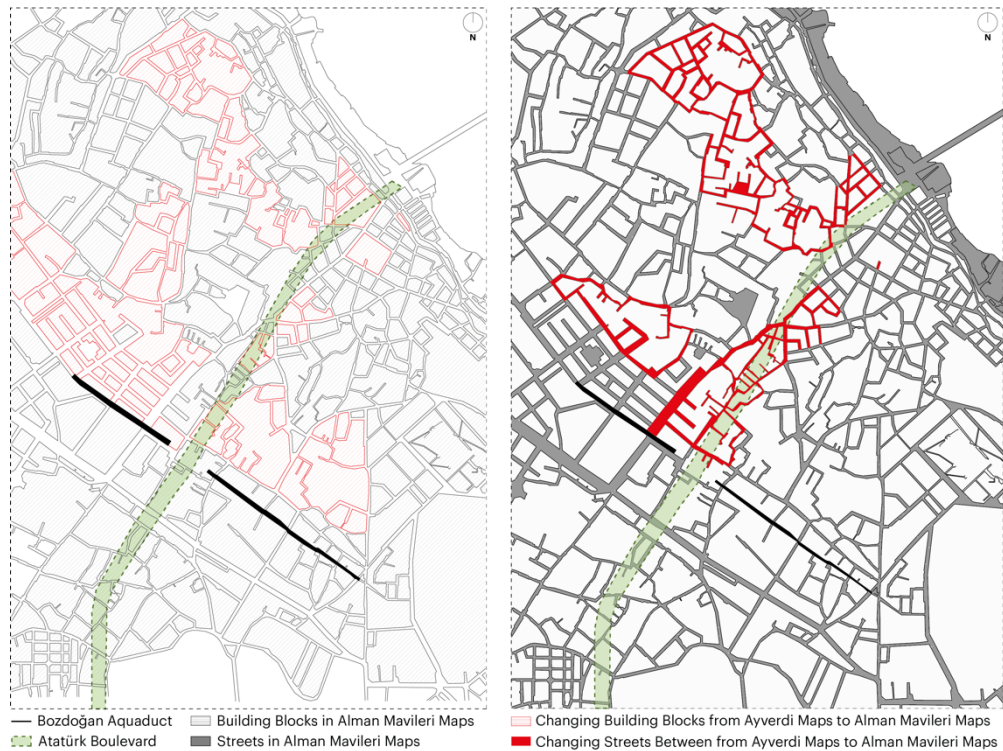


Figure 3. The changes in street fabric and building blocks in Alman Mavileri Maps (1913-1914) from Ayverdi Maps (1875-1882).

Despite the limited number of maps available, the Pervitich Insurance Maps (1922-1945) demonstrate a significant transformation in the street fabric. The planned street fabric, which was established through the settlement of the grid, resulted in the destruction of the traditional street fabric in the study area. In contrast, the number of rectangular-shaped building blocks increased, while the number of organic-shaped building blocks decreased. It was determined that 85 new building blocks were produced by dividing the large-scale building blocks on the Alman Mavileri Maps (Figure 4).



Figure 4. The changes in street fabric and building blocks in Pervititch Insurance Maps (1922-1945) from Alman Mavileri Maps (1913-1914).

In 1943, the Atatürk Boulevard project was initiated. The construction of Atatürk Boulevard resulted in the demolition of 16 building blocks. The 1966 aerial photograph reveals the loss of the traditional street fabric in the study area. Upon examination of the 1966 aerial photograph, it became evident that the building blocks had been merged and enlarged, resulting in the production of 49 new building blocks that were not included in the Pervititch Insurance Maps (Figure 5). The blocks, which have been divided and reduced since the Ayverdi Maps, are reunited for the first time. In the present day (2024), the majority of the large-scale building blocks have been divided and reduced in size once more.



Figure 5. The changes in street fabric and building blocks in 1966 Aerial Photograph from Pervitich Insurance Maps (1922-1945).

3.2. Building Fabric

The evolution of the physical structure of the building between the palimpsests, the changes caused by Atatürk Boulevard on the physical structure of the building and its impact on the distribution of basic and specialized buildings were analyzed. In the Pervitich Insurance Maps, the first palimpsest where building information can be obtained, it is observed that the building fabric displays organic development with dispersed settlement. In the Pervitich Insurance Maps, the building fabric exhibits a less dense configuration in the vicinity of the Bozdoğan Aqueduct. Conversely, the density of the building fabric increases in the vicinity of the Golden Horn. The 1966 aerial photograph reveals a rapid increase in urbanization within the study area, accompanied by a uniform increase in the density of the building fabric. The construction of Atatürk Boulevard has facilitated the erection of large-scale buildings, which have been constructed on the foundations of the growing building blocks. Upon analysis of the current building fabric in the study area, it becomes evident that the density of buildings has increased. In addition to the numerous large-scale buildings visible in the 1966 aerial photograph, an increase in the number of smaller-volume buildings was also observed (Figure 6).



Figure 6. The changes in building fabric between Pervititch Insurance Maps (1922-1945) and 2024 maps.

It can be observed that the ratio of basic buildings to special buildings² has changed as a result of the construction of Atatürk Boulevard in the study area. A comparison of the Pervititch Insurance Maps with a 1966 aerial photograph reveals that the construction of Atatürk Boulevard has resulted in an expansion of the number of special buildings in the study area. The Pervititch Insurance Maps indicate a dispersed pattern of special buildings, whereas the 1966 aerial photograph shows that special buildings are located in close proximity to Atatürk Boulevard. A comparison of the 1966 aerial photograph with the Pervititch Insurance Maps demonstrates that the number of basic buildings in the Zeyrek Quarter in the direction of Atatürk Boulevard is greater than the number of special buildings. A comparison of the data from the present (2024) with that from the previous period shows that the quantity of special buildings has risen in every region of the study area (Figure 7).



Figure 7. The change in the ratio of simple buildings to special buildings between palimpsests.

² Basic building is defined as the building type that only fulfills the function of shelter. On the other hand, special building refers to the type of building other than residential buildings.

3.3. Subdivision

A comparison was made between the Pervititch Insurance Maps (1922-1945) and the 2024 maps to analyse the impact of Atatürk Boulevard on subdivisions. It was found that the subdivisions depicted on the Pervititch Insurance Maps have been merged to create large-scale subdivisions along the periphery of Atatürk Boulevard (Figure 8). The restructuring routes result in the destruction or fragmentation of subdivisions located along the axis of the route. This fragmentation of subdivisions results in a transition from rectangular subdivisions to a trapezoidal form. During the construction of Atatürk Boulevard, as in other examples of restructuring routes, rectangular subdivisions were fragmented, resulting in the production of trapezoidal subdivisions. This production of new forms of subdivision leads to angular changes in the urban fabric. The angular change in subdivision form facilitates the production of new building types and contributes to the diversity of street silhouettes.



Figure 8. The change in the ratio of parcels between Pervititch Insurance Maps (1922-1945) and 2024 maps.

4. Discussion

It is crucial to conceptualize Atatürk Boulevard as a restructuring route, whereby the past images of the urban space are interpreted through the lens of urban collective memory. This approach is instrumental in understanding the transformations experienced in the urban fabric and provides a valuable framework for future interventions.

The analyses conducted to read the morphological changes in the street fabric have shown that the organic fabric in the study area has deteriorated with the opening of Atatürk Boulevard and the grid-planned street fabric has increased. This situation demonstrates that Atatürk Boulevard exemplifies the process of restructuring routes, whereby the existing urban fabric is disrupted and a new identity is established. The analysis of the morphological changes in the building fabric in the study area revealed that the low-rise and old buildings were destroyed and replaced by multi-storey and rectangular buildings following the opening of Atatürk Boulevard. Additionally, the construction of Atatürk Boulevard has had an impact on the equilibrium between the basic and special buildings within the study area. The unexpected increase in the number of special buildings and the fact that these building types are located especially on the periphery of the boulevard can be explained by the fact that Atatürk

Boulevard has increased the economic value of the study area with its restructuring route character. Furthermore, the construction of Atatürk Boulevard, the alteration of the existing subdivision system and the introduction of varying perspectives on the urban fabric serve as a significant illustration of the phenomenon whereby restructuring routes engender a transformation in identity through the exertion of traumatic effects.

As with other instances of restructuring routes, Atatürk Boulevard has a positive impact on the surrounding area in terms of economic value, increasing the number of special buildings on new building blocks. Moreover, the boulevard contributes towards cultural growth through its construction, which is supported by the state as part of modernisation policies. These factors illustrate the constructive aspects of restructuring routes. Conversely, it exemplifies the adverse consequences of restructuring routes, namely the alteration and destruction of numerous urban artefacts as a consequence of their formation along the designated axis.

One of the most significant constraints of this study is the unavailability of the orthophoto image dated 1946, which depicts the period directly following the inauguration of Atatürk Boulevard. The use of orthophotos allows for a visual representation of an area in a specific historical period, thereby facilitating a more detailed examination of the changes and impacts in the area following the opening of the boulevard. However, the lack of access to this specific image precludes a comprehensive analysis of the impact of the boulevard's opening on the region. As a result, the study is unable to fully assess the impact of the boulevard on the region. Nevertheless, the study has its merits. Firstly, the analyses conducted using available data and sources provide a robust foundation for understanding the historical and spatial impacts of the boulevard. Besides, the methodological approaches and data collection techniques employed in the study ensure a high level of accuracy and reliability in evaluating the overall impact of the boulevard on the region. In this context, the findings and conclusions provide valuable insights into the regional development and transformation processes of Atatürk Boulevard.

5. Conclusion

Every alteration to the urban landscape creates a new layer of the city. The transformation of this stratification hierarchy results in a shift in the collective memory of the urban environment. The restructuring routes serve as an example of palimpsesting, with their traumatic effects on the urban fabric. This study draws on the concept of the palimpsest as posited by De Quincey and Baudelaire to examine the impact of Strappa's proposed restructuring routes on the urban fabric. The study develops a typomorphological analysis model to illustrate the interaction between restructuring routes and palimpsests. The proposed analysis model adopts Strappa's taxonomy, which draws upon the Italian urban morphological tradition and refers to the street-building-subdivision parameters identified in Conzen's Town-Plan Analysis. The study employs these parameters to examine the traumatic impact of morphological alterations to the urban fabric resulting from restructuring routes in a multifaceted manner.

The study established a baseline by superposing five discrete maps, which collectively represent the palimpsests with the reference to Doğan Kuban's 'The Historical Structure of Istanbul' (1969). The superposed maps facilitated an examination of the morphological changes that had occurred in the study area. A review of case studies from around the world on the impact of restructuring routes on urban fabrics has revealed that Istanbul's Atatürk Boulevard exemplifies the characteristics of a restructuring route. The introduction of a new historical stratum is evident, as the boulevard's construction has resulted in the complete deterioration of the previously organic urban fabric. This has led to the creation of a new physical structure that represents a significant transformation in the area's identity.

In the context of future design interventions, it is essential to identify potential routes that could be restructured. As the study demonstrates, through the analysis of urban artifacts such as street fabric, building fabric and subdivision, further information can be obtained regarding these routes and the land use patterns of the study areas. From this perspective, complex and multi-layered palimpsests offer the possibility of conducting a land use assessment that encompasses both past and present aspects of the existing physical environment. The analysis of these palimpsests for design interventions provides a means of exploring potential opportunities arising from the combination of the old and the new, particularly in areas where urban collective memories have been disrupted by restructuring route axes.

It is therefore crucial to gain an understanding of the restructuring routes in order to create a sustainable and meaningful environment for future generations. Also, the analysis of restructuring routes is a valuable tool for interpreting the urban landscape. It is crucial to emphasize that this documentation demonstrates the necessity for any modifications to be implemented with sensitivity in order to ensure the transfer of the urban landscape to future generations.

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References

- Akpınar, I. (2010). İstanbul'u (Yeniden) inşa etmek: 1937 Henri Prost planı [(Re)Building İstanbul: 1937 Henri Prost Plan]. In E. Ergut & B. İmamoğlu (Eds.), *2000'den kesitler II: Cumhuriyet'in mekanları/zamanları/insanları, doktora araştırmaları sempozyumu kitabı* (1st ed., pp. 107-124). Dipnot Yayınları ve ODTÜ Yayınevi.
- Ayverdi, E. H. (1978). Ayverdi Haritası'nın ışığında Dâire-i Umûr-ı Askerîye ve bağlı yapıları [Dâire-i Umûr-ı Askerîye and its affiliated structures in the light of the Ayverdi map]. *Turkish Studies*, 13(3), 137-161. <https://doi.org/10.7827/TurkishStudies.13110>
- Bartolini, N. (2013). Critical urban heritage: from palimpsest to brecciation. *International Journal of Heritage Studies*, 20(5), 519–533. <https://doi.org/10.1080/13527258.2013.794855>
- Bilsel, F. C. (2010). Henri Prost'un İstanbul Planlaması (1936-1951): Nazım Planlar ve Kentsel Operasyonlarla Kentin Yapısal Donusumu [Henri Prost's İstanbul Planning (1936-1951): Structural Transformation of the City through Master Plans and Urban Operations]. Pinon, P. (Ed.), *İmparatorluk Başkentinden Cumhuriyet'in Modern Kentine: Henri Prost'un İstanbul Planlaması (1936-1951)*, (1st ed., pp. 101-165). İstanbul Araştırmaları Enstitüsü.
- Caniggia, G. & Maffei G.L. (1979). *Composizione Architettonica e Tipologia Edilizia: 1. Lettura Dell'edilizia di Base* [Composizione Architettonica e Tipologia Edilizia: 1. Lettura Dell'edilizia di Base.] (Int. ed.). Marsilio.
- Conzen, M. R. G. (1960). Alnwick, Northumberland: A Study in Town-Plan Analysis. *Transactions and Papers (Institute of British Geographers)*, 27, iii–122. <https://doi.org/10.2307/621094>

- Çelik, Z., & Deringil, S. (2010). *19. yüzyılda Osmanlı başkenti ; değişen İstanbul* [The Remaking of Istanbul Portrait of an Ottoman City in the Nineteenth Century]. (4th ed.). Türkiye İş Bankası Kültür Yayınları.
- Dağdelen, İ. (2007). *Alman mavileri: 1913-1914 I. dünya savasi öncesi İstanbul haritaları* [Alman Mavileri: 1913-1914 pre-World War I maps of Istanbul.]. (1st ed.). TC İstanbul Büyükşehir Belediye Başkanlığı, Kütüphane ve Müzeler Müdürlüğü.
- Lochot, C. (2014). *Thomas De Quincey: Confessions of an English Opium Eater and Other Writings*. (1st Ed.). Oxford University Press. <https://doi.org/10.4000/cve.1598>
- Diker, H. F., & Cünük, C. N. (2017). Aynı mekanda, ayrı zamanlardaki" komsuluk": İstanbul'da Süleymaniye semti örneği ["Neighbourhood" in the same space at different times: The case of Süleymaniye neighbourhood in Istanbul]. In Akansel, S., Umaroğulları, F., Canitez, T. (Eds.), *Uluslararası Sinan Sempozyumu Bildiri Kitabı*, (1st ed., pp. 257-266). Trakya Üniversitesi Matbaası.
- Ersoy, S. & Anadol, Ç. (2000). *Jacques Pervititch sigorta haritalarında İstanbul* [Istanbul in the insurance maps of Jacques Pervititch]. (1st ed.). Tarih Vakfı.
- Eyice, S. (1953). İstanbul'da Bazı Cami ve Mescid Minareleri [Some Mosque and Masjid Minarets in Istanbul]. *Journal of Turkology*, 10, 247-268.
- Freud S. (2001). *Sanat ve Sanatçılar Üzerine* [On Art and Artists]. (7th ed.). Yapı Kredi Yayınları.
- Huysen, A. (2003). *Present pasts: Urban palimpsests and the politics of memory*. (1st ed.). Redwood City: Stanford University Press. <https://doi.org/10.1515/9781503620308>
- İnalçık, H. (2013). *The Ottoman Empire: 1300-1600*. (1st ed.). Hachette UK.
- Kropf, K. (2009). Aspects of urban form. *Urban Morphology*, 13(2), 105–120. <https://doi.org/10.51347/jum.v13i2.3949>
- Kuban, D. (1970). İstanbul'un tarihi yapısı: tarihi gelişme, şehrin tarihi yapısının özellikleri, koruma yöntemleri [Historical structure of Istanbul: historical development, characteristics of the historical structure of the city, conservation methods]. *Mimarlık*, 8(5), 25-48.
- Maretto, M., Amistadi, L., Balducci, V., Bradecki, T., Prandi, E., & Schröder, U. (2021). The European Medium-Sized City: The Characteristics of the Urban Form. In *Mapping Urban Spaces: Designing the European City* (1st ed.)(pp.225-235). Routledge. <https://doi.org/10.4324/9781003190660>
- Müller-Wiener, W. (2001). İstanbul'un Tarihsel Topografyası [Historical Topography of Istanbul]. (4th ed.). Yapı Kredi Yayınları.
- Rossi, A. (1984). *The architecture of the city*. MIT press. I
- Strappa, G. (2018). Reading the Built Environment as a Design Method. In Oliveira, V. (Ed), *Teaching Urban Morphology* (1st ed., 159-185). Springer. https://doi.org/10.1007/978-3-319-76126-8_10
- Tekeli, İ. (2009). *Modernizm, modernite ve Türkiye'nin kent planlama tarihi* [Modernism, modernity and urban planning history of Turkey]. (1st ed.). Tarih Vakfı Yurt Yayınları.
- Tokay, Z. H., & İsmailoğlu, H. (2018). İstanbul-Atatürk Bulvarı Örneğinde Tarihsel Katmanlaşma ve Kaybolan Osmanlı Eserleri [Historical Stratification and Disappearing Ottoman Monuments in the Case of Istanbul-Atatürk Boulevard]. *Eurasian Academy of Sciences Social Sciences Journal*, 2018(20), 31-46. <https://doi.org/10.17740/eas.soc.2018.V20-05>
- Uluskan, S. B. (2007). Atatürk Döneminde İstanbul'un İmari ve Henri Prost Planinin Basındaki Yankıları (1936-1939) [Construction of Istanbul in the Atatürk Period and the repercussions of Henri Prost Plan in the Press (1936-1939)]. *Erdem*, 16(48), 109-156. <https://doi.org/10.32704/erdem.2007.48.109>



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