1. Introduction
The city of Shiraz is the Iranian cities par excellence. Shiraz was one of the most important cities in the medieval Islamic world and was the Iranian capital during the Zand dynasty (1747-79). Through its many artists and scholars, Shiraz has been synonymous with learning, nightingales, poetry, roses. Particularly the city has expanded enormously and its great old structure was complemented by massive new urban developments. Now, it has two different structures, old and modern. The old structure consists of different gates and districts at different times. The modern structure has been chiefly set up around the old districts in suburbs. During the long history, different transformations can be recognized. One of its transformation started about 250 years ago when the city was designated the capital of Iran. During this period, the city changed to a renowned city, with the greatness of functioning urban spaces and infrastructure. The other transformation of the city happened in the more contemporary periods, when the city turned into a modern city. Shiraz, like any other Iranian cities, has been the subject of a major program of road building and physical reshaping. Followed by these radical initiations, the comprehensive plans for the city have changed Shiraz enormously. Present-day Shiraz is a large, modern city, which has inherited a huge legacy from the past, but is confronted with the problems created by the clashes between its past and present. Whereas the 18th century development happened mainly in continuity with the traditional structure of the city, the 20th century changes have been in total conflict with the past. A major network of new streets suitable for vehicular traffic seems to have been the main intention behind all changes in the city. Shiraz is still confronted with master planning proposals, which are more based on the wishes of the national and local planning authorities and urban designers rather than the true needs of the city. The historic fabric of the city is more and more invaded by construction of new roads that undermine the old structure of the residential and commercial quarters. To better understand the role and possibilities of planning and design, this study try to find the mechanism and the nature of these changes. This paper attempts to address three main issues: first, the characteristics of the 18th Century development of Shiraz; second, the influences of the modern planning decisions and comprehensive master plans of the city; and third, the effect of building under ground road in the old Royal district of Shiraz.

2. Shiraz before the 18th century
Shiraz history extends to the pre-Islamic era. Its formal architecture, the shape of its houses and street network, and elements like the covered bazaar, mosques and shrines, has made Shiraz known as a typical Islamic city in Iran. There was probably a sizable settlement on the site of Shiraz in the prehistoric period and cuneiform records from the great ceremonial capital of Persepolis show that Shiraz was a significant township in Achementian times. However the city became provincial capital only in 693 A.D. after the Arab armies conquered Estakhar, the nearby Sassanian capital. As Estakhar fell in to decline, Shiraz grew in importance under the Arabs and several local dynasties. The Buyids (945 to 1055) made it their capital,
building mosques, palaces, a famous library and a great city wall (Figure 1). The city was spared destruction by the invading Mongols when it's local ruler offered tributes and submission to Genghis Khan. Shiraz was again spared by Tamerlane when in 1382 the local monarch, Shah Shoja agreed to submit to the invader, even offering the hand of his grand daughter to grandson of tamerlane. After the death of Shah Shoja there was turbulent succession of rulers for several years, until Tamerlane appointed his own son as ruler of the city. In the thirteenth century Shiraz became a leading center of the arts and letters thanks to the encouragement of it's enlightened ruler and the presence of many scholars and artists. For this reason the city was named by classical geographers Dar al-Elm, the House of Knowledge.

![Shiraz map in Buyied period (945-1055)](image)

Figure 1. Shiraz map in Buyied period (945-1055)

Throughout the Safavid empire (16-17 century) (Figure 2.) Shiraz remained a provincial capital and Emam Qoli Khan, the governor of Fars under Shah Abbas I, constructed many palaces and ornate buildings in the same style of those built in the same period in Isfahan, the capital of the Empire. The development of Shiraz happened mainly in continuity with the traditional structure of the city. After the fall of the Safavid's Shiraz suffered a period of decline worsened by the raids of the Afghans and the rebellion of its governor against Nadershah the latter sent troops to sedate the revolt, the city was besieged for many months and eventually sacked. At the time of Nader shah's murder in 1747 most of the historical buildings of the city were damaged or ruined and its population dropped to 50000, a quarter of that of the sixteenth century.
According to historical sources, such as traveler's memoirs, the structure of the city in this period was based on organic structures. This organically shape was located where the major thoroughfares converged in the centre of the city. The main routes leading from outside (Isfahan route) to inside of the city.

The map of the city in this period shows that the old district is clearly the most integrated place in the city, which coincides the geographical centre of the city as well. The city was rightly characterized by its quarters (mahallas). The city consisted of 11 distinct mahallas inhabited by separate communities with powerful social cohesion. The physical construct of these mahallas has, to a large extent, remained intact. The most significant public place in each mahalla is a complex consisting of a square some shops and a building with religious function.

![Shiraz map in Safavid empire (16-17 century)](image)

Figure 2. Shiraz map in Safavid empire (16-17 century)

All quarters (mahallahs) in the old city had defined boundaries according to the affiliation of the residents to different local communities. Each quarter occupies an amorphous patch of the surface of the city.

3. Transformation of Shiraz during the Zand period (18th centuries)

Shiraz returned to prosperity under the enlightened rule of Karim Khan Zand who made it the capital of his reign in 1762 (Figure 3). Even though master of virtually all of Persia, Karim Khan
refused to take the title of king and contented himself with that of regent (Vakil). Karim Khan was a benevolent and wise ruler and one of the greatest patrons of the arts in Iranian history. Employing more than 12000 workers he constructed a royal district with a forte, many administrative buildings, a mosque and one of the finest covered bazaar in Iran. He had a most built around the city, constructed a clever irrigation and drainage system and rebuilt the city walls.

He not only made Shiraz worthy of a capital, he decreased the city than its old borders. Some of its building and urban spaces were outside of its borders. The most integrated lines are connected to and constitute the commercial bazaar, which extends from one of the city gates to the heart of the city. It crosses other, slightly winding, thoroughfares and absorbs the major part of the journeys to and within the city. A great work of urban master planning occurred in this period. The major goal of urban development in that era was to modernize the city. The important thing is that: The development of Shiraz happened mainly in continuity with the traditional structure of the city.

Figure 3. Shiraz map in Zand period (18th centuries)

According to the history, the first and most important act of town planning in this period was the creation of royal district. The key point in the design of this Royal Site is linking it with the main chain of the grand bazaar, which extends from the Old district, in a way that it becomes part of the overall structure of the city. Although The Zandye king always wanted to give more
significance to the Royal district, the design of the Royal district never undermined its relationship with the rest of the city. This part of the city was planned to accommodate the new residents needed for the important people of the capital. The endeavor of urban planning in this era was the renovation of the water distribution and sewerage system of city. These results, which have been obtained from the analysis of the city, create a very clear understanding of the urban planning of the past in Shiraz. Despite the despotic nature of decision-making at that period, and despite the available forces for a total transformation, still the people in charged of the planning decided to integrate old and new and make a city of both. Whereas the new part was supposed to provide grandeur and excellence, the old part was retained for its vitality and energy. The result was a rational planning that achieved to reconcile two apparent contradictory concepts: preserving and renewing. This is an exemplary achievement, which should have been appreciated and taught from contemporary urban design. Unfortunately, this lesson was totally forgotten when, in more than two hundred years later, the town planning of the city was again on the agenda.

However Karim Khan’s heirs failed to secure his gains, and when Aqa Mohammad Khan, the founder of the Qajar dynasty, eventually came to power, he wreaked his revenge on Shiraz by destroying the city fortification and moving the national capital to Tehran. Although lowered to the rank of provincial capital, Shiraz maintained a level of prosperity as a result of the continuing importance of the trade route to the Persian Gulf and its governorship was a royal prerogative throughout the Qajar era. Many of the beautiful gardens, buildings and residences built during the nineteenth century, contribute to the actual outlook of the city.

4. Modern Master planning in Shiraz

The issue of rapid modernization in Iranian cities, based on driving modern avenues through the old fabric of the cities and extending them outside the old cores, has been addressed in Karimi studies (Karimi, 1997, 2002). These studies have shown that this type of intervention in the old cities has created the configurationally isolation of the old cores and destruction of its traditional structure, which has lead to full deterioration of the historic centers in the 20th Century. Master planning in Iran started in 1960s. Before this era the act of road building was heavily on the agenda in different cities, but these acts did not follow any predetermined plans. The decisions were rather casual and based on the time and location. The need for master plans started to emerge when cities grew enormously, and when the country was introduced to the achievement of the Western planning methodologies. This leads to a comprehensive program of producing master plans for all cities. These master plans had three important outputs: road network, land use, and building density or heights. Through the control of these three elements, the master plans attempted to achieve their initial goals.

After the first program of road building in Shiraz, the first comprehensive plan was produced by Tehran University, department of architecture in 1966. The plan produced by these planners was outrageously radical (Figure 4). A rectangular grid of roads designed for cars has been superimposed on the older grid without slightest regard to the historic evolution and older patterns of growth. The usable land area for different urban factors increased from 22 sq. Kilometers in 1962 to around 80 sq. Kilometers in 1992.
The bazaar area appears as simple polygons. High densities have suggested for the new streets frontages and each rectangular urban block has been given a neighborhood centre, a learning centre and some school.

In reality the comprehensive plan was not fully implemented. Only some of the major streets proposed by this plan were built. New streets created by this plan together with the ones created before were enough to influence the whole integrity of the city. Second master plan was prepared by Naghshe-Jahan-Pars Consultants about 18 years ago (Figure 5).

In order to measure the effects of the master plans, analysis has been used to evaluate the changes. Different maps have been used for the analysis. The old maps, the city map around 1970 and the most updated map of the city were used. The analyses give the following results.

* The superimposed modern grid becomes the superstructure of the city and all modern streets become radically more integrated than the rest of the grid.
* The modern map has the lack of an efficient and adequate traffic network.
* The existence of commercial units alongside the roads, causing traffic accidents involving pedestrian.
* The old structure of the city vanishes dramatically. The Royal District, and their urban connection loses its significance and neither of the old thoroughfares is recognizable on the map.
* Zand street is one of the streets from the past that retains its strength.
* It seems that the integration core of the city has shifted from the old centre to the west part of the city.
* The urban blocks created by the modern streets are very huge to form any center. Therefore, as it can be observed in existing Shiraz, the center of the city is gradually defusing linearly shifting more the significance from the historic center.

Figure 5. Shiraz proposed Master Plan in 1988

5. Shiraz in present time

The story of master planning in Shiraz has continued till now. A new master plan for the city was prepared about 10 years ago. The network of public spaces in central Shiraz between Isfahan entrance and Shah Cheraq Shrine is the heart of Shiraz. A master plan for this area was commissioned in 1996. An underground road in Royal district was proposed. Pedestrian movement around Royal district was impeded by complicated pedestrian crossings. Many people – especially tourists – fail to make the short journey between different buildings in Royal district because the space appears uninviting and impenetrable. A questionnaire survey was carried out in 2005 to find the effects of the under ground road in the Royal district. The population of interest in this study included 300 adults (18 years of age or older) living or working in this district and also 50 tourists that were in that district. The results show that about 70
percent of the respondents did not satisfied with the under ground road. They believed that there will be a great possibility that Bazaar and Royal district would lose its entire significance. Many gardens of Shiraz began to vanish in recent 20 years. These sites have become highly attractive for new residential and commercial developments. On the other hand, these sites carry great potentials for a new urban formation. Unlike the traditional modifications which were slow, gradual and adaptive, the modern changes have been rapid, large-scale and destructive. Whereas the necessity of preserving the past within the existing urban structure had always been observed in traditional cities, the magnitude and power of the modern format of urban transformation soon led to the situation that the preservation of the urban heritage became a serious issue.

The analysis of existing Shiraz (Figure 6) shows that Zand street is a very integrated line. As explained before, this option has to be abandoned for heritage reasons, but even if this problem did not exist, by extending the new streets to the west, the historic both would have become far less integrated than the proposed roads. This means that in long term, the new streets that have higher integration and car access will be much more important than the historic avenue.

Figure 6. Shiraz map in present time
An important point that lacks in planners vision is to consider other means of transportation. It seems that they have been so occupied with the car as the prime means of moving in the city, that they have forgotten about the other ways of bringing people to Royal district.

6. Conclusion

A comparison between the old master planning of Shiraz in the 18th Century with its 20th century shows that the old master plan was better thought and implemented. The key issue in the old plan was a thorough understanding of the once existing urban mechanism. The old planners managed to preserve the harmony with the older city. This implies that the present state of Shiraz is not the result of an evolutionary process of its traditional forms. New urban patterns in Iranian cities were introduced in the twenties by driving some long and straight streets through the old part of the city and by development of a rather regular grid outside the old city. This process had a dramatic effect upon the historical core of the city. Structural order of the traditional city was disrupted. Configurational displacement of urban elements and local areas caused malfunction and decline especially in the, syntactically, deepest region of the residential areas in the old city. The analysis showed, through two key strategies: continuation(and not interruption) of the old grid; and following the organic lines of natural elements and environment. In contrasts are the modern master plans of the city. Lack of objective understanding of the past, rush for modernizing the city as soon as possible

The major recommendation of this paper is urging for an effort to a more objective understanding of the cities before any planning or design endeavors. This is not only a lesson for the city of Shiraz, but a general guideline that has to be adopted for all urban designers and planner that are dealing with similar issues elsewhere. The most important task in designing a historical city is to determine how much of the past should be preserved to enable the city to cope with the needs of modern life.

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