

The Effects of the Restructuring Route: The Example of Maksem Street



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Abstract: Cities are primarily composed of road systems and urban fabric. Analyzing the urban form and its connections can be achieved by reading the routes, which are the main component of the road system. By interpreting the relationships between the parts, it is possible to understand the processual evolution of the whole and the reasons behind the current form, which is the final state of evolution. Many European cities have restructuring routes that show the effects of the transition to modernity. These routes are integrated into the existing fabric at the end of the building process. This study aims to examine the effects of Maksem Street, which was opened during the modernization period in Bursa, on the urban fabric as an example of a restructuring route. Urban analysis necessitates a diachronic and comparative approach to identify the conditions before and after the route in this work. To achieve this, we have used historical maps, including the 1862 Suphi Bey and 1921 maps, as well as base map and cadastral map. The data obtained from this analysis were evaluated using the urban morphology method, focusing on changes in the road system, subdivisional order, and urban fabric.

Keywords: Restructuring route, urban morphology, Maksem street

Maksem Caddesi' nin Yeniden Yapılandırıcı Bir Rota Olarak İncelenmesi

Özet: Kentleri meydana getiren en önemli ögeler yol sistemleri ve dokulardır. Yol sisteminin temel bileşeni olan rotaları okumak, kent formunu tüm bağlantılarıyla birlikte incelemenin önemli bir yoludur. Böylece parçalar arasındaki ilişkileri yorumlayarak bütünüün süreçsel evrimi ve evrimin son durumu olan mevcut biçimin arkasında yatan nedenler anlaşılabilir. Birçok Avrupa kentinde moderniteye geçişin etkileriyle yeniden yapılandırıcı rotaları görmek mümkündür. Bu rotalar, inşa sürecinin sonunda dokuya müdahale eder ve kendi mantıklarını mevcut dokuların bir parçası haline getirir. Bu çalışma yeniden yapılandırıcı rota örneği olarak Bursa'da modernleşme sürecinde açılan Maksem Caddesinin kentsel doku üzerindeki etkilerini ortaya koymaya çalışacaktır. Kentsel çözümleme rota öncesi ve sonrası durumları tespit edebilmek için diyakronik ve karşılaştırmalı bir okumayı gerektirmektedir. Bunu gerçekleştirmek için tarihi haritalar-1862 Suphi Bey haritası ve 1921 haritaları- ve günümüz halihazır ve kadastro haritaları kullanılmıştır. Okuma sonucu elde edilen veriler kent morfolojisi yöntemi kullanılarak sırasıyla yol sistemi, parselasyon düzeni ve bina dokusundaki değişimler üzerinden değerlendirilmiştir.

Anahtar kelimeler: Yeniden yapılandırıcı rota, kent morfolojisi, Maksem caddesi

1. INTRODUCTION

To understand the city as a living organism, it is necessary to explain its transformations over time at different scales, from individual buildings to the regional level. These elements form hierarchies on the urban level at various times. Cities consist of road systems and urban fabrics, with buildings being the smallest parts of fabrics. Road systems are structured hierarchically, with routes at different scales and also, reading the route is a crucial method for examining the urban form and its connections. By interpreting the connections between the parts, it is possible to understand the processual evolution of the whole and the reasons behind the current form, which represents the final state of evolution.

Changes in the urban environment can result from alterations to routes or urban fabrics. Road layout modifications can occur specifically at the level of matrix routes. The need to connect existing poles with new ones can result in the creation of urban restructuring routes. These new ones tend to overlap with pre-existing patterns but alter their structure and hierarchy. These are the new potential matrix routes, characterized by more modern typologies and a higher settlement approach, and the resulting new connection spaces [1].

During the Ottoman period, the urban fabric of Bursa developed outside the Hisar region. Towards the end of the nineteenth century, it became the main focal point of modernization movements. The organization of new routes was a manifestation of the ambassadorial travels to Europe on the spatial level. These routes became the main development axes of the city and acted as restructuring routes within the city, causing the re-adaptation and changes of the existing fabric. Mecidiye Street, Saray Street and Hamidiye Street which were opened with the interventions of the governors in the late 19th century, are just a few of them [2]. Mecidiye Street, together with the Maksem section, forms an important urban route traversing the city from north to south. It intersects with other recently opened roads at certain points and is an important restructuring route within the city's road network.

The study focuses on the morphological structure of the Maksem section of Mecidiye Caddesi as a restructuring route. The street was later divided into three parts: Maksem, Ulucami, and Fevzi Çakmak Street. The study examines its adaptations to pre-existing urban fabrics and the new hierarchies it reveals typomorphologically. Typomorphological analysis involves analyzing a city or part of it based on its road system, subdivisional order and urban fabric. Although this analysis focuses on the road system, it will also reveal the impact of the new route on the urban fabric in terms of subdivisional order. This has important implications for architecture, as new criteria for building forms emerge, indirectly affecting their design. Spatial change can be identified diachronically and comparatively through the use of historical maps, which highlight the histo-geographical context of sites, buildings, and spaces. This study will utilize historical maps and photographs, with two particular historical maps being of importance for spatial readings. Suphi Bey and his team prepared the Map of Bursa dated 1862 to determine the situation before the restructuring route. The Map of Bursa dated 1921 was used to determine the situation after the restructuring route.

2. URBAN DEVELOPMENT OF BURSA

Historians state that the first settlements in Bursa date back to 4000 BC, but there is limited information about prehistoric periods. The first written records mention the Bithynians who settled in this region around 700 BC [3]. Bursa was founded by the Bithynians on a hill in the 2nd century BC and was surrounded by city walls. Throughout its 2200-year history, it has been the center of many civilizations. However, there is limited information available on the pre-Ottoman period of Bursa. The name of Prusias evolved into Prusa and eventually became Bursa over time [4]. Prior to the Ottoman conquest in 1326, the only settlement area was Hisar. It was during the prolonged siege of Bursa that quarters (mahalle) were established for the first time. Baykal [5] states that when the Turks took over Bursa in 1326, the city only consisted of the Hisar and had a population of two thousand houses and seven quarters. During the reign of Orhan Gazi in Bursa, a new urbanization model was implemented for the first time in 1339. A complex comprising a mosque, medrese, imaret, bathhouse, and bedesten was built outside the existing city walls. Residential areas were created around this complex to increase the

Muslim population in the city. The urbanization of Bursa during the Ottoman period was determined by the housing areas that developed organically around the complexes built by the five sultans different parts of the city. These, together with smaller ones built by members of the dynasty and administrators, served as the centers and focal points of settlement units known as quarters [4]. Like other Ottoman cities, Bursa suffered from great fires that destroyed large parts of the city. However, after each fire, the city was rebuilt without altering its physical characteristics, preserving the same street and fabric. Despite the addition of new quarters in the 19th and mid-20th centuries due to intensive migration and industrial development, the city was able to maintain its historic appearance until 1950 [4].

3. RECONSTRUCTION MOVEMENTS IN BURSA

The proclamation of Tanzimat was significant not only administratively but also in terms of the changes it brought about in physical space. This period, also known as Ottoman modernization, had an impact on Bursa and the physical structure of the city was transformed. The urban fabric of Bursa, which was previously shaped according to pedestrian transport, was altered by the avenues that were opened in the second half of the 19th century [6]. Ahmet Vefik Pasha, who was the ambassador to Paris at the time and witnessed Haussman's zoning interventions, initiated similar changes in Bursa. He made significant efforts to connect the traditional quarters, which were previously independent and had cul-de-sacs. The earthquake of 1855, which destroyed two thirds of the city, facilitated Vefik Pasha's initiatives [7]. Vefik Pasha did not create a new city center as in Istanbul, but he developed a new center that made it easier to reach the old one by using the concept of restructuring routes as the main tool to achieve his goal of creating an ideal city with both modern and Ottoman characteristics [8].

During his governorship from 1891-1897, Ahmet Münir Pasha organized Maksem Street and completed the roads around Ulucami, which had been left unfinished by Ahmet Vefik Pasha. The transport axes Fevzi Çakmak - Santral Garaj connection, Cumhuriyet Street, which are important and heavily used today, were opened during the period of governor Mümtaz Pasha (1903-1906) as part of zoning operations [9]. According to municipal documents, Hamidiye Street, now known as Cumhuriyet Street, was completed in 1913. The construction of Maksem Street, which forms the southern part of Mecidiye Street, was completed in 1909 [10]. The routes that were opened in the north-south and east-west directions, intersecting each other, aimed to connect Bursa to the Mudanya railway and highway. This change altered the traditional urban fabric that previously ended in cul-de-sacs, making urban transportation easier and providing easy transitions between quarters and streets [11]. Reconstructing interventions in the late 19th and early 20th century resulted in the reorganization of the commercial center. This area, which had spread over a large range in the second half of the 16th century, became bounded by Atatürk Street to the south, İnönü Street to the east, Cumhuriyet Street to the north, and Cemal Nadir Street to the west. The change in the transport system strengthened the area's position within the city, but resulted in the demolition of many historic buildings [6].

"In the process of reconstruction the city, the methods of urban planning introduced by European engineers who trained Ottoman students in military schools were applied. Suphi Bey, one of these engineering students, drew the first cadastral plan of the city in 1858 and had it printed in 1862. Vefik Pasha used this plan for the reconstruction of Bursa" [8].

4. URBAN MORPHOLOGY AND URBAN ROUTES

Urban morphology is the study of the city and its components according to subsequent transformations. Moudon states that urban morphologists not only analyze the evolution of city form but also consequences of the social and economic forces behind it. Cities as organisms that are transformed over time have different elements such as buildings, gardens, streets, and parks for investigating [12]. The act of reading the existing urban fabric is one of the most important components of the design phase. This is always critical, because for a designer status is never neutral: It is a relationship between subject and object; it therefore involves an interpretation, a critique, which is a typical act of design. This method is based on the conviction that any contemporary urban intervention should be a 'critical continuation' of the existing built environment. 'Continuation' because it implies reading the form of what is already

there (a place, a building, a fabric) [13]. Urban analyzing is, in fact, a process of understanding the phenomena described in the constructed reality. It implies the reconstruction and explanation of the different forms that the organism takes over time: the study of the universality of its character and the comparison with similar organisms; in general, to understand it as a set of relatively autonomous elements, linked by relations of necessity and contributing to the same outcome [14].

In the study of urban morphology, the process is to understand the diachronic and synchronic topic mutations of urban fabrics at different scales, i.e. the design of successive stages of transformation that explain the present reality and lead future changes. In order to do this, it is useful to first distinguish some of the relationships that link these components, to recognize the binaries of opposing and complementary concepts: routes/poles; basic building/special building. It is therefore necessary to try to understand what is the general structure of fabrics in their reproducible character; this is also a way of establishing hierarchies and scales, of recognizing typologies and exceptions, that is, of design. In fact, the city is a dynamic organism that finds its ability to develop and survive over time through the constant transformation of its structures. Urban morphology is based on three fundamental concepts that characterize human settlements as: pole, route and fabric [1].

4.1. Urban Pole

An 'urban node' is a singular point at the intersection of two continuities [15]. In particular, an urban node is formed at the intersection of two routes. Each interconnected component of a building, such as an urban structure, creates a node with varying degrees of harmony and scale. A 'pole' is an 'enriching' of the term node; in general, it is determined by the presence of more continuities, although starting from a point. It should also be noted that the distinction between node and pole depends on the scale of the reading. The pole indicates the place of convergence or origin of routes, leading to a gradual specialization of the fabric [14]. The city is a system in which all life tends to polarize and changes shape over time according to this tendency [16]. It is the hierarchy of polarization that gives the city its vitality.

4.2. Urban Fabric

The city is an organism composed of fabrics. An urban fabric is the sum of temporally determined features that distinguish the formation of groups of buildings. An urban fabric is therefore characterized by a recognizable, repeatable and identifiable rule that can be recognized, reproduced and defined simultaneously in a series of groupings according to different cultural spaces and diachronically in successive stages of the transformation process of the groups [14]. This rule allows each building and space to find its own identity and measure of its urban role according to its position in the fabric, but this measure can change over time [1]. It is important to analyze the logics underlying the formation of the urban fabric diachronically and specific aspects that we need to look at, because they are the outlines of the transformation of a city; they are a direct expression of urban society and understanding and knowing how to approach them, where possible, can make the difference between the success or failure of urban interventions [1].

4.3. Routes

A route is derived from the old French "rute", from Latin "rupta", and is a regular path artificially created by consolidating a spontaneous route or by building it according to a plan. This is fundamental to understanding the hierarchy of space along a route, according to its proximity to a pole or node. Reading a route means interpreting the relationships between the parts, their order and function: it is a way of studying the architectural form in a morphological sense as a visible part of the whole, thus allowing us to design in continuity with the inherited city [14].

Terms such as "suburb" and "district", common in the Middle Ages, show us precisely that it was not the building but the constructed road that was the origin of the formation of urban fabrics. What distinguishes the concept of "road" from the general concept of "route" is precisely the construction of its edges, which, however varied, makes the former an "urban route" in all its possible manifestations.

Although it is the structure that turns the road into a route, in some cases the route can also be formed within an existing fabric through destructive actions. In the first case, the process is spontaneous, while in the second it is the result of a decision [1].

In general, it is possible to identify some "basic" typologies of routes that can be found in any spontaneously formed urban fabric, from the medieval city to the present day [1]. According to Strappa [14], four main types of routes can be found in built reality, schematically corresponding to the stages of development and transformation of urban formations:

1. *Matrix Route*: This is the oldest route that existed before the construction. The buildings on these routes are therefore the first witnesses and components of the structuring process of the area. It is formed spontaneously, according to experience, without any planning intention or decision. The parcels formed by the routes are less regular than those that will be formed in the following period [14].
2. *Building Routes*: These are the routes that occur chronologically after the matrix route. They are created for the tendency of building blocks to use the rear parts within the plot instead of continuing a linear expansion for economic and functional reasons. It is the second stage of the process of the area. They are usually perpendicular to the matrix route [14].
3. *Connection Routes*: These are the connecting roads that link the building routes. The formation of connecting routes, which complete the perimeter of a series of plots, gives rise to the "urban blocks", one of the most stable organisms that constitutes the geometric beginning of the construction of the nineteenth-century European city [14].
4. *Restructuring route*: Restructuring routes are 'traumatic' routes that intervene at the end of the construction process in 'mature' fabrics, where new poles are created that generate new connectivity needs. These routes are crucial for understanding the transition to modernity in many European cities. They lead to irregular plots, often trapezoidal or triangular in shape. As a result, new types of buildings develop that are 'unusual' due to the shape of the plots [14]. In fact, these are new matrix routes, usually characterized by more specialized typologies and higher residential yields [1].

Throughout history, restructuring routes have had a significant impact on urban fabrics. A very clear example of the modern fabric is Haussmann's Paris. Plots are trapezoidal or rectangular, as in the case of Rue Voltaire in Paris, and as a result building types have developed innovatively, often as simultaneous variants of basic types resulting from the orthogonal grid (Figure 1).

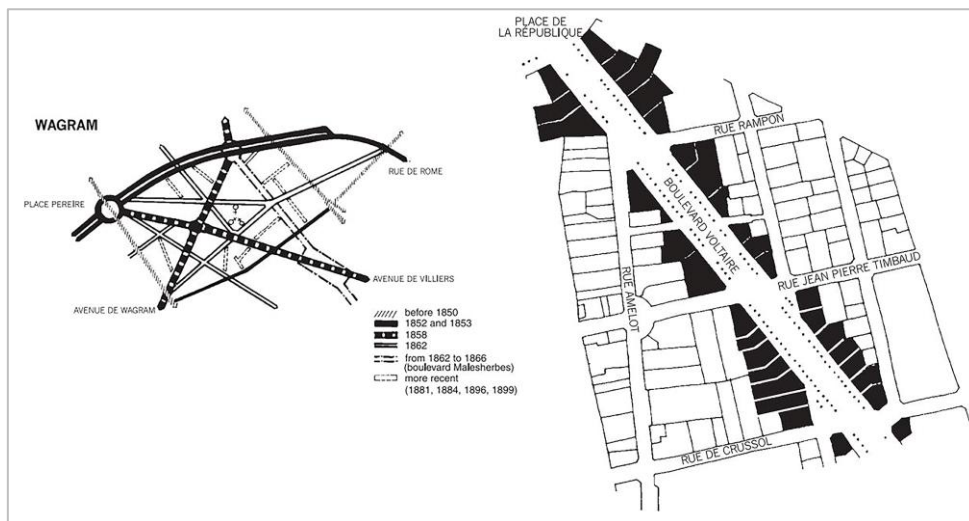


Figure 1. Restructuring routes in Voltaire Boulevard and Wagram Area [17]

In Italy, until the Second World War, the restructuring routes followed important urban streets such as Corso Vittorio Emanuele II, Via Nazionale, Viale Trastevere, Corso Rinascimento, Via dei Fori Imperiali and Via della Conciliazione, which also determined the current shape of the city [14].

In particular, the restructuring route of Viale Trastevere in Rome is a clear example of the traumatic transition to modernity in the Roman fabric. It is part of a single route that also includes Via Arenula, which connects the two poles of Largo Argentina and Trastevere Station via the Garibaldi Bridge. For the most part, the route is oriented very differently from the existing fabric, creating irregular plots where multi-family houses are built as simultaneous variants of carrier types. A case study is the Naples Rettifilo (Corso Umberto I) in Naples, polarized by the central station and the old market square, where the existing regular fabric is cut diagonally across the new route with the task of renewing the degraded city center [14].

5. MAKSEM STREET AS A RESTRUCTURING ROUTE

Maksem Street as a restructuring route that has a strong place in the morphology of the city of Bursa, is one of the three important streets of a basic route that has been fragmented over time. These are Maksem Street from Maksem Mosque to Grand Mosque (Ulu Cami), Ulu Cami Street from Grand Mosque to Şehreküstü Square and Fevzi Çakmak Street from Şehreküstü Square to the Bursa City Square (Kent Meydanı). The study will focus on Maksem Street where the traces of the restructuring route can be clearly seen.

5.1. Maksem District

This is one of the oldest districts in Bursa and it is located between Karaağaç, İbrahimpaşa and İvazpaşa. Maksem got its name because it is the place where the springs of Uludağ are divided and distributed to the city with more than forty pipes [18]. Street runs through the center of the district (Figure 2). There is also a Maksem Mosque, which is still known by the same name is one of the most important nodes of the restructuring route [19].



Figure 2. The part of Mecidiye Street (Maksem) opened in 1906 [20]

Today, the changes that have been made to the streets, especially the widening of the roads, have changed the dimensions of the streets. With the reorganization of Atatürk Street, we can see that some of the plots and consequently the buildings at the intersection of Maksem Street and Atatürk Street have been removed. In the photograph showing the Tiled Fountain west of Bursa Grand Mosque and the entrance to Maksem Street, both buildings on either side of the street are now missing (Figure 3).



Figure 3. Tiled Fountain (Çinili Çeşme) and Maksem Street entrance (2024)

Spatial changes over time have also affected the road layout. It can be seen that the width of Maksem Street is not constant along the road, but varies according to the different directions and dimensions of the paving. While the left part of the street is reserved for parking cars on the way to Maksem, the traffic flows from Grand Mosque (Ulu Cami) towards Maksem Mosque on the right side. The street also has a variety of functions. We can see that the ground floor is more often used for this purpose. In general, the continuity of commercial uses such as market, bakery, stationery, etc. continues along the street on the ground floor, although it is interrupted from time to time.

The three-dimensional structure of the street is also heterogeneous. It has been observed that the mass movements on the facades of the buildings belonging to different periods along the street are not balanced with each other (Figure 4). This situation is not only the result of the traditional-modern dichotomy, but also exists in the new buildings themselves. Undoubtedly, this situation is also due to the zoning rules that have changed over time. Some buildings preserve the traces of the traditional fabric from ground level.



Figure 4. Imbalance in mass movements (2024)

The different types of corner plots, created as a result of the intersection of the nineteenth-century street network and Maksem Street, have been filled in due to the valuable frontages, revealing different types of buildings. On the other hand, the places where the road widens the most through the pavement along the street are the two starting points of the street. These nodes have partly polar characteristics. While the starting point on the Maksem Mosque side is dominated by the mosque itself, it is supported by commercial and residential functions around it. This also increases human mobility. The entrance to the route at the node with Atatürk Street is again supported by the Grand Mosque and commercial functions. At certain points, the route provides valuable views of the urban landscape with the monuments of the Grand Mosque (Ulu Cami) and the Maksem Mosque.

6. TYPOMORPHOLOGICAL ANALYSIS OF MAKSEM STREET

The area altered by Maksem Street, which is studied as a restructuring route, consists of residential districts south of the city's commercial center. Three main elements are recognizable in the urban fabric of Bursa in 1862 (Figure 5): the topography, the organic street network and the cul-de-sacs. The organic street network of the city, consisting of wards built as traditional two or three-storey houses in gardens around or centered on places of worship, is a result of the topography. While the topography influenced the shape of the streets, the streets also influenced the shape of the building blocks and the organization of the plots within the network. This is a general feature of Ottoman cities. Due to the asymmetric nature of the topography, the land on which each building is located is not composed of rectangular equal plots [21]. Therefore, this asymmetry leads to different settlement alternatives within the plot.

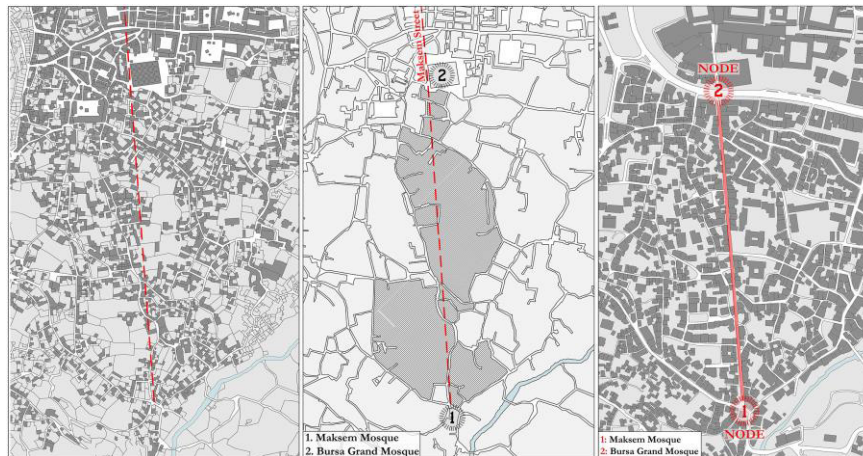


Figure 5. Urban fabric, roads network and affected urban blocks on 1862 and 2023 maps

The Ottoman urban fabric described in general terms above is also evident in the area which has an organic structure based on hierarchy of cul-de-sacs and topography. It can be observed that the route of Maksem Street changes at eleven urban blocks (Figure 5). Since the 1862 map of Bursa does not contain information on the numbering of the urban blocks, the current block numbers were used in this study (Figure 6). The changes caused by the restructuring route are analyzed diachronically and comparatively on the basis of eleven urban blocks.

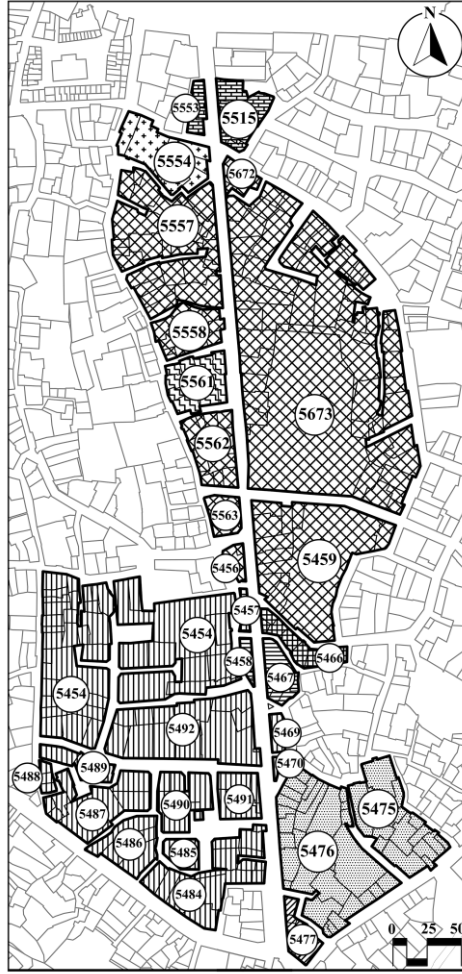


Figure 6. Numbers of urban blocks changed on today's cadastral map

6.1. Changes in Road Network and Urban Blocks

As a restructuring route, Maksem Street, which has caused significant spatial changes in the urban fabric, can be analyzed with some concepts. Accordingly, the new route has produced some urban blocks in the traditional fabric to become smaller. Such as, urban block 5477 has been reduced in size due to the effect of Maksem Street. Similarly, urban blocks 5475-76 and some parts of 5561 and 5515 had same situation (Figure 7).

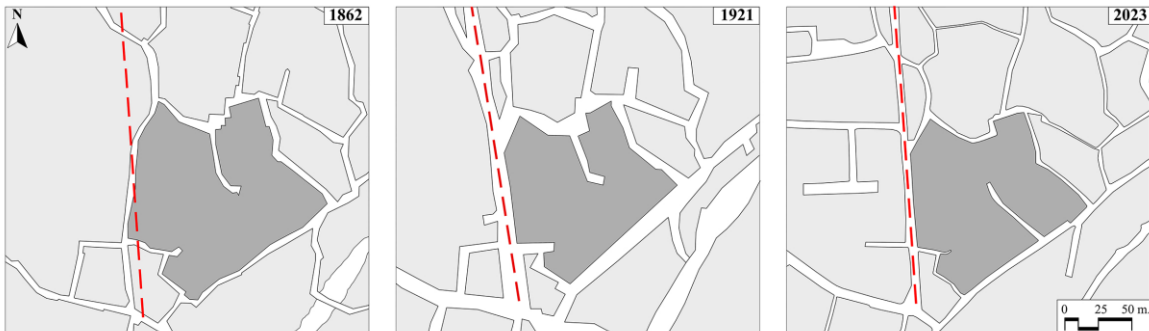


Figure 7. The status of the urban blocks numbered 5475-76 on the maps of 1862, 1921, 2023

Urban block 5477, on the other hand, enlarged with the change of the road running through it to the south-east. Biggest part of the urban blocks 5457-66 was merged with other blocks after 1921 (Figure 8).

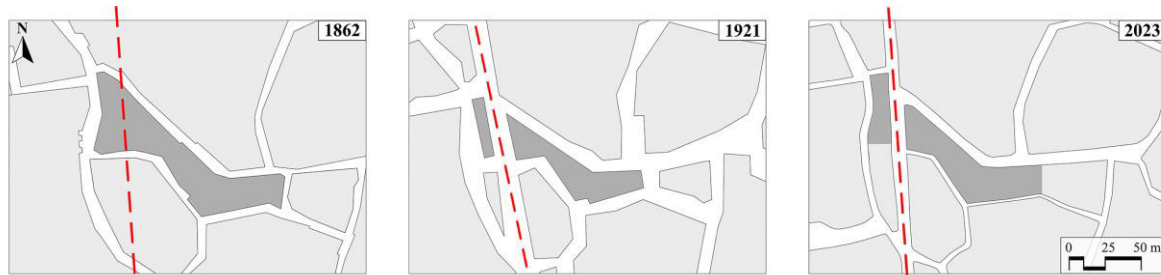


Figure 8. The status of the urban blocks numbered 5457-66 on the maps of 1862, 1921, 2023

The physical change where the effect of the route is most visible is the fragmentation of the urban blocks. The urban blocks numbered 5455-92 were created with the effect of the route. These blocks were first divided into two parts of different sizes by the effect of Maksem Street, and then divided into sub-parts by the effect of zoning. The two cul-de-sacs shown on the 1862 map were extended after 1921. The 1921 boundaries are largely similar according to the current boundaries. It can be seen that most of the urban blocks numbered 5457-66, which had been split in two by the effect of the road, were merged with another block after 1921. The blocks numbered 5553-5515, which had previously had an integral structure, were first fragmented by the effect of the street and then enlarged by merging with the surrounding small urban blocks. It can be observed that the urban blocks numbered (5456, 59)- (5557, 58, 62, 63)- (5672, 73) had a holistic structure in the 1862 Suphi Bey map, but they were divided into 3 parts with the effect of Maksem Street, but due to the changes in the road system, they increased to six in 1921 and to eight today (Figure 9). This fragmentation was caused by the continuation of cul-de-sacs. The 1862 map shows that the cul-de-sac was continued by dividing Maksem Street to come across another street.

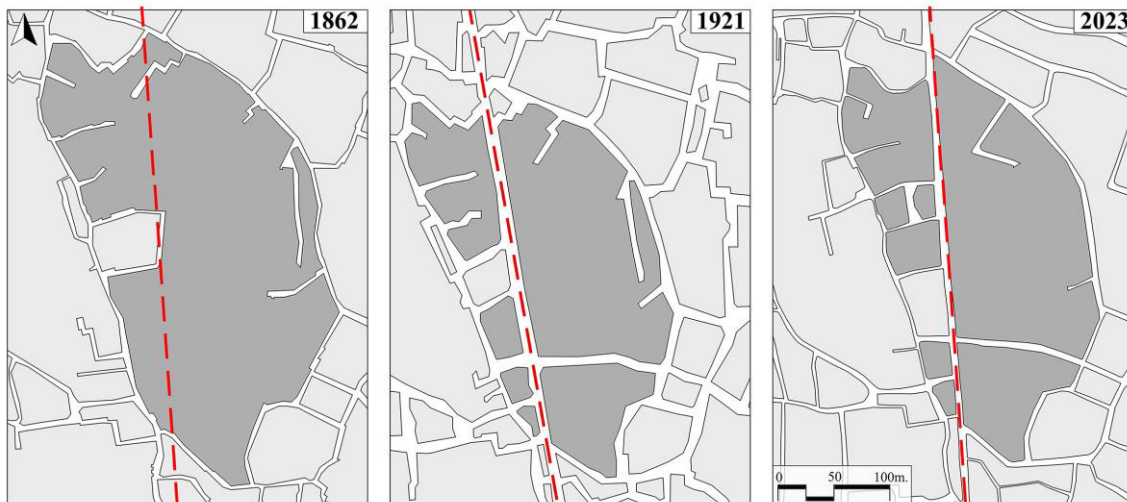


Figure 9. The status of urban blocks numbered (5456, 59)- (5557, 58, 62, 63)- (5672, 73) on the maps of 1862, 1921, 2023

6.2. Changes in Subdivisional Order

Although the subdivisional order underwent sharp changes in some places, new sizes and shapes emerged due to actions such as amalgamations and divisions, as is the case today. For instance, the current urban blocks numbered (5454, 55, 84-88, 89-92) partially preserve the traces of 1862 in the order, as shown in the 1862 map. However, some plots have been divided and others have grown by integration (Figure 10).



Figure 10. The status of the subdivisional order in urban blocks numbered 5454, 55, 84, 85, 86, 87, 88, 89, 90, 91, 92 on the maps of 1862 and 2023

It can be observed that the plots bordering Maksem Street in the building blocks 5475-76, 5458-67 and 5457-66 have become smaller, while the others have not undergone any serious change. In the plots of urban blocks 5475-76, it can also be observed that the construction on the street has increased due to the continuation of the cul-de-sac in the urban block. Therefore, new and larger plots have been created that did not exist in 1862 (Figure 11).



Figure 11. The status of the subdivisional order in urban blocks 5475-76 on the maps of 1862, 2023

It can be seen that the plots in the urban blocks numbered 5457-66 have caused the formation of asymmetrical structures over time. Urban blocks (5456, 59)- (5557, 58, 62, 63)- (5672, 73) have experienced more changes in the subdivisional order than other urban blocks. The reason for this situation is the size of the urban block and the road network that has developed within it. While the plot sizes are generally divided into small pieces, the parcels with two school areas within the blocks have grown by merging. Although subdivisional order of block 5561 has changed, it is assumed that this situation has nothing to do with Maksem Street. According to 1862 order of the block numbered 5554 is similar to the present one, and only the plots bordering on the street have been divided. The layout of this area has not changed due to the historic buildings on the north-eastern boundary of the urban block. Concerning the subdivisional order of block 5553 and part of block 5515, it can be seen that the plots

inside the block, where the mosque and the mausoleum are located, have not changed, while the plots bordering the road have been divided into smaller pieces. In a large part of block numbered 5515, the subdivisional order has changed completely.

6.3. Change in Building Fabric

Asymmetrical plots resulting from the topography have led to the development of building types that differ from those present in 1862. When analyzing the change in building fabric over time on block 5477, it becomes apparent that the building density has increased. In urban blocks 5475-76 and 5458-67, it is observed that the building fabric is concentrated on the street frontage and the buildings fill the plots for maximum utilization. In blocks no. 5457-66, there has been no change except for the dwindling of the relevant plots and change in their shapes as a result of the implementation of Maksem Street. It is seen that asymmetric plots cause the formation of asymmetric structures. When the building fabric of the blocks numbered (5456, 59)- (5557, 58, 62, 63)- (5672, 73) is analyzed, it is seen that the density increases on the periphery of the block. The presence of two school areas within the boundaries of the block has been the factor that reduces the density in the area (Figure 12).



Figure 12. The status of the urban fabric in the urban blocks (5456, 59)- (5557, 58, 62, 63)- (5672, 73) on the 1862, 2023 maps

It is seen that the building fabric of urban block no. 5561 is similar to that of 1862. When the building fabric of urban block 5554 is examined, the building density has not changed to a great extent, but the building volumes have increased. The reason for the lack of an increase in building density as in the other blocks is the vacant land which is currently under transformation. In urban block 5553 and part of block 5515, it is seen that the building dimensions have grown to the extent permitted by the plot dimensions.

7. CONCLUSION

Restructuring routes can be integrated into the urban fabric for various reasons. Transport issues are crucial for the city's functionality. At times, urban fabric may require surgical intervention to address health concerns such as ensuring adequate sunlight and reducing environmental pollution. The reorganization of commerce in neighborhoods may necessitate rerouting. As previously stated, restructuring routes can serve as an organizing mechanism within the urban landscape by connecting particular urban spaces, such as squares, linking urban centers, and revitalizing pedestrian pathways.

As demonstrated by Western examples, restructuring routes may result in irregular plots. In our study area, Maksem Street has caused a similar situation. In 1862, it not only fragmented the urban blocks but also altered the orthogonal subdivisional structure in many plots, resulting in the emergence of ones with varying geometric structures.

Special architectural solutions may be required for new plot structures that are emerging in demolished areas. These buildings may have unusual geometrical forms, such as trapezoids and triangles, which are frequently encountered along Maksem Street. The fragmentation of irregular urban blocks by the route has made this possible.

In some cases, the routes for restructuring may exceed the available street widths in urban areas. Boulevards are a prime example of this. This situation is also applicable to Maksem Street, as it has a wider structure than the surrounding area. The buildings surrounding the street space also have a higher morphology accordingly. The expansion of the street has made the street space attractive for commercial as well as residential functions.

The study conducts an urban analysis on various levels, with a focus on the restructuring route as the central element of the urban fabric. It demonstrates that examining the constituent elements that shape the urban landscape, such as the street system, subdivisional structure, and urban fabric, can provide a crucial foundation for the physical structure of urban space. At this point, interventions in the urban fabric can introduce a new logic to the space, regulating and transforming it. This is exemplified by Maksem Street.

REFERENCES

- [1] **Maretto, M. (2022).** The European Medium-Sized City: The Characteristics of the Urban Form. In Amistadi, L. et all. (Eds.). Mapping Urban Spaces: Designing the European City (pp:225-235). New York: Routledge.
- [2] **Tekeli, İ. (2007).** Anadolu'da Kent Tarihi Yazıcılığı Üzerine. In Çiftçi, C. (Ed.). Bursa'nın Kentsel ve Mimari Gelişimi (pp: 49-97). Bursa: Gaye Kitabevi.
- [3] **Vardar, B. (2007).** Bursa'nın Kentsel Mirasının Korunması ve Yaşatılması: Osmangazi Belediyesi Örneği. In Çiftçi, C. (Ed.). Bursa'nın Kentsel ve Mimari Gelişimi (pp: 185-195). Bursa: Gaye Kitabevi.
- [4] **Yenal, E. (1996).** Osmanlı Başkenti, Osmanlı Kenti Bursa. In Yenal, E. (Ed.). Bir Masaldı Bursa (pp:19-48). İstanbul: Yapı Kredi Yayınları.
- [5] **Baykal, K. (1976).** 2000 Yıllık Bursa'nın Belediyesi. Bursa: Öz Kardeşler Matbaası.
- [6] **Bağbancı Köprülü, Ö. (2007).** Bursa Hanlar Bölgesinin Değişim Süreçleri. In Çiftçi, C. (Ed.). Bursa'nın Kentsel ve Mimari Gelişimi (pp.309-320). Bursa: Gaye Kitabevi.
- [7] **Aslanoğlu, R. (1998).** Kent, Kimlik ve Küreselleşme. Bursa: Asa Kitabevi.
- [8] **Saint-Laurent, B. (1985).** Bir Tiyatro Amatörü: Ahmed Vefik Paşa ve 19. Yüzyılın Son Çeyreğinde Bursa'nın Yeniden Biçimlenmesi. In Dumont, P., Georgeon, F. (Eds.). Modernleşme Sürecinde Osmanlı Kentleri (pp: 79-98). İstanbul: Tarih Vakfı Yurt Yayınları.
- [9] **Batkan, Ö. (1996).** Bursa Kentsel Gelişim ve Planlama Süreci. In Yenal, E. (Ed.). Bir Masaldı Bursa (pp:247-259). İstanbul: Yapı Kredi Yayınları.
- [10] **Kaplanoğlu, R. (2006).** Meşrutiyet'ten Cumhuriyet'e Bursa (1876-1926). İstanbul: Avrasya Etnografya Yayınları.
- [11] **Dörtok Abacı, Z. (2007).** Bursa'nın Kent Dokusundaki Değişim. In Çiftçi, C. (Ed.). Bursa'nın Kentsel ve Mimari Gelişimi (pp: 165-182). Bursa: Gaye Kitabevi.
- [12] **Moudon, A.V. (1997).** Urban Morphology as an Emerging Interdisciplinary Field. Urban morphology 1, 3-10.
- [13] **Oliveira, V. (2016).** Urban Morphology: An Introduction to the Study of the Physical Form of Cities. Dordrecht: Springer. doi: 10.1007/978-3-319-32083-0.
- [14] **Strappa, G. (2018).** Reading The Built Environment as a Design Method. In Oliveira, V. (Ed.). Teaching Urban Morphology (pp:159-185). Springer. doi: 10.1007/978-3-319-76126-8
- [15] **Caniggia, G. & Maffei G.L. (1979).** Composizione Architettonica e Tipologia Edilizia: 1. Lettura Dell'edilizia di Base. Venice: Marsilio.

- [16] **Bahrtdt, H. P. (1966).** Outlines of the City Sociology. Venice: Marsilio.
- [17] **Samuels, I., Panerai, P., Castex, J., & Depaule, J.C. (Ed). (2004).** Urban Forms: The Death And Life Of The Urban Block. Architectural Press.
- [18] **Oğuzoğlu, O. (2011).** Uludağ'ın Eteklerini Süsleyen Bursa Mahalleleri. In Dostoğlu, N., Oğuzoğlu, O., & Elbas, A. (Eds.). Bursa'nın Tarihi Mahalleleri-1 (pp: 14-24). Bursa: Bursa Kültür A.Ş.
- [19] **Kaplanoğlu, R. (2001).** Bursa Ansiklopedisi-1: Yer Adları. İstanbul: Avrasya Etnografya Vakfı Yayınları.
- [20] **Hüdâvendigâr Vilâyeti Salnâme-i Resmîsi. (1909).** Vilayet Matbaası (pp: 86). <https://kutuphane.ttk.gov.tr/resource?itemId=303447&dkymId=55374>, last accessed on 19 March 2024.
- [21] **Cansever, T. (2010).** Osmanlı Şehri. İstanbul: Timaş Yayınları.

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