

# SUSTAINABLE URBAN DESIGN STRATEGIES FOR HISTORICAL URBAN LANDSCAPES: CASE STUDY OF IZNIK CITY (TURKEY)

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## 1 ABSTRACT

*Historical cities are the cultural sites which carry the traces of the features of the former civilizations including social and economic structure, life philosophy, architectural style, mind of settlement and aesthetic sensitivity. In choosing a land for these cities; geographical location, social events and natural structures were determinant factors and different urban planning models have been emerged. In this paper, Iznik City (Bursa, Turkey) which is very significant center for religion tourism is investigated in terms of urban design of its historical structure. Iznik is in UNESCO World Heritage Tentative List since 2014. In this study, reflections of different civilizations hosting the city throughout the history and effects of changing social structure to the development of the city were studied. Hellenistic, Roman, Byzantine, Seljukian and Ottoman periods specific to military, political, cultural, religious, and economic development hosted by Iznik City has been demonstrated. The development of the city is discussed in the historical and spatial development process as urban landscape characters. In this context, the stages of the study consist of (i) historical and spatial development process of Iznik City, (ii) natural (topography, Iznik Lake, soil, geology and seismicity, climate) and social (religious factors, economy, social events, the art of tile-making) factors that affect historical urban landscape of Iznik, (iii) historical urban landscape features of Iznik, city plan, city walls and gates, current historical structures in the city as well as the Iznik Lake and the olive orchards that provide unity with the historical structure (iv) within this framework design strategies related with preservation-revitalization and tourism were developed towards the sustainability of urban cultural heritage. In this context, to evaluate the integrated planning and design work in urban scale relation with the pedestrian work with each other and the environment as well as the protection of urban structures and places in one building scale is important. Concurrently, as complemented historical pattern elements, Iznik Lake and olive groves are important outcomes of the study on handling within the entire historical urban landscape and on the evaluation within design strategies. Moreover, Iznik has a highly significant potential in terms of cultural tourism as a capital, a city of trade routes, a center of science and culture in addition to being a religious center in terms of religious tourism for Christians.*

### 1.1 Keywords

Historical urban landscape, urban design, Iznik city, urban sustainability

## 2 INTRODUCTION

Anatolian lands that have been selected as settlement areas since the Prehistoric Ages until today have rich historical and cultural data. The reflection of the rich historical structure of our country to the current cultural values increases spatial attractiveness (Kapuci, 2004). Historical structures and areas that have to be preserved with their cultural, social, economic, archeological and aesthetic values increase the perceptibility of cities by transferring the emotions, thoughts, social life and accumulations of the period they were built in to our day (Veliöđlu et al., 1993). Historical cities that have been able to reach our day as elements that reflect the style of living of a society make up the historical landscape. By hosting various civilizations shaped over time with the cultures and traditions of societies, these spaces have created environments in which the generations of our day and especially of the future can live in (Yazgan et al., 2000). Geographical location, social events and natural structures have been determinant in the selection of the locations of historical cities and various different urban planning models have emerged. These urban forms that differ with respect to the goals for which societies use nature and their ways of life have reached our day with their historical landscape identities by developing into the cultural landscape of our day. In this sense, historical cities include spatial arrangements in which the defects in urban planning works that are experienced in the cities of our day do not exist.

Cities are the expressions of the cultural, social and economic structures of people in space. The urban spaces created by societies in different stages have completed their formations through a historical process with reference to a center determined by natural, economic or military strategic factors. Cities can be classified in two categories based on their reasons of development; first category includes cities that have been established in history for political, military and economic reasons and that have developed primarily with the effects of these priorities thus emerging slowly over time. Whereas the other category includes cities that have been established with the request of the leader of a society or a government. The difference between these two models is that the first is created slowly over time in accordance with the time and conditions of a small congregation; whereas the second is actualized in accordance with a predetermined plan. The cities that are included in the first group are settlement areas that have developed naturally. Whereas the second is included in the class of cities that have urbanized later (Karaca, 1999). Even though the cities that are included in the natural city group have a formation process dating back to antiquity, they have been established as a result of a plan. The logic of spatial organization in the establishment of cities constitutes the foundations of the concept of urban identity. The stages of the establishment of a city in which elements that define the city come together have developed under the effect of certain strategies and factors. The formation of cities depends on geographical, topographic, climatic and physical qualities as well as social, cultural and economic factors. The locations and plans of cities differ significantly since these factors are quite different in comparison with each other (Karaca, 1999). In this regard, social and natural elements have been determinative in the formation of historical cities that comprise the historical memory of societies, ensure their cultural continuity and function as bridges between the past and the future. Social factors that affect urban settlement: are military, religious and economic factors. Whereas natural factors that affect urban settlement are; climate conditions, topographic structure, proximity to sources of water and soil properties.

## 3 MATERIAL & METHOD

### 3.1 Material

The town of Iznik that has been selected as the study area is a town under the governorship of the city of Bursa located in the Marmara Region of Turkey that is located to the easts of the lake known by the same name (Figure 1). Iznik has been established around the intersection of the N40-21 40-37 longitude and E29-30 29-57 longitude. (Bodur, 2000). Total population of 43 287 (TUIK 2014).

Served as a capital city to Seljukian, Byzantine and Ottoman states respectively, Iznik bears exceptional testimony to early examples of cultural, architectural and artistic accomplishment of these cultures. It hosted the most important examples of early church in the history of Christianity. The earliest examples of mosque, madrasa and soup kitchen belonging to the Ottoman Period were all constructed in Iznik. It is also a place of co-existence displaying unique synthesis of cultural, architectural and artistic creations of Byzantine and Ottoman cultures, evidence of which can be found in the form, design, material and artistic features of the buildings which were built in the transition period from the Byzantine to the Ottoman Empire.

(<http://whc.unesco.org/en/tentativelists/5900/>). In the meantime, the study area is included in the UNESCO World Heritage Temporary List as of 15.04.2014 and meets the II, III., V. and VI. criteria.



**Figure 1.** Geographical location of the study area (modified from Kapuci 2004).

### 3.2 Method

The study consists of four stages:

(i) The historical and spatial development process of Iznik: The importance of the civilizations it has hosted throughout history and the reflections of the changing social structure on the space have been examined in terms of urban development. Iznik reflects the characteristics of the Hellenistic period with its Hippodamos City plan. It completed its urbanization process during the Roman period. Iznik developed in terms of religion, politics, culture, military and economy during the Byzantine period and became a religious center. Iznik was the first capital city of the Turks in Anatolia during the Seljuq period. Whereas it had an important place in the world history of culture during the Ottoman period thanks to the art of tile making and thus reflected this to all the art works of the period.

(ii) Factors affecting the historical urban landscape of Iznik: Natural (topography, soil, geology and seismicity, climate, Iznik Lake) and social (religious, economy, social events, Iznik tile) factors.

(iii) Iznik Urban Landscape Features: City plan, walls and gates, current historical structures in the city as well as the Iznik Lake and the olive groves that provide unity with the historical structure have been handled.

(iv) Within this framework, design strategies related with preservation-revitalization and tourism were developed towards the sustainability of urban cultural heritage.

#### 4 HISTORIAL & SPATIAL DEVELOPMENT PROCESS OF IZNIK

Iznik or known in history as Nikaia is built on a fertile plain to the east of the Iznik Lake within the borders of the city of Bursa surrounded by mountains. It is known that the city was founded in 316 BC by Antigonos who was one of the generals of the Macedonian Emperor Alexander and traces of settlement on the city grounds date back to the prehistoric ages. It became one of the most important Hellenistic cities of Anatolia during the Bithynia empire period, was transformed into a magnificent city during the Roman period and became a religious center during the Roman period when it hosted two Ecumenic Councils (325 and 787) after which it gained an important place in the world cultural history during the Ottoman Period as a tile manufacturing center. The city walls with a total length of about 4.970 meters have four monumental gates and many towers and have carried the traces of the civilizations and cultures that have been dominant in the area for about two thousand years to our day and age. (<http://www.kulturvarliklari.gov.tr/TR,93767/Iznik-bursa-2014.html>).

The city of Iznik that is positioned with various militaristic, political, religious, social and cultural effects that has been able to preserve the rich texture it has is one of the most important historical centers of our country. The interaction between the urban texture that has been structured with physical, architectural and aesthetic elements in different period with the dynamic social life has an important place in the urban development of the city (Anonymous, 2000a).

Iznik is an important historical city reflecting the militaristic, political, social and cultural ways of life during the Hellenistic, Roman, Byzantine and Ottoman periods which has undergone intense developmental activities throughout its urban development process (Anonymous 2000a). This historical structure is of great importance as one of the fundamental factors for the shaping of the current settlement texture.

The civilizations that the city has hosted throughout its rich development history have been quite effective. Iznik has undergone various periods such as the Hellenistic Age (Age of the Greeks) , Roman Age, Byzantine Age, Seljuq Period , Byzantine Period, Ottoman Period . The city of Iznik has been known throughout history as; "Antigonea", "Antigonia", "Nikaia Eist Nemalar", "Nicèa", "Nikea", "Nicaea" (Şen, 1998), "İz-i Nicaea" due to the variety of the civilizations it has hosted throughout history (Yalduz, 1999).

**Hellenistic Period (Greek Era):** The city was founded during the Hellenistic Period. The most distinctive feature of this era is the city plan. This plan system known as "Hippodamos" was developed and popularized by the famous Miletian architect Hippodamos and in it the city founded on a flat area is surrounded by walls in the shape of a rectangle and it has four gates. The two perpendicular main streets direct one towards the temple – the Hagia Sophia Church in Iznik – and ends with these four gates. (<http://whc.unesco.org/en/tentativelists/5900/>; Nuhoğlu, 1995). The city plan that carries Hellenistic features is preserved today as well. There is no trace of the walls dating back to the Hellenistic Period which encircled the city.

**Roman Period:** The city became one of the most important centers of Anatolia during the Roman Empire Period and it was named as the Metropolis. Iznik was famous during this period with dyeing, silk production and the rose festivals organized in the name of the elderly (Yalduz, 1999). The Roman Period was effective in Iznik with significant structures (Akkaya, 1994; Bodur, 2000). The complete urbanization of Iznik took place during the Roman Period. Hence, most of the historical structures of today date back to this era. The city was located on an important trade route during this period (Bodur, 2000). The most important structures of the Roman period that have reached our age: Ancient Roman Theater, Obelisk, Gymnasium, City Walls, İstanbul Gate, Yenişehir Gate, Lake Gate, Lefke Gate, Great Ceremony Area.

**Byzantine Period:** The Byzantine period manifested itself in the city with strategic properties. Iznik developed in religion, politics, cultural and economic areas during both the Roman and the Byzantine Periods and was transformed into a strong military base with strong fortifications (Karginer et al., 1963). It was in 325 AD that the first Christian Council known as the Council of Nicaea was held in Iznik with the participation of more than hundreds of bishops who came from different parts of the empire. In 787, the Seventh Ecumenical Council was taken place in Nicaea in order to handle the iconoclastic controversy regarding the use of icons. The location for this council was the Hagia Sophia church. (<http://whc.unesco.org/en/tentativelists/5900/>) The fact that two councils important for the world of Christianity gathered in Iznik increased the importance of the city in the world of Christianity (Şen, 1998).

The city became a city of caravans during the Byzantine Period because the roads leading to the sacred cities passed through Iznik (Nuhoğlu, 1995). Significant public improvement works were carried out in the city during this period; monasteries, churches and aqueducts were built (Eyice, 1988). All of the churches were demolished during the 1065 earthquake and the walls and towers were damaged (Yalduz, 1993).

**Seljukian Period:** The city went under the Seljukian ruçe during 1075 and was named as "Iznik". It was the capital city of the Seljukian Empire. Thus, it became the first capital of the Turks in Anatolia.

**Byzantine Period:** The city was the capital city of the Byzantine Empire in 1097. Iznik was the center of culture and arts during this period (Eyice, 1988; Erton, 1995; Şen, 1998). Iznik became a significant city with regard to politics and culture as a result of the construction of imperial and civic buildings such as the palace of the Patriarch, hospitals, charity institutions, and churches. Reinforcement works were carried out on the city walls using many towers. (<http://whc.unesco.org/en/tentativelists/5900/>). Hagia Sophia Church and Baptistery (Böcekayazması) are among the structures that have reached our age and that are still preserving their importance. In addition, excavation works are ongoing at the Koimesis Church, Hagios Tryphon Church and the Ayatrifon Church.

**Ottoman Empire Period:** The city that became the capital city twice was once the capital city of the Ottoman Empire as well. It was during the Ottoman Empire period that cultural structures were started to be built more rapidly. The Ottoman period had a special impact on the city of Iznik with its unique settlement style as well as the interest shown to the monuments preceding them. The largest church of the city, the Hagia Sophia Church was transformed into a mosque during the Ottoman Period (Öztuna, 1994; Şen'den, 1998). Tile making was one of the most important economical incomes of the city during this period. Iznik gained a world-wide renown for the second time during the Ottoman Empire as the centre for ceramic tile production which is one of the most beautiful and enduring types of Turkish-Islamic art. Iznik became famous during the 16th and 17th centuries for its beautiful tiles which decorate mosques and palaces throughout the Ottoman Empire (<http://whc.unesco.org/en/tentativelists/5900/>). Many inns, Turkish baths, mosques and madrasahs were built all over the city by Turkish craftsmen. This is closely related with the settlement of the Muslim public. The structures that have reached our day include; the Green Mosque, Nilüfer Hatun İmaret (Soup Kitchen), Hacı Özbek Mosque, Şeyh Kudbettin Mosque, Mahmut Çelebi Mosque, Süleyman Paşa Madrasah, Murat the 1st Turkish Bath and Murat the 2nd Turkish Bath.

**Republic Period:** The city entered a development process based on urban tourism beginning in 1965 as its geographical location, historical values and natural structure were discovered. Development Plans as well as Reconstruction Plans for development were prepared during the development of the Republic Period (Anonymous, 2000b).

## 5 THE FACTORS AFFECTING THE HISTORICAL URBAN LANDSCAPE OF IZNIK

According to Akdoğan (1975), landscape forms that have emerged as a result of the various goals that humans use nature for and that differ with respect to these differences make up the cultural landscape, inform us about the relationship between human-nature from the past to the present. These urban forms that differ with respect to the goals that societies use nature for as well as their forms of living have reached our day by developing and changing over time.

### 5.1 Natural Factors

**Topography:** Land structure that is important for the character of settlement differs with respect to the reasons for settlement. Whereas hills and elevated areas or flat lands are preferred for cities that are built for militaristic purposes, flat plains are preferred for cities in which agricultural cultivation is important. The town of Iznik is located on a flat plain that is encircled by mountains. The city has been established during the Hellenistic Period. It is observed that Iznik has a Hippodamos plan as was the case during the 4<sup>th</sup> century for all Hellenistic cities (such as Ephesos, and Miletos). This plan that is also known as the grid plan has been developed and popularized by the famous Milesian architect Hippodamos. This system has been preserved for centuries and has been carried over to our day. According to this plan system, the city was established over a flat area, and is surrounded with rectangular walls. It has four gates. This plan was executed as a result of the problems that colonizing groups faced after they reached their destination regarding the best and easiest means to divide the land into plots. This rectangular plan has minimized all such problems. The city which resembles a fortress city has such features since it was established by giving primary importance to security. The urban structure for settlements which has been established for

defensive purposes, is in accordance with the topographic structure. The relationship between topography and existence of water is very important. The city is located on a flat plain surrounded by mountains and presents an image that is quite convenient for protection thanks to the effect of the lake that acts as a natural border to the west of the city. This has made the city easier to defend throughout history. Whereas the hill located to the northeast of the flat city has been used as the acropolis area of Iznik (Nuhođlu, 1995). Another facility provided by the topography at Iznik is the transportation system. This topographic structure has enabled the application of the grid plan. This grid plan has enabled the spreading of the city in three different directions. The city plan that carries Hellenistic features has been preserved until today. The city walls are still effective elements that characterize the city and give it its identity.

**Iznik Lake:** Sources of water that encircle the city as natural borders are important as natural richness due to their importance as well as their positive effects on the climate and security. Iznik Lake covers the majority of the northwestern lands, and has played an important role during the establishment of the city. In terms of area, it is the sixth largest lake in our country and the largest in the Marmara Region with an area of 312 km<sup>2</sup> and it has provided a natural security border for militaristic reasons. The lake has also been effective in the selection of the settlement area and urban development for the city due to the possibilities it can provide the locals as well as the fertile lands around it and its aquacultural resources (Gulez et al., 2005).

**Soil Properties:** The city has suitable conditions for the public to earn their living off the land thanks to its convenient climate conditions. It's high suitability for agriculture is due to being located on a fertile plain as well as its abundant vegetation. In addition, the city attracts attention today with its olives and vineyards as well as its special climate and fertile agricultural lands.

**Geology and Seismicity:** Iznik Lake and Plain was formed as a result of a collapse that took place during the geological eras. The collapse took place on a fault line that passed the Plain and the southern border of the Iznik Lake and continued all the way to the bay at the southern border of Orhangazi and Gemlik Plain (Anonymous, 1974). The city itself consists of the alluvial lake and river deposits dating back to the Quaternary Period that have accumulated at the collapse basin formed by the southern branch of the Northern Anatolia Fault Line (Anonymous, 2000b). Iznik has a special status geologically and is located on the southern branch of the Northeast Anatolia Fault Line. It was determined that Iznik has features that increase the current earthquake intensity due to the surface properties consisting of loose clay, silt, gravel and sand (www.Iznikdefteri.com). It was determined during the surface etudes carried out that the surface has a high risk of liquefaction since the dominant unit within the limits of Iznik Municipality borders is sand and sandy material and also it has high ground water levels (Anonymous, 2000b). Iznik is located on a 1st Degree Earthquake Region belt and it has a negative structure in terms of suitability for settlement due to its geological and hydrogeological properties as well as surface liquefaction and ground subsidence movements.

**Climate:** The distance of the town from the sea, and the fact that it is located in a hollow region surrounded by mountains that are parallel to the coast determine the climate of the region, gives the city a climatic advantage. Iznik has a mild climate where the Mediterranean climate effects are observed, as well as the regional Marmara climate. The fact that Iznik is surrounded by mountains in the north is one of the most important factors resulting in the fact that its temperature does not drop too low. This has positive effects on the agricultural and life quality in the city.

## 5.2 Social Factors

*Religion:* The location and intensity of the sacred structures which are the expression of religious beliefs on the space give us ideas about the periods they were built in and the civilizations they served. The main streets continue onwards to the temple – Ayasofya Church in Iznik – and they intersect to form a cross (Nuhođlu, 1995). These two important arteries that constitute the basis of transportation in the city while connecting the gates in the north-south and east-west directions are still important even today.

*Economy:* One of the factors that is important for the location of the city in addition to defensive measures is the means of livelihood of the public and the existence of rich natural resources. The fact that the city is close to important trade and caravan routes is important among the economic factors that have been important for the selection of the location for the city. Sea trade was carried out via the Gemlik Strait-Iznik Lake-Sakarya River-Black Sea without passing through the Istanbul Bosphorus. The fact that Iznik is located on this trade axis shows its strategic importance (Bodur, 2000).

*Social Events:* The city has been home to an important event; when Christianity was recognized as a free religion during the reign of Constantinus the 1st. More than 318 leading religious figures came together for a meeting known as the 1st Ecumenical Council on May 20, 325 A.D. to discuss religious issues. The Iznik council was a turning point for the world of Christianity. One of the four Bibles accepted by the Christian world today originated here (Yalduz, 1999). Iznik has been a significant center of settlement thanks to its location on the trade route in addition to its strategic location. The city also hosted many caravans during the times when Christianity was accepted since all roads to holy cities passed through Iznik (Nuhođlu, 1995). Large building works were carried out in the city during the Byzantine Period thus resulting in the building of monasteries, churches and aqueducts (Eyice, 1988).

*The Art of Tile Making:* The origins of ceramic art can be dated back to the Neolithic Site of Çatalhöyük and it reached its perfection during the 16th century in Iznik. Glazed technique was discovered by the Assyrians even though the first known ceramic production dates back to 3rd century BC China and it was developed throughout Central Asia and Anatolia thus reaching maturity in Iznik. Iznik ceramics have often been depicted with floral motifs such as tulip, hyacinth, pomegranate and carnation and mostly blue, turquoise, green and red in colour. These fine works of art are still being manufactured in Iznik (<http://whc.unesco.org/en/tentativelists/5900/>). The art of tile making was one of the most important income sources for Iznik during the Ottoman Empire period. The final years of the Byzantine Period and the first years of the Ottoman reign are accepted as the starting point of Iznik tile making (Şen, 1998). The city became a center that manufactures and ships many tiles and ceramic items all over the country and even to foreign countries during the 16th century thanks to the spreading of workshops and kilns all over this city thus strengthening the economy. Iznik tiles have been used to decorate many of the architectural structures built during that time and thus have become a decorative element symbolizing the city. Attempts were carried out to maintain the city as an important tile production centre. Thus, Iznik Tiles Atelier and the Tile and Ceramic Research Center were opened in 1996. It is now possible to produce Iznik tiles with the same quality as of those of the 16th century. (<http://whc.unesco.org/en/tentativelists/5900/>)

Natural and cultural factors that affect Iznik's historical urban landscape in different periods are given in Table 1.

**Table 1.** Factors that affect the urban landscape of Iznik according to different periods.

Factors	Sub-Factors	Hellenistic Period	Roman Period	Byzantine Period	Ottoman Period	Republic Period
<b>Natural Factors</b>	Topography	•				
	Iznik Lake	•				
	Soil properties	•				
	Geology and Seismicity	•	•	•	•	
	Climate	•				
<b>Social Factors</b>	Religious factors	•		•		
	Economy		•	•	•	
	Social events			•		
	The art of tile-making				•	
	Tourism					•

## 6 IZNIK URBAN LANDSCAPE FEATURES

Iznik contains all the key attributes that convey its outstanding universal value, testifying to the urban texture and its relationship with the lake and surrounding rural areas. Situated in a fertile valley nearby the lake with the same name, Iznik is a small historic town still enclosed within its ancient walls surrounded by a beautiful landscape. The historic urban layout of the town is still visible with its grid settlement plan remained since the Hellenistic Period and monumental structures from the Roman, Byzantine and Ottoman periods. The city walls which 4970 m in length, which was built in the late Roman period, then expanded and strengthened during the Byzantine and Ottoman period, is one of the distinctive features of the city. It

surrounds settlements creating an irregular polygon with four monumental and several small gates. The walls were also fortified by more than a hundred towers some of which have inscriptions. In addition, columns and other architectural fragments from the ruins of more ancient edifices have been inserted into the city walls (<http://whc.unesco.org/en/tentativelists/5900/>).

Within the scope of Iznik urban landscape features; the city plan that makes up the main city features was handled together with the wall gates and the walls located where the two central axes that intersect on the plan end. Afterwards, the current historical monuments and structures in the city were handled together with the olive groves which make up another cultural attribute of the city thus putting forth the historical urban landscape of Iznik.

### 6.1 City Plan

It is observed that the city has a Hippodamos plan. This plan also known as the grid plan was developed and popularized by the famous Miletian architect Hippodamos. The main features of this system was preserved for centuries and has reached our day. According to this plan system, the city founded on a flat area is surrounded by walls and has four gates. The main streets lead towards the temple – Hagia Sophia Church in Iznik – and intersect each other thus forming a cross (Nuhođlu, 1995). The Hellenistic culture, walls and Iznik Lake have an important effect on the formation of the city plan. The completeness of the city is represented by the fact that it exists today in unchanged form. Iznik is still enclosed within its ancient walls and the city still retains its grid urban plan, the two streets north/south and east/west oriented cross the town meeting at a right angle (<http://whc.unesco.org/en/tentativelists/5900/>). The place where the two main streets intersect is used as the city center just like in the ancient days. Hagia Sophia is one of the focuses of today's city center, whereas the other is the Government House.

### 6.2 City Walls

The city walls have different construction phases dating back to the seventh, tenth and twelfth centuries the evidence of which can be found in different material and building techniques. (<http://whc.unesco.org/en/tentativelists/5900/>). The walls that give the city of Iznik the attribute of a "Walled City" were first built during the Hellenistic age in the shape of an equilateral quadrilateral with a length of 2.893 m; however they could not stand erect until today (Karginer et al., 1963). Today's city walls of Iznik date back to the Late Roman Period and constitute the second most important wall feature in Turkey after Istanbul Land Walls. Just like the Istanbul walls, Iznik walls also have a secondary wall in front in addition to a defensive ditch. The walls that surround the city and constitute the Archeological Protection Site border have a length of 4.970 m and a height of 10-13 m (Karginer et al., 1963). This puts forth that Iznik was smaller during the first period than it is now. Today's walls of Iznik that date back to the Late Roman Period carry with them the architectural properties of all ages. They are the second most important walls after the Istanbul Land Walls. There are four main walls that enable entrance to Iznik which are Istanbul Gate, Yenişehir Gate, Lefke Gate and Lake Gate and there are also secondary gates that can only be used by pedestrians. A significant portion of the fortifications preserve features of their original form, design, materials and are used in harmony with the local terrain and their surroundings (<http://whc.unesco.org/en/tentativelists/5900/>).

### 6.3 Gates

There are four main walls that enable entrance to Iznik which are İstanbul Gate, Yenişehir Gate, Lefke Gate and Lake Gate and there are also secondary gates that can only be used by pedestrians.

**Istanbul Gate:** According to Nuhođlu, (1995); it is the largest and the most important gate that is located to the north of the city. It was built during the reign of Hadrianus between 117-138 AC (Kapuci, 2004). It consists of three uniaxial and concentric separate gates and was built for defensive purposes (Bodur, 2000; Kapuci, 2004). There is an oval courtyard between the inner and outer gates. The first gate when coming in from the outer part dates back to the Byzantine Period. There is one bastion on two sides. The second gate is in the shape of a victory Arch. Whereas the third gate has been badly damaged (Oktay, 1969; Kapuci, 2004).

**Yenişehir Gate:** According to Karginer et al.(1963) and Sen (1998), it was built during the reign of Cladius the 2nd between 258-270 AC. It is a gate that has been subject to enemy attacks the most and that has been damaged the most (Kapuci, 2004). According to Oktay (1969), it consists of three consecutive

gates. There are two bastions in the shape of a semi-circle to the right and left of the first and second date located under the outer wall which were built in XIII. Century (Kapuci, 2004). It is located to the south of the city. It is a gate from where one can enter the city when coming in from the Yenişehir District and the coastal path direction (Kapuci, 2004).

**Lake Gate:** According to Karginer et al.(1963) and Bodur (2000), it is the gate that opens up to the lake which is located to the west of the city. It was built during the reign of Cladius the 2nd. It functioned as a a wharf. The facilities that supplied water to the ditches surrounding the walls were located here. Today, only their remains can be seen (Kapuci, 2004).

**Lefke Gate:** According to Bodur (2000), it was built in II. Century during the reign of Hadrianus. It was built as three concentric gates to the east of the city (Kapuci, 2004). According to Sen (1998), there are two frieze sections made of marble which are thought to be established during the Laskaris Period. One of the friese parts depicts the bringing of war booty by the losing party, whereas the other one depicts the Roman militia in their military outfits (Kapuci, 2004). According to Oktay (1969,; the second gate has been built in the shape of a victory Arch (Kapuci, 2004).

Hagia Sophia (Ayasofya) Church, Ancient Roman Theater, Green Mosque and Süleyman Paşa Madrasah are among the monumental buildings that best reflect the characteristic of the city during that period.

#### 6.4 Hagia Sophia

Hagia Sophia was the location where The Seventh Ecumenical Council was organized in the church constructed by the Emperor Justinian over the ruins of the former church dating back to the 4th century. The church was rebuilt as a basilica with three naves after it was demolished following an earthquake in the 11th century. The church is still located at the point where the roads leading to the four main gates in the district centre meet. (<http://whc.unesco.org/en/tentativelists/5900/>). It is a basilica type large church built on the foundations of the Gymnasium located on the path where the roads leading to the four gates of the city meet (Eyice, 1988; Şen, 1998). The Hagia Sophia Church has been repaired and renovated many times due to the earthquakes and fires and has been architecturally transformed until our day (Anonymous, 1996). The 7th Ecumenic Council of 787 AC was organized here as well as the 8th Council which took place here in 2000 and which was important for the Christian world. Over time, the frequency of concrete buildings increased and thus the Hagia Sophia Museum which was quite derelict at the time amidst the ever increasing number of concrete buildings, it was removed in 1995-1996 within the scope of the project applied by the Ministry of Culture. The church was surrounded with a green landscape arrangement after which the City Center became a spot of attraction in the city center.

#### 6.5 Ancient Roman Theater

The theater was built at during 2nd century AC by the Roman Emperor Trianus between 98-117 AC and has been built on a flat area at the Seljukian Neighborhood Saraybahçe Location about 400 m east of the Lake at the southwestern section of the city (Nuhoğlu, 1995; Sen, 1998; Bodur, 2000). The theater is the most important archeological site that still stands erect in Northwest Anatolia and has rare features such as the Antalya Side Theater. Large block stones were used during its construction forming a theater that is 85 m long and 55 m wide. It covers an area of 7.332 m<sup>2</sup> and was built by a group of 15000 people. It appears that the ancient theatre was converted into a mass graveyard in the 13th century. During the Ottoman period, there were also ceramic kilns within the ancient theatre. Its stones were used as construction materials especially in the restoration of the city walls during the Byzantine and Ottoman period (<http://whc.unesco.org/en/tentativelists/5900/>). Excavation work is ongoing today at the ancient theater and it is among the most important archeological values of the city.

#### 6.6 Green Mosque

Green Mosque is one of the most important cultural assets that has become a symbol of Iznik and it gets its name from its minaret made up of turquoise tiles and glazed brickwork (Kapuci, 2004). It was built during 1378 and 1392 by Architect Hacı Musa following the order by Çandarlı Halil Hayrettin Pasha. It is the first example among the Ottoman mosques in which a rectangular floor plan with a central dome was used (Anonymous, 1996; Yalduz, 1999). The body was covered with tiles in different tones of green and blue with a mosaic technique (Eyice, 1988). It was the first structure in which tile work was used at the time and is

one of the strongest mosques that is still used today following the earthquake damage in 1967 (Sen, 1998). Around the Green Mosque is in use after it has been enriched by walkways and seating areas.

### 6.7 Suleyman Pasha Madrasah

The madrasah is located at the Mahmut Çelebi District and was ordered to be built in 1332 by Suleyman Pasha, the son of Orhan Gazi. It is one of the madrasah buildings that make Iznik a center of culture. It is the oldest Ottoman Madrasah known also as the first university of the Ottoman Empire. It has thirteen cells, one classroom and nineteen domes covering them and it is also one of the first examples of madrasah buildings with a courtyard. It has an open courtyard and "U" type plan (Karginer et al., 1963). It was restored in 2000. It is now used in the service of tourism as a Market for Tile Makers in order to revive the traditional tile making craft of Iznik (Kapuci, 2004).

The periods and character features of monumental buildings in Iznik are summarized in Table 2.

**Table 2.** Periods and characteristics of the monumental buildings in Iznik.

Period	Building	Characteristic
Hellenistic , Roman	Walls	The walls the surround the city and form the borders of the Archeological Protection Site have a length of 4.970 m and a height of 10-13 m (Karginer et al.,1963). The city walls have different construction phases dating back to the seventh, tenth and twelfth centuries, evidences of which can be found in different material and building techniques. <a href="http://whc.unesco.org/en/tentativelists/5900/">http://whc.unesco.org/en/tentativelists/5900/</a> ).
	İstanbul Gate	The largest and most important gate of the city located to the north. It was built during the reign of Hadrianus between 117-138 AC (Nuhoğlu, 1995; Kapuci, 2004). It consists of three uniaxial and concentric separate gates and was built for defensive purposes (Bodur, 2000; Kapuci, 2004).
	Yenişehir Gate	According to Karginer et al. (1963), it was built between 258-270 AC. (Kapuci, 2004). It is the South Gate of the city. According to Oktay (1969), it consists of three consecutive gates (Kapuci, 2004).
	Lake Gate	According to Karginer et al. (1963) and Bodur (2000), it is the gate that opens up to the lake which is located to the west of the city. The facilities that supplied water to the ditches surrounding the walls were located here (Kapuci, 2004).
Roman	Lefke Gate	According to Bodur (2000), it was built in II. Century during the reign of Hadrianus. It was built as three concentric gates to the east of the city (Kapuci, 2004).
	Roman Theater	The theater was built at during 2 <sup>nd</sup> century AC by the Roman Emperor Trianus between 98-117 AC and has been built on a flat area (Nuhoğlu, 1995). The theater is the most important archeological site that still stands erect in Northwest Anatolia and has rare features such as the Antalya Side Theater. Large block stones were used during its construction forming a theater that is 85 m long and 55 m wide. It covers an area of 7.332 km <sup>2</sup> and was built by a group of 15.000 people.
	Great Ceremony Area	It is a large area for great ceremonies during the Roman Period. Afterwards, Hadji Hamza Mosque was built in this area during the Ottoman Era. Municipality building was built during the 1930's in place of the demolished mosque (Eyice, 1988). This area and the gathering place in front of the Municipality Building still has a function similar to its function in history.

	Saint Neophytos Basilica	By a very recent discovery of the remains of an ancient basilica about 20 meters from shore in Lake Iznik. the basilica is considered to have been built in memory of Saint Neophytos, who was killed during the reign of emperor Diocletianus mentioned in the written sources. It is also estimated that the basilica collapsed during an earthquake that occurred in the region in 740 ( <a href="http://whc.unesco.org/en/tentativelists/5900/">http://whc.unesco.org/en/tentativelists/5900/</a> ).
	Hagia Sophia Church	H. Sophia Church is one of the most important pieces of Christian architecture and it was built in 4 <sup>th</sup> century AC (Oktay, 1969). It is a basilica type large church built where the roads leading to the four gates of the city intersect (Eyice, 1988). The church is a three nave basilica with a rectangular plan in the east-west direction (UNESCO). The 7 <sup>th</sup> Ecumenic Council of 787 AC was organized here as well as the 8 <sup>th</sup> Council which took place here in 2000 and which was important for the Christian world. Hagia Sophia Church was transformed into a mosque after Orhan Gazi captured Iznik in 1331 and it was the first mosque in the city.
Byzantine	Baptistry	Böcek Ayasması (Baptistry) is a round structure with a water spring at the center of a quadrangular fountain, is also erected as part of the Hyakinthos Monastery ( <a href="http://whc.unesco.org/en/tentativelists/5900/">http://whc.unesco.org/en/tentativelists/5900/</a> ). According to Gönenç (1993); there is an entrance to the west of the domed structure with a circular plan that is shaped as "L" which can be reached by going down 11 steps. There is a baptistry pool of 1 m depth surrounded by square shaped marbles at the center of this underground location as well as four naves placed asymmetrically on the walls. The Baptistry was originally a location which was used for rituals during the 1870's and it was used as a source of holy water by the Greeks who continued to visit the location until 1921 (Kapuci, 2004). It is the best preserved Byzantine structure. It can be visited under the control of the Museum Directorate.
	Green Mosque	It was built during 1378 and 1392. It is the first example among the Ottoman mosques in which a rectangular floor plan with a central dome was used (Anonymous, 1996; Yalduz, 1999). The body was covered with tiles in different tones of green and blue with a mosaic technique (Eyice, 1988). It was the first structure in which tile work was used at the time and is one of the strongest mosques that is still used today (Sen, 1998).
Ottoman	Süleyman Pasha Madrasah	Built in 1332. It is one of the madrasahs that make Iznik a center of culture. It is also one of the first examples of madrasah buildings with a courtyard. It has an open courtyard and "U" type plan (Karginer et al., 1963).
	Nilüfer Hatun Public Soup House (Imaret)	According to Sen, (1998); the plan of the structure located across the Green Mosque and which was built in 1388 is in the shape of a reverse "T". There are porticos in the front and a central dome in the middle. There is a lantern on the central dome (Kapuci, 2004). It has rich and colored stone-brick engraving. The structure continued to function as a public soup house until the end of the 19 <sup>th</sup> century and was used as a storehouse from that time until the 1960's. Today, it is a very valuable and important structure that has been transformed into a museum (Kapuci, 2004).
	Hacı Özbek Mosque	According to Şen, (1998); it was built in 1332. It is the oldest Ottoman Mosque with an inscription. It has a single dome. The mosque that is covered with a single dome of 8 m diameter has a square plan (Kapuci, 2004). It is the first Ottoman mosque built in Iznik. It is used as a mosque today.

	Şeyh Kudbettin Mosque	According to Eyice, (1988); the mosque located to the south of the Nilüfer Hatun Public Soup House was built during 1496-1499. The minaret was built separately from the mosque. The mosque that has a rectangular plan with a dome has the first Ottoman Period masonry technique (Kapuci, 2004).
	Mahmut Çelebi Mosque	It was ordered to be built in 1442 by Çandarlı Mahmut Çelebi and is located between the Hagia Sophia Mosque and the Yenişehir Gate (Eyice, 1988). It is a small counterpart of the Green Mosque and it is used as a mosque today (Sen, 1998).
	I.Murat Turkish Bath	It is thought to have been built during the second half of the XIV. Century and the first half of the XV. century (Sen, 1998). The structure that is located on the Atatürk Street has two domes (Sen, 1998). The Turkish Bath is now also used as a location for recreation and souvenir sales location after restoration.
	II. Murat Turkish Bath	It is thought that the Turkish Bath located across the Mahmut Çelebi Mosque has been built between the XIV. and XV. Centuries. An octagon has been formed in the center because the corners were cut obliquely (Şen, 1998). The Turkish Bath, for which restoration was started by the Ministry of Culture in 2003 is still used today for the same function.
	Tile Ovens	According to Eyice, (1988); ovens in the shape of baking ovens with small domes were unearthed to the east of the II. Murat Turkish Bath dating back to XV. And XVI. Centuries as a result of excavations that were started in 1964 (Kapuci, 2004).
Early Republic	Traditional Architectural Buildings	The city of Iznik was damaged significantly due to earthquakes, countless attacks and fires. That is why no settlements have reached our age except the stone and brick monumental artifacts. Only the building that was used as the Tekel Building until recently has stood intact. The Tekel Building was restored as a IV. Degree historical artifact dating back to the Early Republic Period and it was decided to use it as a center of culture and congress (Kapuci, 2004). It is known that the houses with stone basement floors during the period when Iznik was famous for sericulture had two floors and that the upper floor was used for works related with cocoons. The houses with very wide windows placed parallel to each other in order to benefit from the sun and to aid in ventilation have not reached our day.

## 6.8 Iznik Lake, Natural Structure of the City and Olive Groves

Iznik Lake which completes the historical texture along with the natural landscape properties of the city strengthen the perceptibility of the history and cultural texture of the city. Iznik Lake also contributes to the skyline of the city as well as its identity thus completing the historical urban landscape in terms of aesthetics. Iznik Lake is among the significant landscape values of the city and the remains of the Ancient Niceae City are submerged in the lake waters. In addition to the the richness of the historical richness of the city, olive groves strengthen the identity of the city by making Iznik a city of agriculture as well.

## 7 URBAN DESIGN STRATEGIES

The city of Iznik is an important cultural heritage within the scope of its history and the values it hosts. The historical, archeological, natural, landscape and urban landscape properties of the city of Iznik have been evaluated as elements that complete the historical urban texture of the city. The historical urban texture of Iznik is still used today. The effects of the Iznik historical urban landscape which is still actively used today on the socio-economic structure as a result of tourism and cultural interactions continues to have significant effects even today. Within this scope, it is important to determine the current problems of the city and to develop urban design strategies to solve these problems.

- The Iznik city walls that have a Roman Period structure, have reached our day with various repairs and additions that were made during the Early Byzantine period and in the 13th century. It should be preferred to leave the city walls as they are after a protective restoration study (Kuban, 1994). Care should be exercised to ensure that the interventions to the city walls will be at a minimum so that the interventions carried out will not damage the gates or the towers and especially not affect the architectural properties of the four gates. The vibrations that are caused by the use of the roads passing near the walls by heavy vehicles lead to rock slides and damages. The exhaust gases that are caused by the intensive traffic around the walls and the other historical structures in the city have negative effects on the surfaces of these structures. Hence, green banded areas should be created along the city walls both inside and outside and traffic intensity near the city walls should be minimized. Pedestrianizing should be carried out at suitable locations all vehicle roads passing through the city walls or other historical structures and green buffer zones should be established to minimize the damages caused by traffic.

- Since a comprehensive and integrative preservation plan is not applied for the protection of historical areas, many historical, cultural and natural heritages are used insensibly as part of the changing economic conditions of our day and are left to rot without being taken into any kind of planning scope. Many historical values in Iznik have not been able to reach our day due to irregular structuring, lack of maintenance, wear and tear over time as well as lack of care and importance. The historical buildings in the city have been excluded outside the development plan of the city and thus integration has not been established with the historical structure. Some of the significant buildings inside the city have become dead spaces in the planned areas. To evaluate the integrated planning and design work in urban scale relation with the pedestrianization work with each other and the environment as well as the protection of urban structures and places in one building scale is important. Roads between the structures should be pedestrianized to be protected from damages caused by traffic, and common usage areas should be established by relating the exterior spaces of buildings.

- The olive groves that are among the most important urban identity elements which comprise the majority of the agricultural landscape patches of Iznik faces to urbanization pressures. This causes the loss of agricultural areas especially outside the walls. Allowing structuring on agricultural lands outside the city walls have negative impacts on the economy of the city of Iznik which is solely based on agriculture. The discharge to the Iznik Lake of agricultural chemical substances in addition to the wastes of the surrounding villages due to the pressure of urbanization have negative effects on the lake ecosystem as well as the landscape. In addition to the usage of the areas outside the Iznik city walls which continue to urban develop, its natural structure should also be considered as part of the design/planning strategies. During the development of the city along the coast, works should be carried out to ensure the continuity of the natural balance around the Iznik Lake and its environs and relevant precautions should be taken. The olive groves which are among the important urban identity elements of the city are among the areas that should be considered as "agricultural protection areas" in order to ensure the sustainability of the agricultural landscape character of the city. Natural and cultural properties of the Iznik should be considered in conjunction with the historical texture.

- Irregular structuring within the city surrounded by historical city walls has negative effects on the historical integrity of the environment. Buildings with monumental value in the city have started to disappear due to the irregular and multi-storey structuring in the city thus leading to difficulties with regard to perception. Traditional structures and structural properties are not observed within the urban texture of Iznik. Structures inside the city are not in accordance with themselves or with their environment. The structures in the city of Iznik differ from each other in terms of color, material used and heights. This visual pollution weakens the emphasis of the historical structures on the city skyline. Restorations and façade improvements should be carried out in order to enhance the historical texture of the existing structures while also enriching their visual appearance. Structural details should be taken into account in order to ensure urban integrity.

- Telephone wires, poles, television antennae, bulletin boards that are discordant both among themselves and with their environment obscure vision and thus result in visual pollution by making perception more and more difficult. In addition, the fact that there are no signposts for historical structures as well as signposts that direct people towards these structures is one of the most important shortcomings of the city. Advertisements and bulletin boards that hinder perception as well as directing-introductory boards, commercial signposts should be renewed in accordance with designs that are suited to the scale and material of the historical surrounding. Introductory boards should be set up at the entrance of historical

structures to inform visitors. The city should be enriched using suitable urban furniture in accordance with the needs of contemporary life and these should be selected to be in accordance with the properties of the surrounding area. Novel solutions that are suited to the cultural identity of this city should be developed while selecting the urban furniture to be used.

- The increase in the sidewalk and road levels has resulted in the fact that the entrance of historical structures remain under the elevation of these roads thus causing both aesthetic and functional disorder. The determination of streetscape standards suited to the historical urban texture and their inclusion to the application process is important for the sustainability of the urban cultural heritage.

- Iznik is among the rare cities that has carried the architectural properties of the four different periods it has hosted to our age as well as being the capital city during all these four periods. Iznik has a highly significant potential in terms of cultural tourism as a capital, a city of trade routes, a center of science and culture in addition to being a religious center. Iznik has a rich historical texture in terms of cultural tourism and is an important center in terms of belief tourism thanks to structures that are sacred for Christians. The historical values should definitely be preserved and sustained so that the tourism potential of the city can be fully used thus contributing to the city and country economy. In this regard, tourism should be accepted as the sole method of development for the city and the remains and monuments should be handled as economic values which create potential for first degree tourism and thus they should be evaluated within the principle of preserve-develop-sustain.

- The city of Iznik is included in the UNESCO Temporary World Heritage List and it will be a significant center of attraction when it is added to the main list. Thus, a management plan should be developed that is based on ecological balance in addition to the sustainability of the cultural heritage of the city.

The city of Iznik currently resembles an open air museum and the sustainability of the historical landscape properties of the city should be ensured with a holistic approach together with the landscape plans/designs.

## 8 CONCLUSIONS

Iznik is one of the exemplary cities that has succeeded in preserving its specific city model despite various damages in its historical structure. The city of Iznik is established over an area that is well suited for settlement with its fertile soil structure, rich natural resources, and climate conditions. As a fortress city that has set up a natural security border thanks to the Iznik Lake. In addition to the current use of these properties that date back to the historical periods that the city went through, and their effects in terms of tourism and nature-culture are ongoing, Iznik is also an important center for belief tourism with historical structures sacred for the Christians such as the Ayasofya Church and Baptistery. Indeed, Iznik still retains its spiritual value for the Christian believers (<http://whc.unesco.org/en/tentativelists/5900/>). Iznik is an open air museum with its natural and historical richness and continues to attract the attention of tourists with its structure well suited to treks and water sports as well as its biological diversity, handcrafts and tiles. Different from traditional tourism areas, the city and its environs has areas that have potential for activities such as trekking, mountaineering, biking, paragliding and grass skiing. However, when the planning decisions are considered in terms of style, damages occur in the authentic texture due to the erroneous structuring conditions (increase of the number of floors, changes in structural order etc.) thus destroying the historical street perspectives. There is an obligation for a dynamic planning system due to the requirement to relate the urban preservation area conditions with the environs of registered structures (Ergen et al., 1994). The traditional structure and textural properties can be destroyed during the interaction of urban preservation sites with urban development. This brings with it deteriorations due to failure of the integration of the urban preservation area with the developing city due to the fact that they are not planned separately and due to the pressure of income value (Ergen et al., 1994). The character of the settlement should also be considered as part of the whole for historical cities in addition to the monumental structures (Akdoğan, 1975).

The only way for societies to be able to receive and share information about their pasts is through historical urban textures that put forth the cultures of the past. According to the natural and social data, the reasons for why the city of Iznik is preferred for as a settlement in the past and today will have guiding effects for the projections that will enable it to develop even further. The planning, design and management of the urban texture of the city of Iznik is important within the scope of the preservation and development of its historical urban texture, arrangement as livable environments and tourism.

What makes Iznik different from such properties is the existence of combination of political, cultural, religious and artistic features. Iznik which is a peaceful historic town located on the lake with outstanding natural beauty, having spiritual values with important archaeological and historical finds (<http://whc.unesco.org/en/tentativelists/5900/>)

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