

The Study of Urban Form: Emergence and Evolution of Yazd City, Iran

Abstract

Western trends and modernization have been reflected in architectural buildings and urban projects of Middle East cities and caused solidification of the cities, between two extremes of Modernization and Traditionalism. This paper evaluates the influence of international styles and Western tendencies in urban design and architectural buildings in the city of Yazd in Iran. Accordingly, it presents a comprehensive overview of the process of urbanization and evolution of the city of Yazd throughout the history. The applied methodology is based on chronological development of urban growth and morphological analysis as a multi -disciplinary approach. Results reveal that although the features of the city from 1920s onward changed radically and moved toward modernity depicting from western countries, it used a mediatory approach toward these changes.

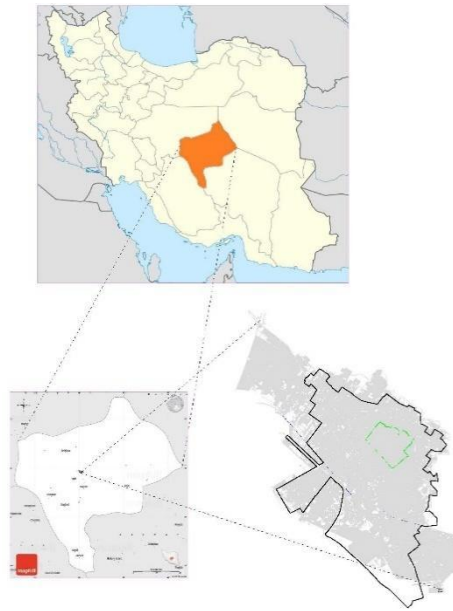
Key words: *Urban Form; Urban Transformation; Chronological Order; Morphological analysis.*

Introduction

Through time, cities, depending on their inherent geographical, historical, socio cultural characteristics, economic and political forces have been faced with changes in physical built form (Kropf, 2009; Sharifi & Murayama, 2013; Van Der Toorn Vrijthoff, 2006)(Sharifi & Murayama 2013, van der 2006, Kropf, 2009). These changes often assigned to streets, plots and buildings as the basic elements of physical built form ((Conzen, 1960; Kropf, 2009)Kropf, 2009, Conzen 1969, Conzen 1975). However, in the early 20th century, the elements of urban forms in Middle East cities along with other influential political and cultural events, which in turn contributed to the experience of modernity and modernism, were influenced by international practices in architecture and urban

design advocated by western theories(Faleh, 2013; Tagharobi & Zarei, 2016) (Faleh 2013, Tagharobi and Zarei 2016). However, these tendencies may vary regarding the specific geographical and historical characteristics of the city and differ from country to country.

Iran as one of the Middle East countries was encountered with Western approaches and thoughts in urban development. As Shirazi (2018)(2018) states architectural and urban transformation of Iranian cities has fluctuated between the two extremes of the Westernization and modernization on the one hand, and Traditionalism on the other hand. Particularly from industrial revolution(Floor, 1984) onwards, Modern and Post-Modern movements have affected evolution and development of Iranian cities in urban planning and design. These transformations constituted and shaped in different ways through circulation of people, media, materials, ideas and practices.



This paper

Figure 1. location of Yazd city in province of Yazd and Iran(Zanganeh Shahraki et al., 2011)examines the spatial changes occurring in city of Yazd(Whitehand & Morton, 2006), to reveal the influence of Western tendencies and experiences in today's layout of the city. The case of Yazd is interesting for two main reasons: first, it is one of the famous cities of Iran for its rich historical core. Approximately 196 ha property in the historic core of Yazd inscribed on UNESCO's World Heritage

List in July 2017. Second, it is due to its very fast urban growth from the beginning of the 20th century onward. In order to understand the influences of western tendencies and modernity on spatial configuration of the city of Yazd, examination of the physical and spatial characteristics of the urban structure is necessary. However, in historic and new cores of the city, the influence of modernity and Western architectural trends of the time is distinguished.

Within the scope of the research, the study attempts to investigate the historico-geographical processes of changes of Yazd city. Consequently, spatial mapping of the city of Yazd through history become a key feature of the morphogenetic approach in this paper. This paper argues the influence of Western thoughts in architecture as well as urban design in the wider context of urban development process and growing of Yazd city. This highlights city of Yazd comparing the other Iranian cities used a mediatory approach, to bring the tradition and modern development together in a continuous and productive dialogue. This trend makes the city successful to preserve its authenticity and adopt itself to new needs of society.

1. Historico-geographical development of Yazd

The city of Yazd is the capital of Yazd province in the center of Iran (Figure 1). Yazd is surrounded by desert and is famous for its earthen architecture. The city due to its geographical location has historically relied on qanat. Qanat is an underground cistern and considered as ancient Iranian invention to provide drinking water for the inhabitants. Yazd for its light industry, touristic activities as well as administrative functions become an attractive destination for immigrants not only from the province of Yazd but also from all Iran (Shahraki, et al., 2011). Accordingly, the city experienced rapid growth 1970 onwards.

Scholar have been developed the history of urbanization of Iranian cities in three phases, each characterized by a historical event (Habibi, 2006; Haeri, 1993; Noghsan Mohammadi, 2001) or/and

defined by a fringe belt like the wall, streets or specific land-uses (Habibi 2003; Haeri 1989; Noghsan-Mohammadi 2001). These phases encompass the development of cities 1- within the historic core and walled city to 14th century 2- beyond the walled city up to the 1920s and 3- during the last 100 years (Noghsan-Mohammadi 2001).

However, in this paper due to the political changes along with population boom occurred in Iran in 1979 onwards and its influence on history of urban development, classify the historico-geographical processes of changes of Iranian cities in four phases. These applicable phases to the city of Yazd comprise:

1. The development of the city within the walled city up to the late 14th century (Historical City in Imperial and Medieval periods).
2. The development of the city beyond the walls from the late 14th up to the introduction of the first modern street system in the 1920s (Old City in early modern period).
3. The development of the city from 1920s up to the Islamic revolution, 1979 (New City in Modern period).
4. The development of the city after Islamic revolution since 1979 till present (New City in Modern and Post-Modern period).

2.1 Emerging of the city within the walls up to the late 14th century

Site selection and development of the historic core of Yazd within the walls mostly relied on the features of the natural environment such as climate, suitability of lands for construction and the direction of underground water (Aliakbari, 2004; Golany, 1983; Masarrat, 1997; Yazd City Council, 1973) (Masarrat 1997; The first master plan 1973; Gideon, 1983; Aliakbari, 2004). This means that all settlements in historic part of the city had direct access to the waterways (Qanat) or at least had proper access to it.

The development of the historic core up to the late 14th century comprises five stages: 1- Imperial period is the period before emergence of Islam in Iran (224- 651). 2- Al-Kakoyeh period as early Islamic period and Kakuyid era (662- 1141) 3- Atabakan-e Yazd (1141- 1319) 4- Muzaffarid Era (1319 – 1393), and 5- Timurid period (1393- 1507).

Although there is not much information about the initial foundation of Yazd, the historic core of Yazd, like most other pre-Islamic cities in Iran was shaped in an almost regular pattern(Habibi, 2006) (Habibi, 2003). According to Bonine (1979)(1979) traditional Iranian cities did not develop based on the classic grid pattern town of ancient Greece and Rome but rather it is due to irrigation systems and water channels. Due to the resemblance between the planning of the cities in this period, it seems they were constructed the cities according to the predetermined plans(Huff, 1987, 2008; Mashhadizadeh Dehaghani, 1994) (Curtis et al. 2008; Mashhadi Zadeh Dehaghani 1989, Huff 1986; Noghsan-Mohammadi 2001). (Lapidus, 1996)At that time the area of the city of Yazd was just limited to today's Fahadan neighbourhood(Kalantari Khalilabad & Pour Ahmad, 2005) (Khalil Abad et al., 2005) (Figure 2).

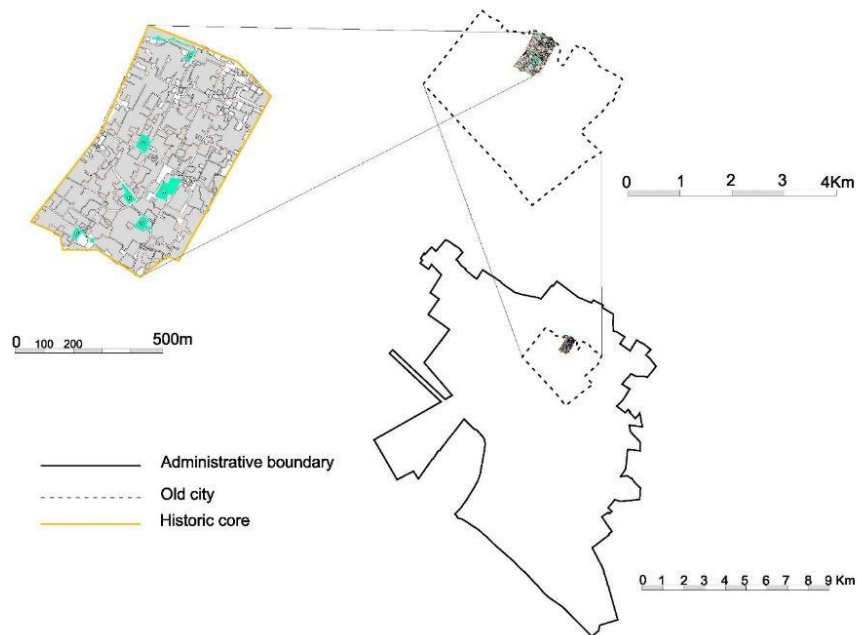


Figure 2. The conceptual plan of Yazd city in pre- Islamic period in Iran

During 8th century group of Muslim people settled down in some part of Fahadan neighborhood and gradually new neighborhoods were constructed around the inner city toward south (Kateb, 1966)(Afshar and Katib, 1966: 30-39) (Figure 3). In 11th - 12th century Arab kings fortified all cities of Iran including Yazd(Jafari, 1964; Kateb, 1966, pp. 61–62) (Kateb, 1966)and gradually the regular pattern of the city due to influences of Islamic planning changed to an organic, irregular and anarchy one (Hakim, 1986; Sharifi & Murayama 2013; Noghsan-Mohammadi 2001). Some parts of the fortified wall are still in evidence in the north of the city (Jafari 1958, p: 37; Afshar and Katib 1966, p: 61-62).

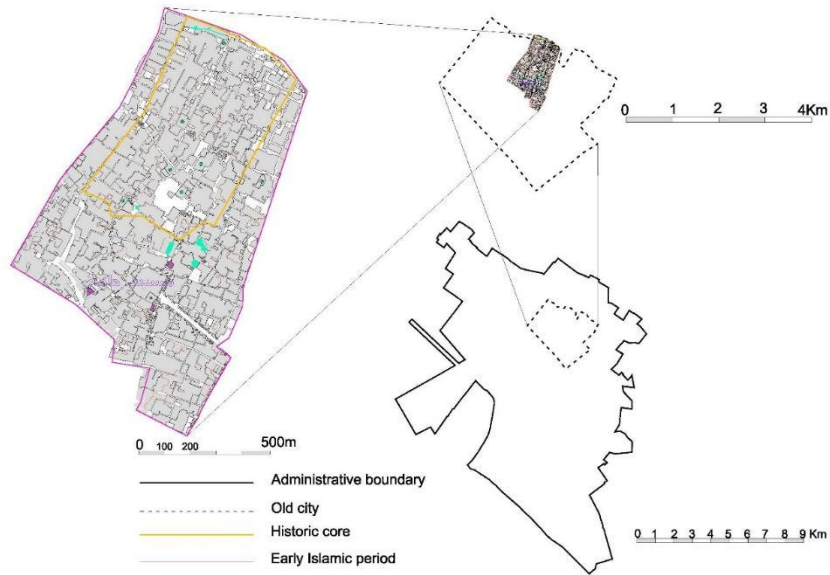


Figure 3. The city in 12th century

During Atabakan Period (1141- 1319) the center of the city moved to a new neighborhood which was established around Masjed- Jame toward the south-east and south and became the main axis of development of the city.

In fact, the organic pattern of the city was enriched through the introduction of cul-de-sacs and main elements including: bazaar, Masjed-e-jame, and several neighborhoods which fitted well the Islamic culture and life style (Hakim, 1986; Tavasoli, 1982; p. 22-23). City layout as well as dwellings formed by hierarchy of spaces as public, semi public/private and private spaces and alleys provided hierarchical access from a dwelling unit to Mosque, Bazar, or other city elements. The secondary access was shorter in length comprise cul-de-sacs and Sabat usually with buttressing arches connecting the residential units to each other (Figure 4). (Jafari, 1964; Kateb, 1966)As Afshar (1995)(1995) stated the major development of the historic city dates to this era.

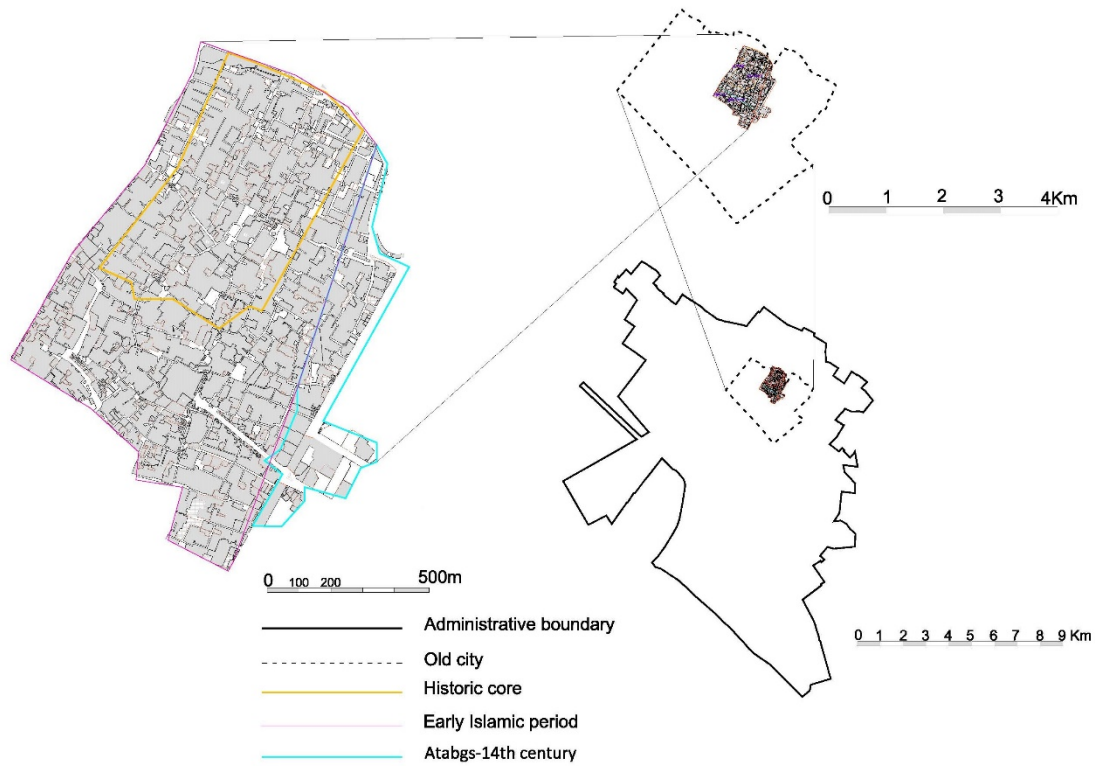


Figure 4. Development of Yazd city in 14th century

In Mogul period (1256-1346) the city of Yazd like other cities in Iran, underwent no significant change in urban morphology. In the 14th century and during the Ilkhanied era (Al-e-Mozafar dynasty) some new buildings were constructed and the city continued to grow toward the south and the south-west. A new fortified wall with seven gates was also constructed surrounded the city (Kateb, 1966, pp. 83–84)(Afshar and Katib1966: 83-84). Today traces of former fortifications in the historical district of the city are easily visible and listed as world heritage. The division of the historic core up to the 14th century was based on the neighborhood system, separated with major alleys (Tavassoli, 2002)(Tavasoli, 1982).(Khadem Zade, 2007)

During the Timurid period (1370- 1507) the city continued to develop toward South and a new planted town comprising Mosque, Water Reservoir, and Bazaar by command of the city governor developed outside the city around a big meidan (square) named as *Amirchaghmaq Complex* (Kateb,

1966). The goal of governor by constructing this complex as a new city centre was to boost business and development of the Yazd city. This complex is still in evidence and located at the centre of Yazd city. This period is considered as a transition period from morphological points of view, due to the development of a new neighbourhood outside the city wall. This became the point for further growth of the city in the next eras (Afshar, 1995; Kateb, 1966; Noghsan Mohammadi, 2001).

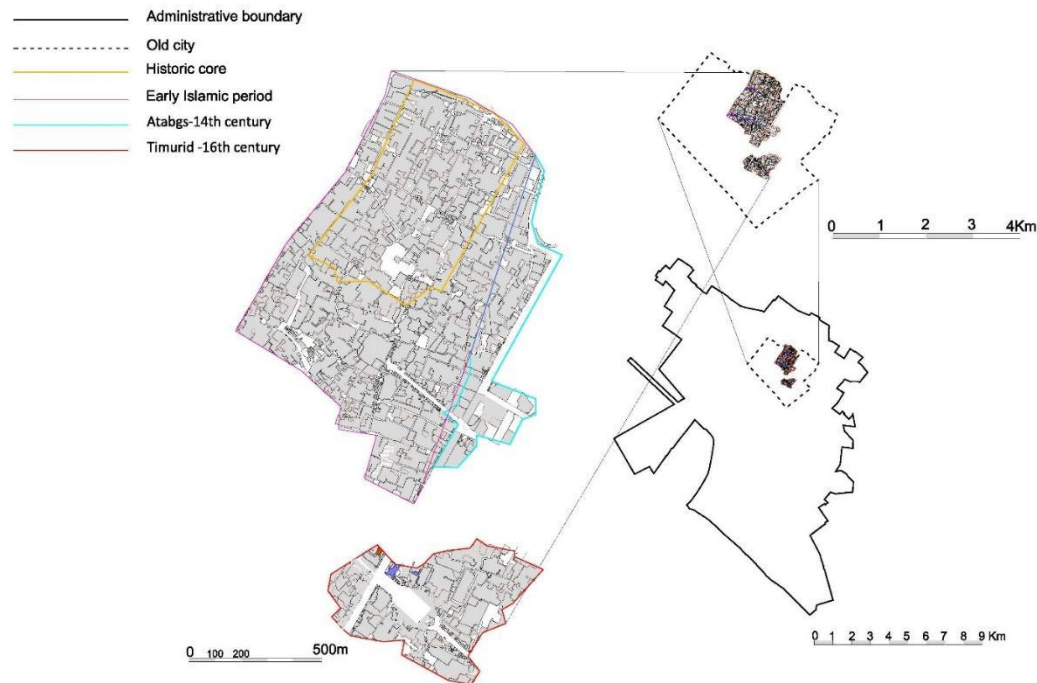


Figure 5. Development of the City in 15th century, beyond the wall

However, (1997) expansion of the city toward South and South-West was due to three reason (Masarrat, 1997, The first master plan, 1973): 1- the direction of sandy winds in the region is from north 2- suitability of lands for construction are located on the south and south-west and 3- the direction of the underground water system is from the south and the south-west toward the city.

2.2 Expansion of the city beyond the wall up to 1920s

(Kateb, 1966)(Afshar, 1995; Kateb, 1966; Noghsan Mohammadi, 2001)(Peter & Lockhart, 1986)In the beginning of the 15th century Development of the city was continued to grow beyond the

Transformation of the city center from the old Masjed- Jame to Amirchaghmagh complex as a new center contrasted with the growth of other cities in Iran (Noghsan-Mohammadi 2001) where cities were redeveloped and the city center remained in the same place. From 1500 till 1925 development of the city was divided in three dynasties: 1- Safavid period (1501- 1736) 2- Zand period (1750- 1794) and 3- Qajar period (1785- 1925).

In Safavid period (1501- 1736) due to boom in trade activity, bazar as an important urban space was developed in the urban layout. Retail activities and shops became important regarding to urban functions and elements (Jackson & Lockhart, 1986). Since farmers, for selling their products in advance, were dependent on bazar and accordingly it became a place for shopping and business activities, the city became a suitable place for farmers and other traders (Azimzadeh, 2003). Therefore, a new town started to develop outside the walls in most Iranian city including Yazd and the city gradually began to grow in the outskirts of the walled city (Figure 6).



Figure 6. Development of the city of Yazd in 17th century

(Pourjafar et al., 2014)(Bonine, 1987; Sedley et al., 2012)This new development with a main axial route acted as commercial route (bazar) occurred between *Amirchaghmaq* complex and a new constructed complex of this period called *Shahtahmasb* square toward the south and south- west of the city of Yazd (Kalantari et al., 2005) (Figure 7). Also, many caravanserais, mosques, and theological schools were constructed which created the intermixture of commercial and religious structures typical of the Middle Eastern bazar (Wirth 1968; Choueiri 2008).



Figure 7. Schematic plan of Amirchaghmaq square and Shahtahmasb before 1930s (Tavasoli, 1992)

During Zand period (1750-1794) the bazaar continued to work as a completely integrated body. Its spatial configuration became in concordance with the nature of the interrelated activities in bazaar like "Qaisaria", "Saray" and "Timchehs" (Kheirabadi 1991; Bonine 1987).

(Motedayen, 2011) In this era, around 18th century, outside the walls of the city in North-West, (UNESCO, 2011)Dolat Abad Persian garden as a summerhouse residence palace was built outside of the city center (Afshar, 1995; Akhgar et al 2008). Dolat Abad garden designed in a gigantic rectangle with an octagonal building as a focal point and its structure is based on "mandala shapes, with the division and leading of water in gutters" (Pirnia, 1994, 40) (Figure 8). Its windcatcher is one of the tallest windcatchers in Iran. After this period constructing of extroverted buildings was a next step in the development of the city of Yazd.



Figure 8. Dowlat Abad garden represent the characteristic of Baroque architecture

During Qajar period (1785- 1925) many buildings comprising residential, educational building as Iranshahr high school, medical health care building such as pharmacy and hospital, and governmental offices were constructed alongside the previous elements of Teimurid and Safavid period. The last major additions to the bazaar in terms of shape and size came from this period (Bonine 1987). This era coincided with industrial revolution and the formation of powerful governments in Europe. Guilds started to pay taxes based on internally rules (Azimzadeh, 2003). Religious structures were established particularly by influential and beneficent governors, and shops were founded as *waqf* to support these structures (Bonine, 1987). In fact, the formation of the centralized Qajar government in this era was an event which caused Iran to become globally significant. After 1911, the bazar due to its opposition to the Constitutional Revolution, lost its dominating status in the cities. Also because of economic transformation after 1920, regarding the emerging large-scale industries, modern shipping and trucking, a major part of the economic functions moved away from the bazaar. However this issue did not lead to the decline of the central

bazaar and retail activities kept it alive (Abrahamian, 2008; Azimzadeh, 2003)(Azimzadeh, 2003; Abrahamian, 2008). During this period, the city within its development became divided in two parts (See Figure 9).

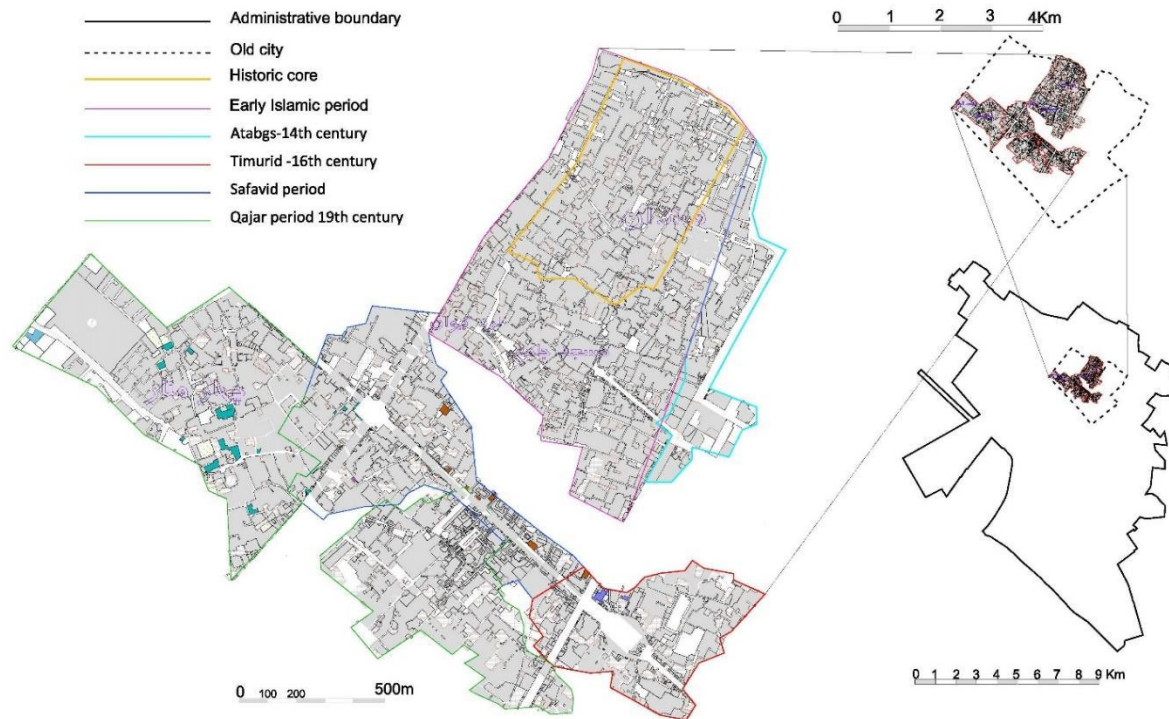


Figure 9. The growth of the city during Qajar dynast

2.3 The development of the city from 1920s up to the Islamic revolution, 1979

From 1925 the formation of Iranian cities was affected by the inalienable movement of modernism (Grigor, 2009)(Grigor, 2009) and Iran became Europeanized in appearance, essence, physical features, and spiritual aspects (Rajaei, 2007)(Rajaei, 2010). The development of the city from 1920s up to the Islamic Revolution is divided into two parts: First Pahlavi dynasty (1925- 1941) and Second Pahlavi dynasty (1941- 1979).

During the First Pahlavi era (1925-1941) due to the changes in social, government, economic and people's lifestyle, the city features changed radically and moved toward modernity drawing on the industrial revolution of western countries rather than eastern (Habibi, 2006; Ivani, 2009; Masoumi,

2011)(Farivar-Sadr 1995: 596; Ivani 2009; Habibi 2003: 145- 154; Ebrahimpour Masoumi 2011)
(Figure 10).

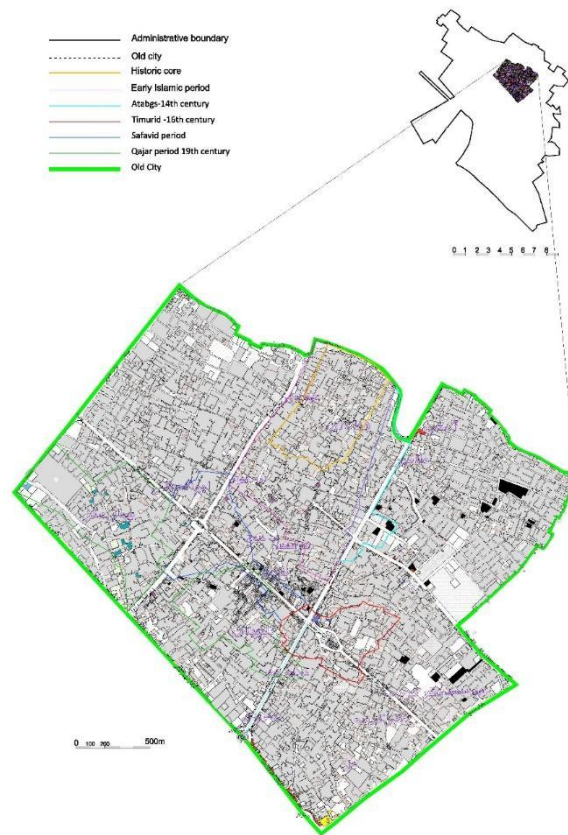


Figure 10. Development of the city of Yazd in the first 20th century

The modernist movement in Iran needed planning for innovation, law, source of finance and executer. Reza-shah as the first king of Pahlavi dynasty created this platform by concentration of power as a suitable compound for modernism' demands. Hunter (1990, p. 16)(1990:16) called this era as the era of contradictions in Iran. Following the Pahlavi bureaucratic approach, the city, both as a physical manifestation of the current thinking of the time and as a platform for the forthcoming developments, was placed in order to organize. Municipality was an organization that started working again in 1921 in response to these needs. The municipality of Yazd established in 1930

which become the beginning of fundamental changes in the appearance of the city (Taheri, 1938, p. 23)(Taheri, 1938:23).

The main architectural elements of this period in the city was governmental buildings (bank, municipality, post office, national museums, court, and ministry buildings) and large-scale industries. Eghbal Factory in 1933 in West, Herati and Derakhshan Factory in 1935 in South were important large-scale factories constructed outside the city border for textile manufacturing.

Architectural form which appeared in this period used an extroverted approach while kept its internal privacy, aim to internalize new concepts in order to keep its historical evolution (Habibi, 2006, p. 168)(Habibi, 2003: 168). In city of Yazd: the governor's office, the finance department, the registry office and the Zoroastrian fire temple as the main fire temple of Zoroastrian are examples of this expression.

The nationalist views in this period influenced by ecological thought, following the archaeological excavations in 1934 and in parallel with modernity, de-Arabization, warm political relations with Germany and inspiration from pre-Islamic culture. The attempts for reviving the greatness of ancient Iran was mainly used in government buildings by architects (Bani-Masoud, 2020)(Banimasoud, 2009). The building of Markar School, designed by Architect Boroz in 1933, is an example of this architecture in Yazd.

In this period the city continued to grow toward the south and south-west. The residential area initially developed as a continuous part of the old town but by the introduction of modernism into the mechanism of the city caused many changes in its old fabric such as introduction of new streets. Although the first imported car to Iran was in 1903 (Qajar dynasty), in the first Pahlavi period there was a need to accommodate wheeled vehicles and the narrow cul-de-sacs could no longer handle this new situation. Accordingly, the street features have changed fundamentally to wider, longer

and straight ones which was the important action of Reza Shah toward modernization. These new streets became the main channels of transportation and, with some other new cross-cutting streets which formed a grid super-imposed over the whole city (Conzen, 2004; Wilber, 1981)(Wilber, 1981).The traditional urban fabric of most of Iranian cities was interrupted by two cross shaped streets and created a new spatial urban form (Bonine, 1979). Mainly it was lined in the vicinity or through the bazar to facilitate the accessibility of vehicular to bazar which knitted the bazar to the new urban structure(Mazumdar, 2000). This modern avenue caused a major change in the form and function of the commercial zone and became an extension to the bazaar. Hence, a new “extroverted” texture has emerged in urban layout of the cities, which was totally different to the “introverted” system of traditional Iranian cities (Ivani, 2009)(Ivani 2009). This new pattern which became the dominant element and initiator of city development (Habibi 2003: 159) had been adopted from the Haussmann Boulevard planning with line of trees to humanize the boulevards in 19th century Paris (Habibi, 2006, p. 159; Ivani, 2009; Mazumdar, 2000)(Mohammadi and Hajforosh1995: 622-625; Ivani 2009).

In 1930s outline of two new streets, Qiam and Imam (Shah and Pahlavi) in Yazd through the old fabric of the city was the first sign of a significant transformation and changes in morphological elements of the old city of Yazd(Figure 11).

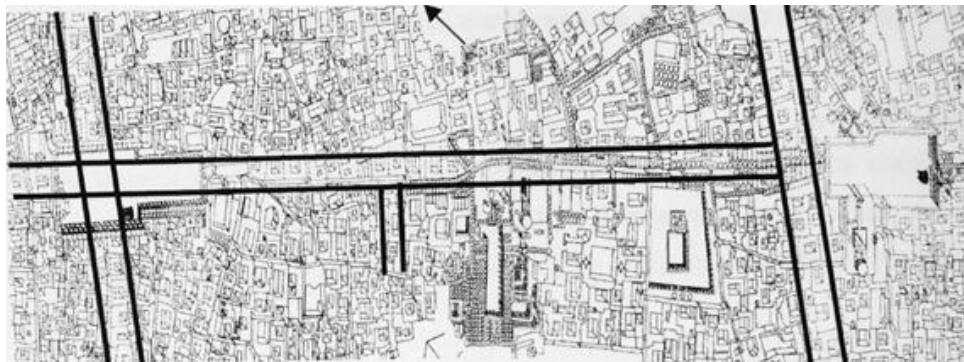


Figure 11. Introducing new street system in the old city.

Imam (Pahlavi) Street as the first modern street constructed in 1931 and after 12 years in 1943 Qiam (Shah) Street constructed from *Shahtahmasb* Meidan to *Amirchaghmaq* Meidan through the bazar (See Figure 12) which caused the division of the bazar into two parts and changing the old public spaces- Amirchaghmaq and Shahtahmasb square-from pedestrian movement into two transportation squares and roundabouts (URL 1). The frontages of the new avenues became attractive by the shopkeepers, nonetheless the bazar has remained a viable, important economic center (Bonine, 1981)(Bonine 1981). Later, other streets, mostly parallel to these new streets, were constructed and the city developed to the south, south-east and partially south-west.

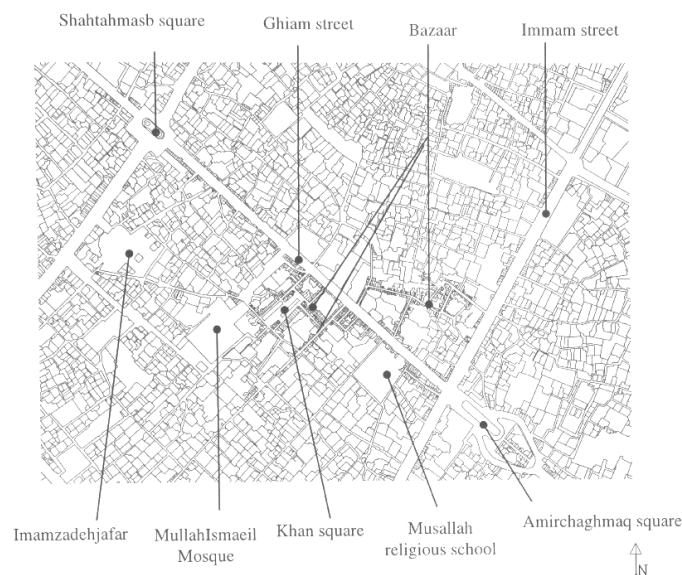


Figure 12. Shah (Ghiam) Street cut through the old bazar.

It seems that the idea of *city beautiful movement* had its own influence in the process of street design with rows of trees which was for the purpose of any kind of intrinsic beauty. This can be approved by understanding the generic model of city beautiful movement: 1- Axial avenues terminating at focal points as a public open space such as Shahtahmasb and Amirchaghmaq square which enclosed by road and shops 2- Grand plazas 3- Wide streets to speed up the flow of traffic.

Qiam street in Yazd as one of the widest streets in those years and 4- Monumental, ideally classical, buildings enclosing open spaces (Figure 13).



Figure 13 Amir -Chakhmaq square in Yazd, date of the photo 1970

In Second Pahlavi period (1941- 1979) along with the expansion of the old city and continues of constructing new wide streets for the cars through the old urban fabric like Amir abad and Seyed-Gol-e-Sorkh streets in Yazd. As mentioned before, new streets which have been built around the historical city due to the changes in modes of transportation brought significant impact on the traditional morphology of the walled city. Neighborhoods have been divided into two or more parts. Also, some new building constructed in the areas in later periods which has influenced on the original horizontal landscape of the traditional city.

Several spinning and weaving factories constructed beyond the city border, named as Saadat-nasajan Factory in 1946 in South, Janoub Factory in 1950 in South-West, Yazdbaf in 1956 in West, Afshar Factory in 1959 in North, Agha Yazd Factory in 1961 in North-West and Taban Factory in 1974 in North. These factories were performed as an industrial zoning ring around the city. In previous periods, the city of Yazd had several cemeteries located in city context, however due to the hygienic

issues and its incompatibility with public health, in 1967 a cemetery land with area of about 80 hectares outside of the city border in the North-East, was donated for the burial of dead people. In 1964, the Ministry of Culture and Arts was established with various managements in the field of cultural heritage aimed to establish national museums and preserve the historic buildings.

During this period, however the process of sub-urbanization occurred which evolved the city structurally and endured social distinctions as the residents for upper classes. This growth raised by proposing two satellite residential areas outside the old city to the south and south-west called Safaieh and Ariashar (today's Azadshar) (Figure 14). In these new neighborhoods the nature of the houses was changing from the inward to more open residences and the yard instead of being at the center, situated in one side (Masoumi, 2011)(Ebrahimpour Masoumi 2011).



Figure 14. Growth and sprawl of the city during the Second Pahlavi dynasty cemetery, factories

The formation of these suburbs basically was developed based on ***Ebenzezer Howard's Garden cities***. Although its implementation didn't occur completely, they were intended to get away the population far from the pressures of cities by transferring population to new and much smaller areas, with limited population outside the city as a self-sustaining nucleus.

Safaieh as the settlement of rich people with good quality of air and environment was grown as a series of concentric semicircles, each defined by a certain function. The center of the semicircle was Park and public buildings such as Safaieh hotel and Akbari infirmary/clinic which their function remained up to present. The next rings were the houses with their individual garden. The main ring

of housing was surrounded by public schools and small Parks. The outer ring of the town defined by agricultural lands, Janub factory, warehouses, and brick factory, all with access to circular railway lines which surrounding the town enabling goods to be loaded at various points. Accordingly, a new city center was developed toward the south. The rigid gridiron street system with several crossroads was widely used in Safaiea and Azadshar which were constructed before the first master plan.

In 1960s along with the development of these peripheral areas, due to the development in means of transportation, outside the city boundaries toward the west and south, an airport, a bus terminal, and a railway station for transporting people between the cities constructed (General Department of Roads and Urban Development of Yazd Province, 2007). Another urban element of this period in the city of Yazd were the modern public gardens as a reflection of Western culture (Motlagh Zadeh, 2002)(Motlagh Zadeh, 2002) which were surrounded by open streets like Farah Park (today's Haftom-e-Tir Park). Despite the development of Safaiei and Ariashar, the process of internal growth of the city was still in coherence within the old fabric (Noghsan Mohammadi, 2001; Tavassoli, 2002)(Noghsan-Mohammadi 2001; Tavasoli 1982: 21).

With the beginning of the land reforms in 1960s the process of Iranian cities including Yazd accelerated and the city enlarged (Azimzadeh 2003; Ebrahimpour Masoumi 2011) insomuch, the area of Yazd between 1956 and 1981 jumped from 710 hectares to 1800 hectares and some of the villages around the city became part of it (Azimzadeh, 2003; Masoumi, 2011)(Ebrahimpour Masoumi 2011). In 1970 Yazd was selected by the 'Iran Cultural Heritage and Tourism Organization (ICHTO)' for revitalizing the historical part of the city. The first master plan for the city was proposed during this period in 1973 which defined the historic core and the old part of the city as the urban context aimed at achieving a compact and continuous urban texture. However, the proposed master plan had little attention or even ignorance to the development of the city as a reality (Noghsan Mohammadi &

Hajforoush, 1993)(Mohammadi, 1993). Accordingly, the influential groups such as real estate entrepreneurs, landowners and especially developers which developed the two huge residential satellite, Safaiei and Ariashar, far from the city limits, started to conflict against the master plan. Due to these struggles, the first master plan was never submitted officially to the city council for approval. So, the city tended to grow without any confirmed plan even after the Islamic revolution of Iran in 1979.

2.4 The development of the city after Islamic revolution since 1979 till present

After Islamic revolution in 1979, although the attempt was to create an Iranian urban identity and democracy in social, it did not achieve to its ideals and the more social segregation appeared (Ivani, 2009)(Izadi 2000:14; Ivani, 2009). During 1980-1990 due to many reasons such as: dramatic growth in population, migration of rural to city and no efficient master plan, introduction of some policies regarding the distribution of land to low income people in the urban areas, the city of Yazd continued to grow rapidly beyond the defined limits of the first master plan. Consequently, the first master plan in 1983 revised by the local policy maker and governmental institution. Since there was no relation between the actual site of the city and the first master plan in terms of city expansion, land use pattern and population of the city, they proposed a comprehensive revision as the second master plan for the city (Taghvae & Saraei, 2006)(Taghvayi and Sarayi 1385). The main idea for the city development was internal growth of the city within certain limits of the land.

In the second master plan the city was functionally divided into different zone comprising: manufacturing industries zone in North-East, North-West and South-East, home factories and handicraft zone together with trade zone in the old city for economic promotion of the historic part of the city, cultural and educational zone allocated between the new city center and the old city and light industries zone located at both entrances of the city to the north and the south (Noghsan

Mohammadi, 2001)(Noghsan-Mohammadi 2001). This zoning system was unapproachable and due to the actual socioeconomic situation, rise in population and socio-political problems such as the tendency to the subdivision of lands outside the city limits, its main aim never came to fruition. (Saraei, 2008)On the contrary, new districts for mostly residential purpose in 1990s were added to the city in north-west Imam Shahr and in south-west, Shahrak-e-daneshgah (Figure 15).

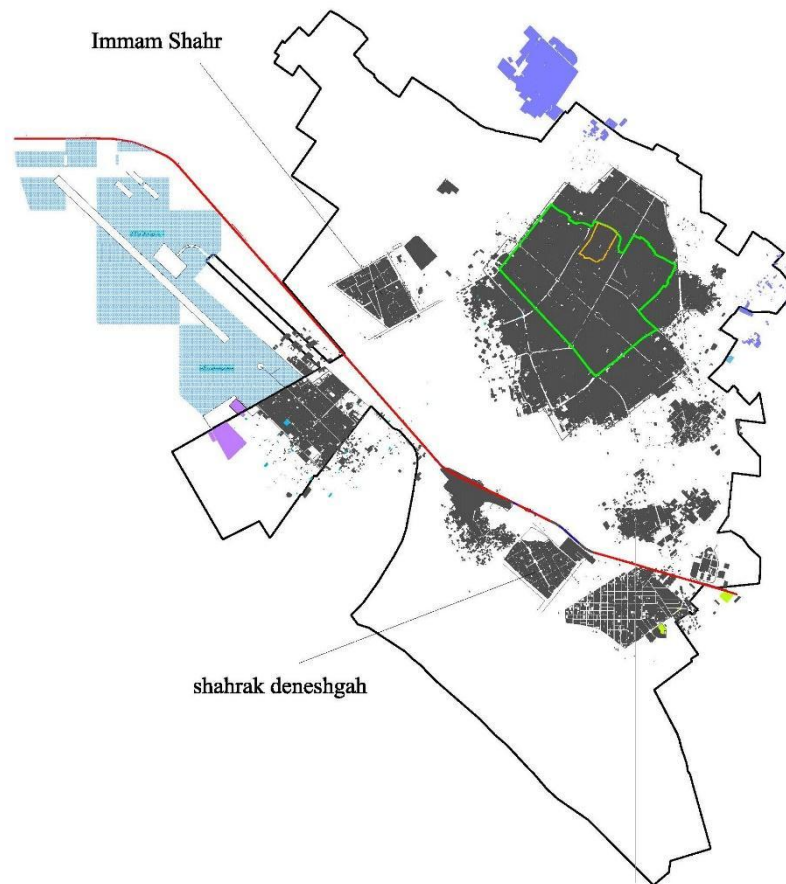


Figure 15. Expansion of the city and introducing new districts

The new proposed neighborhoods as in Imam Shahr, were relatively modern residential area planned as diagrammatic model of Clarence Perry's *neighborhood unit*, comprising residential units, shops, local park, mosque, elementary school and urban infrastructure with safe walking distance. Aim of

these districts was to promote a community center lifestyle and keep noise of the trains, factories, and industrial buildings away. Figure 16 represent partial plan of Imam Shahr district.



Figure 16. The idea of neighborhood unit in Imam Shahr

By constructing, Yazd University in 1987 toward the south of the city, this direction became attracted by large number of settlers and turned into a popular area of the city. In 1997 first apartment buildings as gated in a park-like setting appeared. These new ***gated communities*** in south of the city were similar to the concept of ***neighborhood unit***. Jon Lang (1987, p. 171)(1987: 171) refers to the goal of many planners who try to adapt ***Le Corbusier's concept in design of high-rise buildings*** and ***Perry's concept of neighborhood unit***.

Later, several community building as public housings were built as a way to bring low-income community to the high-quality environment of city to decrease the level of social segregation in urban structure.

Due to the developments of these new urban nucleus outside the boundary of the city, the old city faced urban decay and segregation due to the uncontrolled planning policies and started to lose its bright heritage architecture and urban fabric. In 1984 a comprehensive plan was ratified for the old city. The plan used some mechanisms for the conservation and renovation of historic core. In 1993

a “detailed plan” was developed perhaps as the first proceeding that specifically examined, planned, designed, and designated the historic boundaries of the city.

3. Influence of western tendencies on spatial configuration of the city

The city of Yazd can be divided in two contexts comprising: 1- the Old city with the walled city and 2- New city. The Old city together with its walled city formed till 1920, characterized by its physical system of spatial organization made up of neighborhoods with courtyard houses, religious buildings, alleyways as well as public squares. Traditional buildings were built with homogeneous and compatible material with nature made of mud, brick, and tile.

The urban layouts and characteristic of the walled city and old city is organic, based on labyrinthine planning with indirect, blind alleys, very narrow, often covered and ending in private courtyards with irregular aggregations of houses (Figure 17). This form of planning was essential to protect pedestrians from the arid weather condition of Yazd that results from very little rainfall, dehydration, and frequent sand storms.



Figure 17. Organic development of the city before 1920s

Hierarchy in spaces is visible in the layout of the walled city and old city. Firstly, through organization of dwelling, mosque, and bazaar according to their prominence. Secondly order of

space was from major alley to semi-public-spaces and then joined to the dwelling with secondary alleys and cul-de-sacs. Religious buildings and open spaces acted as an important part of the city morphology where major activities occurred (Tavassoli, 2002)(Gulick 1983: 107; Tavasoli 1982: 26-30) and bazar was situated outside the city border . Some neighborhoods gained specific identity due to the continuity and prosperity of a particular profession such as blacksmiths' neighborhood, architects and builders' neighborhood, merchants' neighborhood.

The major difference between the walled city and the old city is in the centrality. Centrality in the walled city is in neighborhood center, where in the old city is the public open spaces (Noghsan-Mohammadi 2001)

From 1900s onward, the arrival of Modernity in Iran brought new ideas that challenged the city layout of Yazd. With the advent of automobile, many streets have been made wider and new streets introduced which in some cases cut the old fabric of the city. Squares with a function that responds to traffic rather than to civil society were introduced as urban nodes. Three important examples of these squares in Yazd are Pahlavi Square, Markar Square and Bagh Melli Square.

Along with these changes, as the population of the city increased, the city expanded and changed internally. One prominent phenomenon is gentrification. Two group of people left the old city, high-income people, and low-income people. High-income people due to the increase in the number of residents move from central urban areas to low-density areas outside of the city and created garden cities which caused suburbanization with care-depended communities. Low-income people due to the surge in rent or housing prices in expensive city centers moved to the edge of the city and edge cities appeared. Both movements accelerate urban sprawl. This new layout and spaces created a citywide network of roads and isolation of the old fabric. It is worth noting that

rural areas, which were located around the old city, by expansion of the city they have been immersed into the city.

Furthermore, industrial district, rail-way, airport, cemetery, civic buildings were introduced and the city changed from concentric model to a sectoral and multiple nuclei model with several centers of 'nuclei'. As Noghsan-Mohammadi (2001) mentioned despite a striking structural continuity of the city of Yazd, these dramatic changes have occurred from the early 20th century onwards mainly through an interaction with new concepts of city planning and lifestyle which is common in most Iranian cities (Figure 18).

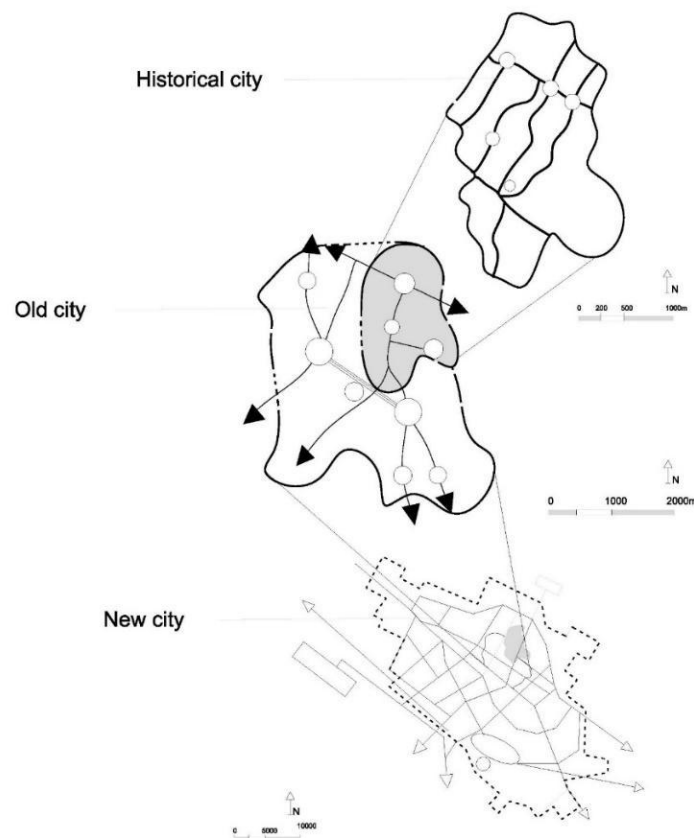


Figure 18. Spatial structure of the city in transformation (Noghsan-Mohammadi 2001)

The following table, summarized the emergence and evolution of the city of Yazd through history.

Table 1. Evolution of Yazd throughout History

Development of the city	Period	Date	Social	Formation	Configuration of urban space	International Movement	Map
Within the walled city/ Historical City	Imperial/ Pre- Islamic (Sassanid)	224- 651	Segregation between government and society	Tree-like gridiron layout within circular walls for fortification	Spatial proximity between Palace and the religious building (temple)	<i>Gridiron system of Greek</i>	See figure 2
	Early Islamic period (Kakuyids)	1008-1141	Integration between society and religion, non-existence of social class distinctions	Organic planning and irregularity in urban design, Introducing neighborhood	Spatial proximity between neighborhood and the religious building (mosque)	<i>Organic planning</i>	See figure 3
	Atabakan	1141-1319					See figure 4
Transition period 1	Timurid dynasty	1370-1507	Integration between government and religion	The city started to grow beyond the wall	Spatial proximity between governmental place and mosque		See figure 5
Outside the wall/ Old City in early Modern period	Safavid dynasty	1501-1736	Development of trade, establishing the Twelver school of Shi'a Islam as the official religion, society in hierarchical pyramid	The city continued to be developed beyond the wall in concentric but irregular loops (like the European cities during European Recovery after 11 century)	Introducing of bazar as an important urban element of that period to urban layout, initiating a polity of overlapping religious and territorial boundaries		See figure 6
	Zand dynasty	1750-1794			Bazaar, constituted the structural core of the urban spatial system in old city.	Representing <i>Baroque architecture</i> of western counties in palaces outside the city	See figure 9
Transition period 2	Qajar dynasty	1785-1925	society in hierarchical pyramid				
modern development/ New City	First Pahlavi	1930-1941	social Segregation	Some parts of the old fabric of the city demolished but the city continued to developed organic beyond the wall,	Division of the old fabric of the city into two parts by introducing the new street, Introducing of governmental building such as bank, Post office and municipality	the city beautiful <i>Hausmann's Boulevard Planning</i> in old fabric of the city	See figure 10
	Second Pahlavi	1941-1979	rise of rich and poor neighborhoods	New sub urban areas were introduced to the city and city became sprawl	Emergence of the open modern parks into the city fabric	<i>Sub-urbanization</i> based on <i>Garden cities</i>	See figure 14
modern development/ New City after revolution	Islamic Republic of Iran	since 1979 till present	Continues of social segregation, designing the public housing in high class district to overcome the segregation	City grew horizontally and there is no attempt for intensification	Introducing new district to the city to respond the housing demand	<i>Neighborhood unit Gated communities Functional and physical Revitalization of old district</i>	See figure 15
						<i>Gated communities</i>	

Conclusions

The historic cores of Iranian cities were transformed in a continuous process of change. However, the progression of urban transformation changed radically from the late 19th century. Facing modernity with its rapid rhythm of the events in the last 100 years, have complicated Iranian cities form morphological points of view, making the transition into modernity a rough path.

This study introduces an approach through spatial mapping of the city of Yazd through history to represent the influence of western tendencies on the city. This paper revealed that city of Yazd has long history in the process of urbanization and the model of its urban growth changed several times.(UNESCO, 2017) The early city setup of Yazd was more centric. Later, as transportation became more developed, zones have become less obvious.

In city of Yazd the challenges show in a very fast urban growth, a fast rate of urban sprawl which hides inner land uses such as the presence of agricultural plots within urban boundaries. Obviously, the traditional and organic form of the old city was also transformed through the process of modernization. Some quarters segregated from old fabric, forming a deep spatial structure with a clearly new type of city. The changes happened in a two-fold way: the introduction of new urban elements and disintegration of part of the old morphology.

Although master plans proposed to stop the urban sprawl, they were inefficient in practice. The main reason was firstly inefficiently of the city limits and secondly indiscriminate construction before preparing the detailed design. lack of experts for directing the plans, unrealistic and sometimes idealistic planning, deficiency of budget, nonparticipation of people, ignoring residents in these plans were also other reasons that most of master and comprehensive plans

have not been implemented. Therefore, the city problems have continued to develop and sometimes development of the city was in contradiction with the plans. Due to the social tendencies and the interest of developers, South, west and North direction of the city became the most popular place for people to live and work.

While the influence of modernity and urban sprawl caused ignorance of the old city, transformation in the old city of Yazd was rather modest and clearly evolutionary in form. The old city was rescued from comprehensive redevelopment and various road building schemes. In 2004 a private developer in the historic core of the city, rehabilitated a residential house and converted to a traditional hotel. This project however was a key change-maker for the creation and evidencing of cultural and creative spillovers. Several historic buildings such as Hammams and water cisterns, during this year rehabilitated and converted to restaurants, boutique hotels, cultural industries and other touristic services purposes. A year after in 2005 physical revitalization of the Immam Street started by Cultural Heritage Organization of Yazd with public funding. These public and private partnership in the revitalization of the city become a successful approach to conserve the historic core and fortunately, the old city of Yazd is moderately standing despite several undergoing changes.

On 3 October 2017, the UNESCO Representative to I.R. Iran, Ms. Esther Kuisch Laroche, toured the old city of Yazd to visit some of the rehabilitation and restoration works that have recently been carried out by the Iranian Cultural Heritage, Handicrafts and Tourism Organization. By attempt of the ICHHTO and well participant of public and private sector in order to revitalize the city, the historic city of Yazd with 195 ha and the buffer zone 665 ha was registered on UNESCO's

World Heritage List in 2017. It was mentioned the earthen architecture of Yazd has escaped the modernization, retaining its traditional districts (URL 2).

The designation creates an entrepreneurial approach toward urban conservation and producing a detailed plan. In 2017 a detailed plan by General Directorate of Roads and Urban Development was prepared for the whole city. The trend of the measures was taken in Yazd and its historic fabric and buffer zone was covered in relevant sections.

Within two decades the idea of *neighborhood unit* with centralized center become more popular in Yazd. The contemporary architecture of Yazd following the expansion of wide and straight streets, suburban and intra urban highways caused the horizontal growth of the city as urban dispersion.

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