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Doktors der Ingenieurwissenschaften

Physical Evolution Course in cities
In Interaction with Political, Economic, Geographical, Social, Cultural Factors and Urban Management

Case study; Mashad-Iran

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February 2012

In the name of God

Declaration

I hereby declare that this final paper is the result of independent investigation. Where it is indebted to the work of others, acknowledgement has been duly made.

Date: Signature:

Acknowledgement

At the beginning of my dissertation, I take the chance to draw the reader's attention to three topics: first, my country, Iran; second, myself (my educational and research activities); and third, my supervisors for this research:

Iran: during the three to four years in which I was busy preparing my PhD dissertation, my country was going through one of its most complicated historic periods. The country's unique historic and cultural precedent (which is intentionally or erroneously not well-known), its strategic and geographical position that made it a connection for the passing and interaction of nations and cultures over the course of history (and at the same time stimulated wars and attacks from different tribes) and great oil and gas resources (which resulted in interfering of governments for reasons of profit), are all among reasons for the complication of the Iranian situation. The way to overcome this situation and to reach a sustainable stability is only possible through learning and the exchange of information, which is one of the aims of this thesis. I hope that my country, Iran, and my city, Mashad, will accept my efforts.

Myself: following twenty years as a university staff member (I am currently a Professor at the Islamic Azad University of Mashad) and of executing professional projects in architecture, urban and landscape design (I am also a first-grade consultant in architecture and urban design and have "grade one" from the engineering organization system), the opportunity to write a PhD thesis was very valuable for me. I hope that my twenty-year experience in professional and educational work will have prepared the grounds for the success of my thesis and its results.

Gratitude: I first and foremost appreciate the work of my primary supervisor, Professor Christa Reicher, who guided me during this time. I also thank Professor Dr. Benjamin Davy, who with his keen guidance and persistence increased the quality of my thesis. I thank Dr. Vazifedoost who urged me to make my dissertation more efficient and effective. And I also thank Kenneth Gildner, who helped me in the correction of my dissertation.

I present this dissertation to my wife,

Yasaman Modarres Razavi,

who has shared all the hard times during

our common life

and to my loving daughter,

Bahar

Abstract

Many cities in developing countries are confronted with many problems regarding their physical structures. The efforts to overcome these difficulties arose from the political, economic and cultural structural factors that preside over those countries. Iranian cities also follow this pattern of development. However, many of these cities lack the necessary research and scientific knowledge to determine a suitable path for development and planning. Furthermore, policymaking does not rest on a basis of suitable fundamentals and information. Many plans in these cities have therefore led to unsuitable results and, rather than moving existing aims forward, have created new difficulties.

Mashad, as the second-largest metropolis of Iran after Tehran and the third-most important religious city of the Islamic world, has a great development potential that should be correctly and properly applied. Essential to this goal is the availability of necessary information about the history and regional and local characteristics of the city and, on the other hand, having enough knowledge about other developing countries' experiences. Using this information and these analyses and tested theories, one can work towards a suitable development program for this unique city.

Under this assumption, this dissertation has two main aims. First, the gathering of documentary evidence and categorization of historic information about Mashad, especially in the physical field, and second, the production of a pattern for evaluating the degree of influence of factors that affect the physical evolution of cities and their comparison with each other. This would be effective in discovering the reciprocal relationship of these factors and could pave the way for applying urban experiments in similar future analyses.

With these aims, Mashad is used as the case study and Iranian and European cities as the general comparative grounds for this study. Initial results show that effective factors on the physical evolution in Mashad have not only had very different conditions from European cities but also with other cities in Iran. For example, the main influence of political factors on the development of Mashad in all of historic periods and the gradual growth of this effect in Iranian cities versus the decreasing in this effect on the physical development of European cities is significant. At the same time, while social factors (with an emphasis on public participation) have continually grown in their effect on European cities, these show a significant decrease in Iranian cities and especially Mashad over the course of history. This phenomenon can be seen in the lack of urban public spaces for social interactions within the

core of the city. These different features fundamentally emphasize a need for new development planning specifically for this city.

The presented pattern for estimating the state of a city or cities in various historic and chronological periods and the comparative tables in this pattern prepare the grounds for analysis and produce several results, which are shown in detail in the dissertation.

Without exaggerating, the lack of information about Mashad and the need for completing this work before producing schedules, diagrams and analytic and comparative tables have made this dissertation the equivalent of two theses in the frame of one research project; I hope this will be considered.

Alireza Rezvani
February 2012

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1.1 Research subject and necessity

"Cities are centers of economic production and consumption, arenas of social networks and cultural activities, and the seat of government and administration". (Michael Pacione, 2005, p. 32)

Cities change, evolve and develop according to various effective aspects including political, economic and cultural … factors as well as urban management.[1] Many of the current structural problems and deficiencies in cities in developing countries in the midst of a transition from a traditional to a modern or postmodern structure are due to inefficient urban policy and management in these countries and the lack of comprehensive and clear laws and methods for the direction and control of urban physical structure.

Indeed, urban management and planning have the role of controlling, organizing and directing the main effective aspects in the formation of cities called as geographic, political, economic and cultural factors. In other words, the shape of cities is formed through interaction with these factors and under the influence of management entities. In this way, each physical feature of a city can be considered to be the result of these interactions and influences; additionally, the physical specifications of cities can be considered to be comprised of many or all of the features of a civilization formed over the course of centuries and that have been transformed and developed under the influence of these factors.[2]

The following diagram shows how these factors directly or indirectly (i.e., through urban management) influence the form of cities. In this case, urban management is the filter, director and selector of the position of these positive and negative effects (potentials and obstacles), although many of these effective factors affect cities and cause changes in their physical structure, even in the present day and

1- The terms "evolution", "extension" and "development" are usually used to express changes in cities, though development generally carries a positive valuation not present in evolution. Evolution includes any kind of physical change within cities, which are usually dependent on factors such as economy, society, and culture. Although the concept of development is different from that of evolution, urban evolutions have usually manifested themselves in the development of cities.

2- The relationships between these factors and urban structures are discussed in science and various urban design studies. For example, in the field of urban geography, researchers are also interested in cities that are the grounds for examination of the physical evolution of cities. Urban geographers examine the role of a city in the regional, national and international economy, and how the city's socio-spatial form is conditioned by its role (for example as a financial center or manufacturing base). Study of the distribution of power in the city would focus on the behavior and biases of formal organizations as well as the informal arrangements by which public and private interests operate to influence government decisions. (Michael Pacione, 2005, p. 32)

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especially in cities without organized and cohesive urban management control and direction (for example underdeveloped or developing cities).

This research project investigates the degree of each effective factor in urban evolutions and tries to present a pattern for distinguishing reciprocal relations between these "factors" and "changes" in cities and especially Mashad city, Iran (case study).

Political, economic, cultural … factors

Indirect effect

Urban policy and management

Physical changing and evolution in city

Direct effect

Political, economic, cultural … factors

Figure 1-1 The influence of factors on physical evolutions
Diagram shows how political, economic, cultural … factors affect on the physics of cities in two direct and indirect ways. The desired urban management conditions control all the effective factors and resulted in optimal effect on physical evolutions
Ref: writer

Mashad city, the second-largest metropolis in Iran, the second-most important religious city of Islamic world and the most important pilgrimage city for Shiite Muslims, has, like many other cities in the world, abnormalities in its physical structure. But the most significance of this city is its esteemed religious and touristic position, which certainly makes it deserving of a physical structure that corresponds to its existential essence and identity. This expectation is, however, not perceptible and understandable in contemplation of its current structure.

Mashad city is plagued by traffic congestion and an inefficient transportation network, a deficiency in appropriate urban public spaces, discordant and unpleasant urban views and landscapes, a lack of urban open and green spaces, and slum dwellings … The bulk of these current

problems certainly resulted from inappropriate policies and inefficient urban management.

Changing the present situation towards solving these problems and improving cities' situations by correcting their physical structures through optimal use of resulted potential in the aforementioned factors as well as the adjustment of obstacles and limitations towards fulfilling people's needs is only possible through studies and producing classified information and performing fundamental researches.

Compiling the book: "In search of urban identity: Mashad", published in Iran in 2005, was the beginning to my orderly and systematic knowledge of Mashad city. Among the discussed subjects in geographic, cultural, political, social and physical aspects, I was interested in researching the recognition of physical affairs in Mashad which was suggested to my supervisor Professor Reicher as the proposal with title of:

Figure 1-2 "In search of urban identity: Mashad", Book cover
Client: Iran's Ministry of Housing and Urban Development, Author: Alireza Rezvani

 "The physical evolution course of Mashad city, in interaction with geographic, political, economic, cultural and social factors". As already mentioned, although cultural, economic, social and political factors determine and change the physical components of cities, the effects of these factors usually determine the form of cities through urban planning, strategies and management. Therefore, during the course of my research, the title of thesis was changed to:

"The physical evolution course of cities,
' case study: Mashad , Iran', in interaction with geographical,
political, economic, social and cultural factors, with emphasis on urban
management and policies".

I emphasize that the lack of documentary evidence about Mashad's physical evolutions also provided a pretext for me to perform extended investigations during three years and produce a valid document in this

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case. The results were one of the aims of this research, a part of which is contained in the "Case Study" chapter and I hope it to be published as a book in Iran.

By reviewing the nature of effective factors on the physical evolution of cities, this research identifies these factors over the course of history in Iranian cities and specifically in Mashad city, and in each period tries to recognize the physical changes resulting from those factors. In presenting this method I have thus put forward a pattern for measuring the degree of influence of each factor in different historical periods. In this process, European cities -which have gone through a considerable and logical physical evolution process- were briefly investigated and finally compared with Mashad on the grounds and degree of these effects during the history.

In my view, this pattern of study and evaluation can pave the way for future research. In addition to the specialized identification of a city's changes, this project provides answers to the following questions:

- Which effecting factor or factor affects each historical period, each evolution and change?

- What is the role and effecting amount of urban management in each period and physical evolution?

- What is the degree of effect and priority of each factor in each period of a city's growth?

- What were the common and different aspects of the state and extent of the influence of mentioned factors among cities in each historic period (in this case, Mashad city, Iranian cities and European cities)?

Extended and complementary studies as well as quantitative and qualitative evaluation of physical evolutions in different periods could provide the opportunity for answering related questions such as:

- Which time period under which conditions and interaction of the mentioned factors resulted in optimal physical evolutions?

- Which time period under which conditions and relationship of factors resulted in the emergence of undesired evolutions in urban form?

- The possibility for comparison between different periods in a single or multiple cities, recognition of reasons for failure or success in physical evolution, exploitation of independent experiments in each city for urban programming and planning of that or other cities as well as reducing mistakes in urban development.

This research and complementary investigations open up the possibility for use of the most adequate urban experiments over the course of history in each city or cities for the optimal exploitation of economic, political and cultural factors and opportunities in order to foster suitable changes in urban form.

1.2 Research method and programme

The systematic research methods used in different sciences from social science, sociology and psychology until environment planning and design include linear, rationalistic, progressive, logical, descriptive and analytic models and … have their root in changes made by modern thought and critical/analytic viewpoints in the 19th and 20th centuries provided the background of the next developments in technology during the last century.[3]

In urban planning and design these methods are called "traditional methods". Using generalist methods, the process of urban planning is consisted of a linear sequence of steps; for example based on Dr. Bahreyni's view:

1. Collecting information

3 - Researchers in social sciences believe that the research process contains the following steps: 1. Preparing the preliminaries; 2. Collecting documents; 3. Analysis; 4. Report presentation. A scientific research design starts with an educated scientific hypothesis presented to reach the results of the investigation and tested using scientific experiments. This primary guess is called "theory". In the United States, the logical strategies in research methods and designing can be attributed to Christopher Alexander, who presented a validity model of research in which the practical procedure of designing is divided into two main steps, separating the problem into independent components and making a hierarchy among them as well as finding environmental patterns that account for each part's needs. He believed the design process to be the combination of these parts as a whole unit. He later corrected his theory. (John Lang, 1987 AD), (Tom Heath, 1984 AD)

2. Analyzing the information

3. Compiling the aims

4. Compiling general solutions

5. Completing the solutions

6. Evaluating the results

7. Transforming the results into policies, plans, instructions and executive programmes. (Bahreyni, 1386 AHS/2007 AD, p. 91)

All methods reliant upon systematic thinking contain the following three main steps:

I. Separation II. Analysis III. Combination and composition (conclusion).

Later and especially since the end of the Second World War, theorists in different sciences proposed several other methods in research and investigation, the most of which were in objection to linear and systematic methods[4]. One of the most prominent methods in research and design processes in the last half-century was put forward by Archer and Jones. Archer presented a pattern in which the permission and possibility of switching from one stage to another was predicted, thus breaking the linear method of the 1962 conference (The Conference on Systematic and Intuitive Methods in Engineering, Industrial Design, Architecture and Communications, London). In his book "Creation of architecture theory", Jon Lang emphasized that the process of designing is linear, though each step does not necessarily start after completion of the previous one.[5] (Jon Lang, 1987 AD)

These methodological perspectives which renowned in law as the second and third generation methods, include argumentative and participation methods, qualitative methods, intuitive methods, combinational and interactive methods[6].

In this research, the researcher endeavored to use the general view of "interactive methods", which incorporates all different research processes and assigns them the same value; nevertheless, the systematic

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4 - In the second half of the twentieth century, wide studies were performed to correct linear methods, led by prominent theoretists such as Alexander, Bennett, Wider, Heath, Lawson, Capon and Rowe (1970s and 80s).

5 - Christopher Alexander, whose work was greatly influenced the compilation and completion of the systematic method, also admits that linear methods, in which each step begins after the end of the previous one, are not reliable methods for research.

6- In interactive methods, contrary to usual step-by-step or creative methods, the objective is simultaneous attention to all influencing and impressionable factors and no precedence or delay is considered during the research and planning steps.
If there is too little initial information about a special subject, thus making even recognition and perception of the subject and question difficult, a naturalistic approach and qualitative methods should be used. A novice researcher can therefore not succeed in qualitative research. In this case, the researcher should not only be familiar with quantitative approaches but should also not involve any one-dimensional points of view or methods. These methods clearly contain discussion and exchanges of views and have experimented in the design process. The planner argues with himself and others to find a solution and provide a better understanding of the present state.

(logical-analytic) method forms the main structure of this research process. Moreover, the principles of qualitative method have been used to complete the research.

The following explanation points at some of the main specifications of this research program.

- Transposition of steps in this research begins with the "recognition stage" and ends with the "concluding stage". However, the stages of analysis perform in several steps between the aforementioned stages. The recognition stage allows the researcher to become acquainted with subject, the concluding stage presents the summation based on the general aims of the research, while the middle stage's analysis and final analysis occur in different parts and at different times. In the next section (structure of thesis), I explain that all of these stages are fit into the three general categories of "theory", "analysis" and "concept" to form the content of this research.

- Although the stage of collecting information is performed at the beginning of the project, it is necessary to repeat this several times in the course of the research when necessary.

- The subjects and programming of this research are greatly dependent on professional and practical projects and the researcher's education and experiences. The researcher's critical viewpoints have been formed during years of study and investigation into Iranian cities and Mashad. These influence the research process and increase the efficiency of the qualitative methodology. In this method, the formed theories in the mind of researcher during the investigation stage are proved, made more precise or are corrected. In this dissertation, the hypotheses are as follows:

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- Although cities have different histories of birth and growth, they can learn from each other's experiments in order to develop better programmes.

- The physical evolution of cities is directed by the influence of political, economic, geographical and cultural factors.

- Urban management and planning have the function of controlling, organizing and directing the main effective factors in the formation of cities.

- The valuation and estimate of the effects of these factors over time can provide valuable experiences for future programming.

- Although Mashad is a metropolis, it doesn't have many of the specifications expected of a contemporary city. There is thereby a need for extended investigations and studies to guide future's planning.

- Many of the present problems in the physical evolution and development of Mashad city as a realization sample resulted from poor governance and current management and planning of city programmes.

- These mistakes have destroyed much of the present potential, though there remains potential to correct and improve the situation.

- Although traditional methods of comprehensive urban planning have proven as inefficient, structural and fluid methods of urban planning can be effective when a powerful and consistent urban management and policy-making system rules. Otherwise, these methods will lead to crisis and disturbance.

Following this introduction, the suggested steps for performing this research are as follows:

1- Proposing the research question and determining the subject
(preparing proposal, research necessity, research method,
initial contents ...)

2- Determining general objectives

3- Collecting information
(library, internet, local study, …)

4- Categorizing the information
(based on the contents of the study and the overall structure of
the research method)

5- Primary interdepartmental investigation and analysis
(after completing various parts of the research content)

6- Specifying the overall objectives and aims
(major aims, minor aims, specification, correction and
completion of study contents)

7- Identifying and elaborating upon incomplete information
(performed after steps 5 and 6 and related to different
chapters of the thesis)

8- Correcting and summing up interdepartmental analysis and
primary conclusions (can be performed diffusely at
different times prior to this step)

9- Objective-based analysis and conclusion
(conclusion depends on aims and is based on articles of the final
chapter of the thesis)

10- Final review and consultation

   (this step can result in the revision of the analysis and

    conclusions)

11- Revision

   (changing and correcting the interdepartmental and the final

    obtained analysis and results)

12- Preparing, presenting and defending (depending on the

    university's programmes and policies, PowerPoint,

    text and pictures ... will be prepared and presented)

During this process, the researcher is not able to stop his dynamic thinking and focus on a particular stage. For example, even while collecting information, he may attempt to analyze and make conclusions. In other words, some steps are performed simultaneously, but each activity has strength or weakness (priority) at a particular time. In the research chart and schedule, the strength and intensity of each activity in each stage is thus indicated using tones ranging from gray to black. Although these steps are enumerated from one to twelve, the practical execution of each is not merely linear and each step does not necessarily follow the previous.

The following table presents a schedule that demonstrates the order of execution of the aforementioned twelve steps; it must be noted, however, that this programme changed a little during the research process.

	2007	First year	Second year	Third year
Proposing and specifying the question (**step1**)				
Determining and specifying the aims (**steps2&6**)				
Collecting the information (steps**3&7**)				
Categorizing the information (**step4**)				
Investigation and analysis of the primary interdepartmental and conclusion (**steps5&8**)				
Analyzing and concluding based on objectives (**step9**)				
Review and final control and exchange (**step10**)				→
Revision in different domains (**step11**)				→
Preparation and defense (**step12**)				→

Table 1-1 Program schedule and time table
(The order of actions based on research steps, facilities and restrictions)
Ref: writer

This schedule is based on an overall three-year project frame. The starting point accords to the confirmation of the research theme (admission of the thesis). The period for preparing and editing the admission thesis application and determining the research subject is not included in this time. Its conclusion is marked in 2009 (2010) with the defense of the dissertation.

As an overall division, the first year is allocated to collecting information and defining the subject, the second year to analyses and the third year to combination, conclusion and summation. However, as demonstrated, these three steps do not have a clearly defined border and rather flow into one another; it is thus necessary that the research method to be elective and suggestive. White to gray tonalities show the

intensity of each activity or step, while a strong color for a kind of activity means it is assigned high priority.

In conclusion, with regards to the researcher's belief that no research project has an clear finishing point and his emphasis on the saying that "research = process"[7] and that this process has a cyclical motion, it should be stressed that this study represents a continuous activity and that its results should pave the way for future research initiatives of the writer or of fellow researchers.

[7] - "Designing as process" is the title of a different definition that Turner gave to design. Here, the truth arises of validity and accepted actions. (Heath, 1984 AD)

1.3   Structure of research

Based on Prof. Reicher's suggestion, this research contains three main parts and six chapters. The three main parts are:

I)   **Theory:** in this section, apart from presenting basic subjects about the cognition of effective factors in the physical evolution of cities, I review the history of urban evolution in Iranian cities and also western (European) cities. The main subsections of this part are:

Basic studies

- **The Birth and the evolutions of cities** (in European cities)

- **Factors influencing the growth and evolution of cities** (Political, geographical, economic, social and cultural factors)

- **Iranian cities** (physical evolution course of cities in Iran and the effective factors)

    Case study: Mashad (urban geography, economy, culture, politics and physical evolution from past to present)

II)   **Analysis:** in this part, a table is prepared by categorization and summation as a framework for a means of measurement of the

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influence of political, economic, social … and management factors on the physical evolution of cities. Each effective factor in the physical evolution of cities during their history is thus identified and the resulting physical evolution outlined. It is noted which change is the result of which factor or factors. The intensity of each effect is specified by tonalities from white to grey.

The main subsections of this part are:

Estimation and comparative studies (pattern of research)

- **The effective factors on development of European cities**
  (in view of estimating and comparative schedule)

- **The effective factors on development of Iranian cities**
  (in view of estimating and comparative schedule)

- **The influencing factors and causes of physical evolution in Mashad** (Political, economic, geographic and cultural effects in estimate and comparative schedule)

III) **Concept:** In this part, the effects of the mentioned factors and their strengths and weakness are shown in a series of diagrams and graphs. The section is concluded with tables that show the changing course of these effects over the course of history as well as in the present day. The result of this process is a general comparison of Mashad city with other Iranian and European cities. At the end of this section, it is demonstrated how this pattern and the way of measurement which is the result of this research provide starting points for similar studies into other cities as well as an opportunity for comparison and complementary investigations.

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Finally, the abstracts of some articles that have been compiled in the process of completing this research are presented. The subsections of this part are:

Summing up and conclusion

- **Estimate and comparative diagram for Mashad**

- **Estimate diagrams for Iranian and European cities**

- **Comparative tables for cities** (Mashad , Iranian cities , European cities)

Towards future research

- **A valid document in the field of Mashad's physical evolution**

- **Producing and creating a pattern for all cities**

- **Suggesting some articles and their abstracts**

The following diagram briefly shows the substructure of research and the route for presenting topics in each section of the study.

* **Research necessity, method and Targets**

General   Focus on Mashad

Theory

* **Birth of cities and the history of evolution**
(European cities)

* **The influencing factors on cities' growth and evolution**
(Geography, economy, politics, culture and society, urban management)

* **Iranian cities** (physical evolution over the ages and typology)

→→→

* **Case study: Mashad**

- **Physical evolution of Mashad** and review of the geography, economy, politics and culture of Mashad through the ages.

Analysis

* **Comparative studies (pattern of research)** (Investigation and analysis of political, geographic, economic, cultural and social factors)

* **The effective factors on physical evolution of European and Iranian cities**
(In view of estimating and comparative schedule)

.

→→→

* **Analyzing Mashad city's evolutions and time schedule**
- **The influencing factors and causes of Mashad's physical evolutions** (political, economic, geographic, cultural effects in estimate and comparative and schedule)

Concept

***Towards future research** (general concept)

- **A valid and fundamental document in the field of Mashad's physical evolution for related subjects and other urban studies for complementary studies**

- **Possibility of producing the estimate schedule for other cities and timing diagrams as well as estimate and comparative diagrams between them based on the presented pattern**

- **Suggesting some articles and their abstracts**

* **Summing up and conclusion**
(Timing diagrams)

- **estimate and comparative diagrams for Mashad** (research pattern)

- **Estimate diagrams for Iranian and European cities**

- **Comparative tables for cities** (Mashad, Iranian cities , European cities)

⌐→ ...   References and sources

Table 1-2 Thesis structure
Ref: writer

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1.4 General Targets

The aims of this research are divided into two categories of principal and secondary targets:

1 – Producing one pattern for estimation and valuation of the effects of political, economic, cultural and geographic factors as well as determining the role of urban management in each main period of physical evolution in cities.

This pattern gives the possibility of comparing the differences and similarities between cities for the exploitation of their experiments in urban planning and programming.

2 – Introducing a valid document concerned with the physical evolution of Mashad from its birth until the present day

The main purpose of this study is to produce a valid document about the course of physical evolution in Mashad city from its beginning until the present day. To date, no such document has been compiled for Mashad city.

Part I
Theory

2 <u>Chapter</u>

.... **Basic Studies**

2.1 The birth and evolution of cities

2.2 Factors influencing the growth of cities

2.3 Iranian cities (Physical evolution course of cities in Iran and effective factors)

2.1 The birth and evolution of cities

Though the main subject of this thesis is related to Iranian cities as well as Mashad (as the case study), because of my own interest in physical evolution of European cities and for a primary comparison of European cities with Iranian cities and Mashad (in the presented pattern method), here is a brief review on the physical evolution course of these cities based on three major sources of "History of Urban Form: before the Industrial Revolution" by "James Morris", Leonardo Benevolo's "The History of the City" and "Urban Geography: a global perspective" by "Micheal Pacione" and some other secondary sources.

The history of man's settlement evolution on the earth shows three living patterns: living in "moving", "quasi moving" and "fixed dwelling". Around 10,000 years ago (in the Neolithic Age, as man first switched from hunting and gathering food to agriculture)[1], as the earth's climate warmed, agriculture provided man the chance to create the first fixed and immovable dwellings and, in this way, the first forms of settlement were established as temporary villages. The quality and conditions of these primary living arrangements were dependent on sufficient water, appropriate soil and suitable conditions. These conditions gradually changed between ten and six thousand years ago and these temporary villages turned into permanent villages.

The possibility of producing surplus goods and increasing the exchanges and likely the necessity of governmental and management centers changed the structure of some of these scattered villages into a new kind of living complex called "city".[2] (Will Durant, 1935 AD, Persian translation by Aram and others, 1365 AHS/1986 AD; www.aftab.ir, 07/2008; Naser Fakuhi, 1383 AHS/2004 AD)

Glyn Daniel writes in his book, "The First Civilizations, the Archeology of their origins":

[1]-"The first of these phases covers the whole of the Paleolithic Age, from its origin at least half a million years ago until 10,000 BC, followed by the Proto-Neolithic and Neolithic Ages. These in turn lead to the fourth phase, the Bronze Age, starting between 2500 and 3000 BC and lasting for some 2000 years. During the last period, the first urban civilizations were firmly established." (James Morris, 1994 AD, p. 1)

[2]-"Somewhere around eight to ten thousand years ago, mankind started to exercise some measure of control over the supply of food by systematic cultivation of certain forms of plants, notably the edible wild grew seeds, ancestors of barley and wheat, and try the domestication of animals". (James Morris, 1994 AD, p. 3)
The basic requirements for realizing the urban revolution were: 1. Production of a surplus of storable food; 2. The existence of a form of writing for permanent record of events and other necessities; 3. The existence of a social organization; 4. Technological expertise and significant improvement. The vital factor here was a food surplus, which became feasible for the first time in Tigris and Euphrates alluvium plains. (James Morris, 1994 AD)

"*Urban dwelling has an ancient precedence in the world and especially in east and first cities have formed in regions like southern Mesopotamia, Egypt, Indus valley, coasts of Yellow River in China, Valley of Mexico, Guatemala and Honduras Jungles and in coast lands and highlands of Peru in South America. Mesopotamia, Egypt and India are known as the earliest civilizations of the world (the so-called dead cultures) from which western civilization developed*". (Glyn Daniel, quoted by James Morris, 1994 AD, p.1)

Michael Pacione identifies five regions as the birthplaces of urban civilization:

1. Mesopotamia, 2. The Nile River, 3. The Indus valley, 4.The Yellow River, 5. Mesoamerica (Michael Pacione, 2005, p. 42-45)

The growth of civilization was conjoined with urban development, and the word civilization in Persian (Tamaddon) is derived from the word "Madineh", which means "city" in the Arabic language. Aristotle believed that to be a human in its real word meaning, one should live in a special human society that has been built for the collective life of man, or a "polis", meaning city. In his idea, the city is older than civilized man; in this regard, the city provided the foundation in order for man to become civilized. (www.aftab.ir, 07.2008)

The first appearance of these forms of living arrangements was at around 5000 BC. The evolved examples that had the most influence on the advent of urban dwelling in the west can be traced back to Mesopotamia.[3] The Flourish and mature of these cities is estimated to have taken place between 2000 and 2500 BC. Cities like Ur, Uruk, Babylon and Niniveh were shaped in this period and their population at that time is estimated to have been around 50,000. Some estimate the precedent of city dwelling in this area to have occurred prior to 4000 BC and consider city-religions like Choghamish in Elam to have developed and precedent over Sumerid and Assyrian cities. (Farzin Rezaeian, 2007 AD)

3 – "It is generally accepted that favorable conditions for the agriculture revolution first occurred in south and east of the Mediterranean, around what is known as the "Fertile Crescent" –a term introduced by Professor Breasted and synonymous with the phrase the cradle of civilization." (James Morris, 1994 AD, p. 4)

These cities sometimes became so powerful that they transformed into city-states. Examples of these in Ancient Greece and Rome include Athena, Sparta and Rome.

The historical evolution of city dwelling from the first settlements identifiable as "cities" until modern cities at the beginning of the third millennium AD has been classified in different ways. In order to select an appropriate classification, it is important to review the different typologies found in urban sciences literature:

Certain authors, notably "Alvin Toffler", have divided the development of cities into three historical-chronological waves: "first wave", "second wave" and "third wave" (Naser Fakuhi, 1383 AHS/2004 AD, p. 40) and some have divided different kinds of cities during the course of their formation and interaction into "first cities", resulting from the agricultural revolution, "second cities", established during the industrial revolution and "third cities", formed during the information technology revolution.[4](Mohammadreza Purjafar, 1382 AHS/2003 AD)

The first cities related to the first wave about five to six thousand years ago initially emerged in Mesopotamia (the Sumerid civilization) and Egypt, followed by in India and China. Contemporaneous with the agricultural revolution, the first agriculture-based cities came into existence. Cities rapidly evolved into more or less powerful city-states and took an expanded area into their influence. These cities usually had the benefit of suitable warm climates, provided the possibility for increasing agricultural production and accumulation and prompted work-sharing distribution, social division and the formation of government. These cities were very simple and without notable intricacy, limited in scale and possessing a definite identity.

The second wave, from the middle of the 18th until the end of 19th century, were connected to the industrial revolution and European political revolutions, which resulted in the creation of industrial estates Europe and later in America (the second city). These cities were based
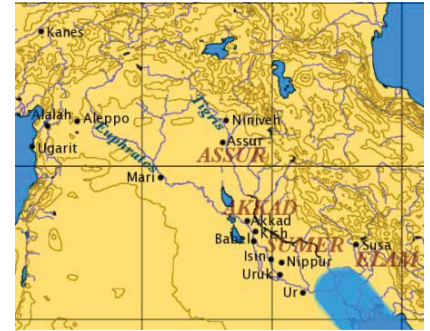
Map 2-1 Map of Mesopotamia
Ref: www.wikipedia.org.png, (03.2010)

4 - Another classification divides cities into ancient period, historical period and modern period cities. The ancient cities such as "Athena" and "Sparta", as well as satrapies such as "Susa" and "Sard" in Iran were autonomous and cooperated with each other only on economic and defensive grounds. Historical cities were formed starting with the emergence of extra-urban governments in ancient Rome and Iran during Parthians period. The modern city is applied to twentieth century cities and especially those from the time after the Second World War, during which urban areas rapidly expanded. (Naser Fakuhi, 1383 AHS/2004 AD, p. 361)

on new capitalist logic; the advent of new industrial technology exacerbated the onslaught of rural immigrants to the cities and made urban dwelling the prevalent settlement form in developed countries. In this period, cities with the pivot of commercial and economic exchanges developed on both sides of the Atlantic Ocean (in Europe and America).

The third type of city was the result of the third wave urban design evolutions. The wave that came into effect after the end of the Second World War was first based on a bipolar system between eastern socialism and western capitalism. From the 1980s decade onward, the multi-polar capitalist system became the prevalent form around the world. Its two main axes were world market of economic exchanges and the national governments, while national institutions were reliant upon their unity. (Mohammadreza Purjafar, 1382 AHS/2003 AD; Naser Fakuhi, 1383 AHS/2004 AD, p. 40)

At the beginning of the third millennium AD, using valuable urban dwelling experiments from several thousand years of civilization and especially the achievements of intricate third wave cities (cities which both visualize emerges of "Utopia" and got also the structure of a monster; have been chance as well as threat), man is faced to the brink of a new wave of urban dwelling, which promises the birth of different cities in the future.

In addition to the periodic and historic classification of the evolution of urban dwelling, another categorization can be discussed that builds upon different ways in which cities came into existence: first come cities that were not planned but were established without a predetermined design, including many historical and ancient cities; the second category consists of cities established with a predetermined plan and aim under special management, implying most all modern cities. This generalization overlooks the ancient cities that were established or developed with special planning, including many Greek cities or the

planned developments of many Roman cities and symbolic cities such as "Persepolis".

According to another categorization, cities can have few primary birth patterns. First, those which were created from a village-like core and have turned into cities by increasing their population. Second, cities formed from a primary core which was not a village, as was the case in many Roman cities that in the occupied lands were established from a military castle (castra) and residential sets built for soldiers' settlement and later became large cities. There are also cities that formed alongside increasing settlement and population around religious centers and tombs.

By choosing from and combining the categories reviewed in the previous section and in contribution towards my thesis theme, I here express the general features of cities from their first emergence cities to several pre-planned examples.

2.1.1 Emergence of cities in ancient civilization
(Primary cities)

Primary cities have been studied in their three birth regions:
The first three civilizations of the world based on their time of establishment are Mesopotamia, Egypt and India. Most experts agree that the precedence of city dwelling emerged in Mesopotamia, though there are divergent views over this. (James Morris, 1994 AD)

 (For more information refer to: H. W. Fairman, Town Building in Pharaonic Egypt, Town Planning Review, 1949 AD; James Breasted, Ancient Times, 1935 AD)

a. Mesopotamian cities: *"By 5500 years BC, following 3 thousand years of slow development, farming communities were firmly established on the higher ground and were gradually moving down the valleys of the Tigris and Euphrates as their alluvial deposits dried out and as techniques, especially irrigation, were improved"*. (James Morris, 1994 AD, p. 5)

Of this region's set of primary cities, one can mention for example Choghamish, Chogha zambil (Elamite cities) as well as Ur and Uruk (Sumerid cities). Most of these cities had a religious nature and cause of existence and were mostly places of gathering and of temporary residence for a certain period of the year, though some gradually changed to places of permanent residence. Ur city is the most evident example of a Sumerian city because of its importance as a dynastic capital during this period as well as expanded excavations there. During the third dynasty age, Ur was located in the coast of Euphrates and had just few miles distance from the sea. James Morris in "History of Urban form" explains that based on the excavations, the city in 1700 BC consisted of three major parts: the old city with a surrounding wall, Temenos or religious region and the outer town. The walled city had an irregular and ellipse-like shape and about 3/4 miles length and 1/2 miles wide. It was located on a mound formed on the remainder of the old ruins. The Euphrates flowed along its west side and a navigable canal was existed in its north and east. In 600 BC, the rather irregular plan of city reorganized along rectilinear lines. Altogether, houses were placed next to each other as a growth resulting of primitive villages; grew organically and not according to town planning systems. (James Morris, 1994 AD, p. 6, 7, 8)

(For more information, refer to Michael Pacione; Urban Geography: a global perspective, 2005, p. 43)

b. Egyptian cities: In Egypt, a residency in one place had no continuance and the "Tel", or the result of this continuance in residence, had not been created. Distinguishing the locations of ancient Egyptian cities is therefore hardly possible. According to Henry Frankfort:

"*Each pharaoh took up residence near the site chosen for his tomb, where, during the best part of his lifetime, the work on the pyramid and temple was carried out whilst government was based on*
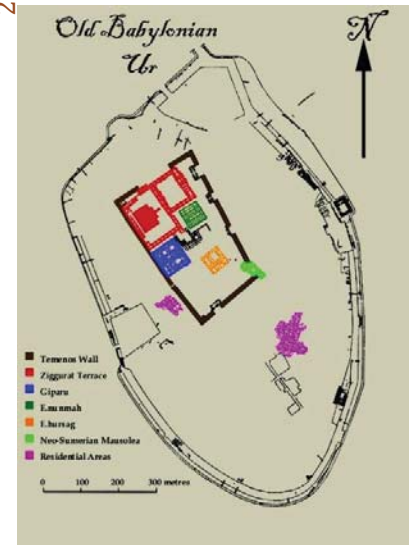
Map 2-2 Ur. A plan of the layout of the city
Ref: www.odysseyadventures.ca

Figure 2-1 Ur Ziggurat
Ref: www.atlastours.net (04.2010)

1- Temenos or castle
2- City's wall and the gates
3- Ancient residential districts
4- Square or urban spaces
5- Harbor
6- New residential districts with gridiron layout
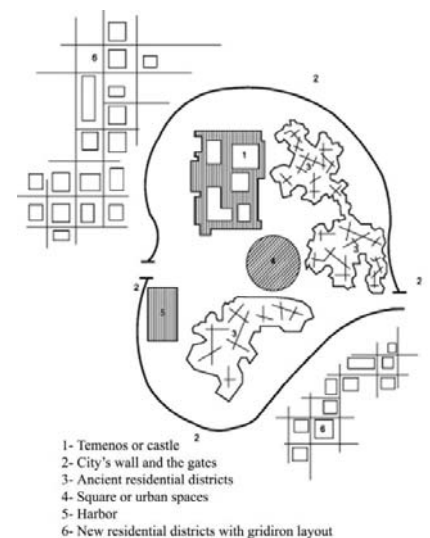
Map 2-3 Physical structure of Mesopotamian city
Ref: writer

the nearest town. After the death of the pharaoh the place was abandoned to the priests, who maintained his cult and managed his mortuary estate unless the successor also decided to build his tomb in the area.'' (Henry Frankfort, quoted by James Morris; 1994 AD, p. 27)

In order to prevent delay for building pharaoh's tombs, Egyptian cities were generally built in one quick stage. This case is seen clearly in the ancient city of ''Tell-el-Amarna'', only part of which is still excavated. This city was occupied only for 40 years. The plan of the city shows a linear extension along the Nile River. There was no definite position for public and religious buildings, no distinct blocks of Insula and definite land subdivision. There was no kind of zoning for different uses. In east side of the city, the workmen's village is located which follows a gridiron planning. Apparently using this regular thoroughfare network was for the possibility of quick resettlement of workers. Anyway, implementation of each urban plan is a sign for existence a kind of political control whether autocratic or democratic which ensure the enforcement of laws by the residents.[5] The significance of gridiron planning in Tell-el-Amarna and its similar, even earlier application at Kahun has been misinterpreted. (James Morris, 1994 AD, p. 28)

c. Birth of city in India: (Harappa Cities): Archeological records prove that urban settlement first came into existence in the west basin of Indus River which had the weather conditions of Mesopotamia region and then spread all over the land so far as the Ganges. Bridget and Raymond Allchin in their book ''Birth of Indian civilization'' indicate that during 6th BC century, the first urban living settlements have been emerged along the Ganges bank. The mature Harappan civilization, said to have existed between 2154 and 1864 BC, and its cities of Harappa, Kalibangan and Lothal as well as others of lesser significance displayed a basic urban form of an imposing citadel located to the west of, and completely separate from, the main ''lower
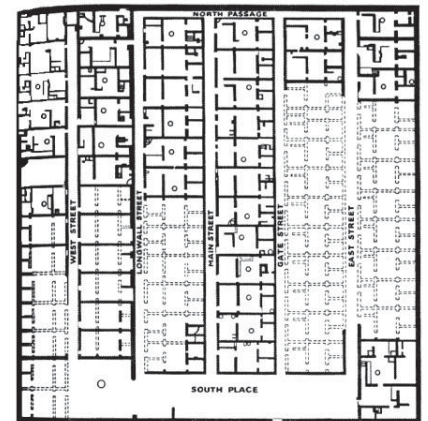
Map 2-4 Workmen's village in Tell-el-Amarna
Ref: James Morris; History of urban form: before industrial revolution, 1994

5 – Professor Fairman says that ''There were no defined blocks of ''Insulae'', no standardized sizes of states. What appears to have happened is that the wealthiest people selected their own house sites, and built along the main streets, to whose line in general they adhered. Less wealthy people then built in vacant spaces behind the houses of the rich and finally the houses of the poor were squeezed in, with little attempt at order, wherever space could be found.'' (H. W. Fairman, quoted by James Morris, 1994 AD, p. 28)

city". The lower cities had more or less grid layouts; the main north-south street axes and east-west crossroads led to the citadel. Mohenjo-Daro was the best documented center of Harappan civilization. The citadel mound at Mohenjo-daro was located above the embankment plain level and was surrounded by a 43-feet height wall of burnt brick. This place was included neither the government seat of an absolute governor nor a dominant symbol of religion such as Ziggurat at "Ur" city, but some buildings for different official and religious purposes. The lower city houses were equally advanced; the entrances to the houses were from minor lanes which were perpendicular to the main routes. Harappa cities are known as the first predesigned settlements, and it has been proven that the gridiron layout provided the foundation of its context. (James Morris, 1994 AD, p. 32-34)

In his book, "Urban Geography", Michael Pacione writes about the Harappa civilization: "*The Harappa civilization appeared around 2500 BC in the Indus valley in what is now Pakistan. It was distinguished by twin capital cities, a northern one of Harappa in Punjab and Mohenjo-Daro, 350 miles down-river. The planned layout of each city was in marked contrast to the organic growth of Mesopotamian cities such as Ur. Both cities were laid out on a gridiron pattern with wide, straight streets forming 1,200 ft × 800 ft (370m × 240m) rectangular blocks. Socio-spatial segregation was common, with blocks or precincts occupied by a specific group such as potters, weavers, metalworkers and the elite. Each city covered approximately one square mile in area (640 acres/250ha) and accommodated 20,000 people*". (Michael Pacione, 2005 AD, p. 44)

Map 2-5 Harappan cities
Ref: www.bbc.co.uk (03.2010)
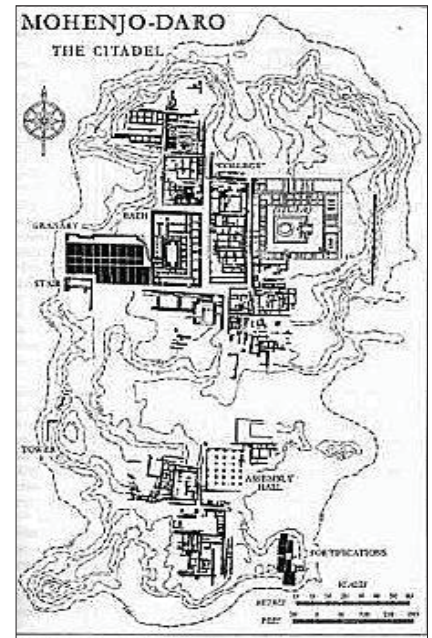
Map 2-6 Citadel of Mohenjo-Daro
Ref: www.mnsu.edu (04.2010)

2.1.2 European cities through the ages
    (Styles, structures and elements)

a. Ancient cities:

Ancient Greek cities such as Athens and Sparta were politically independent and self-managed city-states. These cities cooperated only

in regards to economy and defense. Seldom during the history, had geographical factors such decisive effects on people's attitude and living methods like in Greece. The first of these factors was topography; this factor made the government system of Greece as separate city-states with clearly defined territorial organization. Climate had also a beneficial and incidentally determining effect on ancient Greeks' way of life why weather was usually moderate during the year; this special situation which resulted in open space, social attitude to life, itself caused growth and development of democracy in Greece. The third factor which had a direct effect on the features of Greek cities was availability of high-quality marble stones. (James Morris, 1994 AD)

Quoted Aristotle, Spiro Kostof wrote in "The city shaped" that Hippodamus discovered "*the divisioning of cities*" and that "*he was the first man of those not actually involved in politics to make proposals about the best form of constitution.*" It seems that Hippodamus proposed a political system "*where by the population of the town was divided into three classes –craftsmen, farmers and soldiers- and the land divided into three portions, the first sacred, the second public (to support the soldiers), and the third, private (to be owned by the farmers).*" (Aristotle, quoted by Kostof, 1991 AD, p. 105)

In the plan of urban spaces, there was only minimal concern to people's and families' comfort and contrary to civic buildings, residential units were simple constructions which either settled accidentally in quarters with organic growth or organized rigidly along basic gridiron lines. This evident difference between the splendor of civic buildings and the unpleasantness of residential area is considerable as a particular distinguishing feature of Greek cities.

Based on the studied resources, Greek cities consisted of two main cores: the "Acropolis" as the religious center and the "Agora" as city's beating heart in which placed different activities. The grid pattern which is the base of systematic method for organizing cities was used
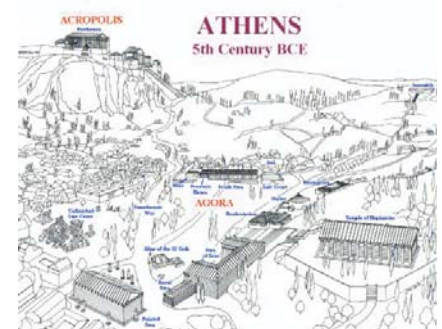
Map 2-7 Athens in 5th BCE century
Ref: www.mappery.com (04.2010)

28

by Greek urban designers in the beginning of 5th BC century, and it shows the first scientific pre-planned approaches in urban design.[6] The clear contrast between two streams of urban development in Greek period is considerable; first the designed form of city whether in the form of new towns or redeveloped urban areas like "Miletus", "Priene" and "Selinus" cities and second, the organic growth pattern for which "Athens" city is the most important example. (James Morris, 1994 AD)

In explanation of Greek city elements, Morris writes: "*The basic elements of the typical Greek city plan comprise the acropolis, the enclosing city wall, the agora, residential districts, one or more leisure and culture areas, a religious precinct (if separate from the acropolis), the harbor and port and possibly an industrial district. The organization of these parts -with the exception of the last two- into a city is most clearly illustrated by the example of "Priene"... Priene city was built on four broad terraces, which descended some 320 feet from the acropolis to the stadium and gymnasium on its southern edge. The basis of the plan is formed by seven east-west streets following the contours, and a total of fifteen north-south stepped paths, giving access between them, up and down the hillside. The agora is in the center of the city.*

"*...The acropolis is the general term for the original defensive hill or top nucleus of the older Greek cities and the fortified citadel of many of the colonial foundations. From being the site of the total urban area, the acropolis either gradually evolved into the religious sanctuary of the city ... Agora was in fact no mere public place, but the central zone of the city- its living heart ... As the focal point of a planned city, the agora was as near the middle as possible in physical, or in port cities, it was located beside the port. ... To quote Wycherley, "The Greeks of the fifth century put their best, architecturally, into temples and public buildings and in the scheme of the Greek city the houses were subordinate. The agora, shrines, the theatre, gymnasia and so forth*

6 – "The master plan for the reconstruction of Miletus was prepared by Hippodamus, an architect from Miletus whose planning work at Miletus and elsewhere led to one of the most marvelous myths of urban history. Traditionally, Hippodamus has been referred as the father of town planning and the inventor of the gridiron but town planning and the grid had a precedent in Elamite cities and especially in Harappa cities." (James Morris, 1994 AD, p. 26-27)
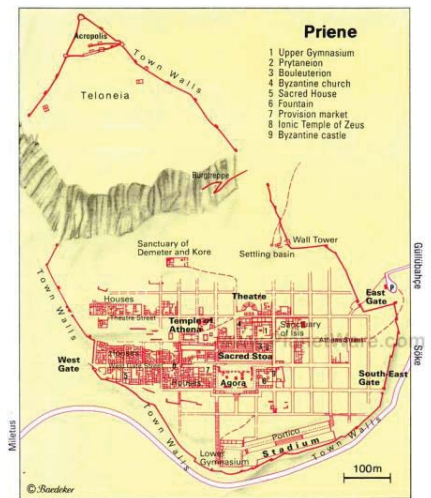
Map 2-8 Priene map
Ref: www.planetware.com (04.2010)
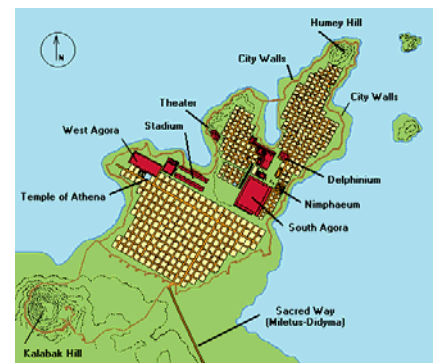
Map 2-9 Miletus map
Ref: www.goddess-athena.org (06.2010)

29

occupied sites determined by traditional sanctity or convenience. The houses filled in the rest." (James Morris, 1994 AD, p. 35-50)

Ancient and autonomous cities also existed in ancient Iran just as in Greece. These cities were more geographically vast and included most of marginal villages and small townships like Susa and Sard Satrapies. (www.Aftab.ir, 07.2008) These kinds of Iranian cities are examined in the corresponding chapter of this thesis.

b. Historical city (Historical period):

The historical period was inaugurated with the establishment of beyond-urban governments in Rome and Iran at the time of Parthians and lasted until the 20th century, though beyond-urban governments had been previously established in Iran in earlier periods (i.e., Median Kingdom). During this period, the city had more the aspect of a political-economic unit and, using special services, eased economic and religious contacts and demands in order to provide the financial and human forces required by such a governmental system. In this method, the city practically played the role of a central store for the production of villages and provided greater technical and industrial efforts as well as cultural and artistic exchanges. This historical role of the city was simultaneously organized by and served the beyond-urban government system. (www.aftab.ir, 07/2008)

Based on ancient legends, the city of Rome was founded in 753 BC. In "The history of city", Leonardo Benevolo wrote about the Rome city:

"*At this moment* [the time of Emperor Trajan (98-117 AD) and his successor, Hadrian]*, when the Empire was at its most prosperous, Rome reached its point of maximum development, while still retaining a carefully planned and coherent physical appearance. The vast public buildings, erected with the help of the best architects and artists of the Empire, maintained the same respect for the balance between*

Map 2-10 Physical structure of Greek city
Ref: writer
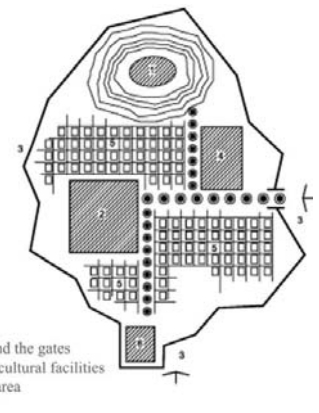
1- Acropolis
2- Agora
3- City's wall and the gates
4- Theater and cultural facilities
5 - Residential area
6 - Harbor

Map 2-11 Seven Hills of Rome
Ref: www.search.com (04.2010)

30

architectural form and decorative refinement that the Greeks had practiced… Successive emperors further embellished the urban area with a variety of additions… In these last works, the classical balance between architectural form and decorative detail was broken… Carving and painted adornment developed into separate elements, unrelated to the overall architectural effect, and the coherence and formal unity of the Greek disappeared completely". (Benevolo, 1980, p. 147)

Sibyl Moholy-Nagy wrote in his book, "Matrix of Men":

"Although some (building complexes) are artfully harmonious in themselves, all are without either relationship to each other or to public spaces or to the continuity of the streets. Even the most grandiose spatial conception, the imperial forums, does not play a compositional part in the over-all city plan… Perhaps it was the irregular ground that made orthogonal planning impossible …" (Moholy-Nagy, 1969, p. 58)

In this regard, Morris wrote: *"The total contrast between the chaotic organic growth of Rome itself and the regulated formality of the great majority of Roman provincial towns is even more marked than that between Athens and the numerous systematically planned Greek cities of the post-Hippodamian period. This is due partly to the extreme size and population of the city of Rome."* (James Morris, 1994 AD)

The population of Rome estimated to be at least 1,200,000 in the second century AD. Probably, Rome was the most interesting and complicated urban agglomeration in ancient history.[7] From a physical construction point of view, it was a nonhierarchical city, except for the emperor's palace on top of Palatine Hill and few independent worker quarters, rich and poor, the common people and the elite lived next to each other. Rome was a city full of small storekeepers most of were busy with give and take from the ground floor of Insula buildings, though the major concentration was around the city's fora and specially "Forum of Trajan". Romans for ruling throughout their vast empire and

7 - "Rome was therefore predominantly a city of flat-dwellers, living in buildings which as early as the third century BC had reached up three floors. As the population increased still further so did the height of buildings. Rome, city of the Seven Hills, had its origins in the several villages built by Latin tribes they moved down to the Tiber plain from mountains to the south-east. Seven hills are "Palatine", traditionally the home of the early Romans, "Capitoline" that of the "Sabine" tribe, Caelian, Esquiline, Viminal, Quirinal and Aventine. From the first three settlements (those on the Palatine, Capitoline and Quirinal) expanded down their hill slopes on to the lower ground to coalesce into one continuous urban area, though to the present-day Roman planners, the architects and engineers have been engaged in a continuing struggle to overcome the intrinsic deficiencies of the site. Rome has been fortified seven times, within seven lines of walls." (James Morris, 1994 AD) "The street system was the worst of the public works. It developed into an 85 kilometer network of winding thoroughfares almost invariably on the narrowside. There were itinera, which were solely for the use of pedestrians, actus, which were broad enough to take one cart at a time, and viae, which could accommodate two carts side by side. There were only two viae in the center of the city. There were two basic types of housing found in the city: "the "domus" were the characteristic single family houses of Mediterranean cities, built on one or two storeys and facing inwards rather than outwards…covered an area of 800 to 1,000 square meters… They were the exclusive domain of rich families who could afford to pay for the land on which they stood. The "Insulae" were residential blocks on several floors, designed for multiple occupations and covering an area of 300-400 square meters." (Benevolo, 1980, p. 147)

keeping it, established thousands of fortified legionary camps known as "Castra". Although Castras were only temporary camps, many of them formed the base of permanent towns. In addition, many other towns were founded for political and economic purposes. Permanent urban settlements, whether developed from the Castra or other special origins had similar standard and simple plans. Perimeter of the city was usually square or rectangle. There are two main cross streets forming the basis structure of the street; decumanus which passed through the center and cardo which usually bisecting the decumanus vertically and towards one end. Secondary streets completed the grid layout and formed the building blocks, known as Insula. The forum- the equivalent of Greek agora for Romans- was generally positioned in one of the angles which formed by the intersection of the decumanus and the cardo. It was consisted of a colonnaded courtyard and a meeting hall positioned at one end. The main temple, the theatre and the public bath were placed near the forum and in the center of the town. The amphitheatre which required a large space and sloping ground was usually outside the town. Due to the strong frontier defense of the empire, fortifications were sometimes eliminated though later during insecure periods, the necessity of fortifications was proved. Roman urban design implied grid structure with no difference both for new and rebuilt towns. Unlike their Celtic predecessors and German successors who preferred comparatively isolated but easily defendable hilltop sites for dwelling, the Romans

Map 2-12 Plan of ancient Rome
Ref: www. Ih.k12.oh.us (06.2010)

chose river crossings and route intersections. (James Morris, 1994 AD, p.55 to 65)

The urban beginning of many great and modern European cities including London, Brussels, Seville, Cologne, Paris, Vienna and Belgrade, can be traced back to Roman influences,. (Michael Pacione, 2005 AD, p. 46)

"Mumford considers "Timgad" to be an example of the Roman planning art in all its latter-day graces. Timgad is a well-preserved North African example of a Roman legionary town. It was founded in 100 AD by the Emperor "Trajan" for the retired veterans of the third legion who garrisoned the nearby fortress. Upon completion, the town was laid out on an almost square plan with sides of about 30 acres. Later, suburban additions were added, mainly to the western side. The plan had a rigid gridiron pattern formed by eleven streets in each direction, which intersected to give square insulae with sides of 23 yards". (James Morris, 1994 AD, p. 76)

Many British-Roman cities embraced all or the large part of military castles or former castras. Castras, similar to all military camps over the course of history, were always the site of bartering in a bazaar and later changed completely into urban settlements. These cities usually emerged from a military center located near a city that had grown organically. There, systematic town planning was unknown before Julius Caesar's conquering of Britain and the largest tribal capitals were probably not more than informal groupings of simple cottages grouped together inside earthwork defenses. Londonium (London) was established as a military base and a commercial center. As growing steadily, it had approximately 325 acres of area when the Roman wall was built in the third century AD. (James Morris, 1994 AD, p. 85, 86)

Pacione describes the end of this period as follows:

"With the fall of the Roman Empire in the fourth century AD, Muslim control of the Mediterranean trade routes during the seventh

Figure 2-2 Timgad area
Ref: www.wikipedia.org (03.2010)
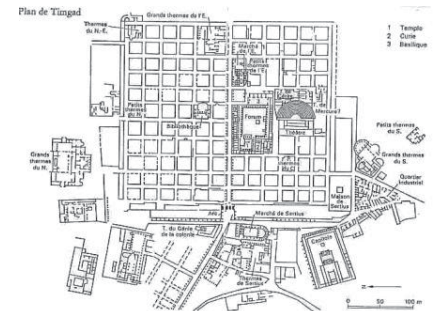
Map 2-13 Plan of Timgad
Ref: www.people.cohums.ohio-state.edu (10.2010)

1- Forum
2- Temple
3- Theater
4- Public Bath
5- Town
6- Main gate
7- City's wall
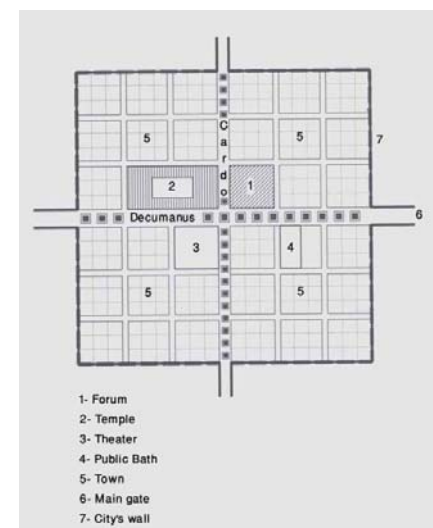
Map 2-14 Physical structure of Roman city
Ref: writer

and eighth centuries and increasing Viking raids from the north in the ninth century, much of Europe entered a Dark Age of economic and cultural stagnation." (Michael Pacione, 2005 AD, p. 46, 47)

c. Medieval City (Christian-City)

This historic period of urban development began immediately after the collapse of the Roman Empire in the fifth century AD. "*The most obvious effect of the economic and political crisis that gripped Europe following the collapse of the Roman Empire was the decay of the cities and the dispersal of their inhabitants into the countryside, where they were able to live off the land… In this rural society, which formed the basis of feudal society, cities played a very secondary role: they no longer functioned as administrative centers, and they became less and less important as trading and manufacturing centers.*" (Benevolo, 1980, p. 254, 256)

At this time, the church was the only centralized institute having an extended hierarchy in all of Europe. More changes to urban form emerged in these centuries, but the dispersion and destruction of a political focus, especially in the first period of the Middle Ages, had a very negative effect on the process of urbanization and city dwelling. In this period, two basic institutes began forming across Europe: seigneurialism followed by feudalism.

In the ninth century AD (800 AD) following the reformation of the French Empire and the improvement of the overall economic and political situation, Europe was confronted with an expansion in city dwelling.

Beginning in the tenth century AD, the growth of agriculture and commerce in Europe resulted in a population increase and an improvement in the general situation of Europe. In this period the governance of the seigneurialism and the settlement of the lord in his castle and within his agriculture lands as well as the settlement of his

dependants around him, the central core or in fact the urban seed was formed.[8] In his book, "The history of city", Leonardo Benevolo wrote that: "*The medieval city-state depended on the countryside for its food supply… Unlike the Greek city, however, it did not grant equal right to its rural inhabitants…* [and] *whose politics were oriented to coincide with the restricted interests of the urban population.*" He described the universal characteristics of the medieval towns in relation to the political, economic and physical features as follows:

- Irregular appearance and unified street system and accessibility
- Projecting parts of a building over a street
- A rather complex layout of public areas in the cities
- The division of the city into different quarters; each has its own character, emblem and often political organization
- The city center was the living place of well-to-do people and was the most sought-after area
- The city had a surrounding wall to defend it from the outside world. A new wall was constructed when there was no space left for building inside the existing walls. This was the reason for the density of houses and the height of the buildings in medieval cities. (Benevolo, 1980, p. 293, 308, 309, 310)

At the beginning of the tenth and eleventh centuries, political stability and revival of trade gave renewed life to many Roman towns; burgs were converted to commercially orientated towns and in this way the gradual transmutation course of villages into towns began. (James Morris, 1994 AD, p.92)

Most European cities emerged during the interval of the 12th and 13th centuries AD. With the intense extension of city dwelling and the flourishing of cities, seigneurial and feudal relations weakened and cities became relatively more civil and earned judicial independence. Because of the population density and the creation of family gatherings

inside cities, tight, narrow and irregular lanes in these cities were in common use.

Since the tenth century AD, The role of merchants began gaining in importance in Europe. In the city of Luebeck in Germany, the importance of trade and commerce was reflected in its urban structure. The medieval cathedral and monasteries of the town were dominated by the central marketplace which consisted of shops in special areas arranged for each range of specialist merchants and craftsmen (e.g., a street for bakers, blacksmiths or tailors); living quarters located above the shops. A mint, the new engine for the medieval monetary economy, was located near the marketplace.[9] (Michael Pacione, 2005 AD, p. 47, 48)

The outbreak of the plague in the mid-14th century resulted in a temporary pause in city dwelling, but was also a preface for the advent of European absolute rule, which struck the final blow on feudality and seigneurial relations in Europe and paved the way for Europe's transition to Renaissance and ultimately to great social-political revolutions. (Fakuhi, 1383 AHS/2004 AD, p. 70)

Medieval, in fact, was the beginning of urban development age in Europe. The towns also displayed an almost unlimited variety of different forms. But many similarities such as feudality, the revival of commerce and the role played by the church and the medieval industry situation resulted in common features in the form of major cities of Europe in that period. The accessibility network structures of the great majority of rebuilt Roman towns, as well as of many of those which had continued to exist in the Dark Age were as much the result of the original gridiron layout as the organic growth process. There are also a few examples of newly planned additions to organic growth towns. They are also similar in most of their visual characteristics.

The components of the medieval town were generally the wall, with its towers and gates, streets and other circulation spaces, the marketplace which probably included a market hall and other

Map 2-15 The urban structure of medieval Luebeck
Ref: Michael Pacione; Urban Geography; a global perspective, 2005

9- Michael Pacione writes in his book "Urban Geography": "Despite the central importance of commerce, the medieval town did not server links with the surrounding area but enjoyed a symbiotic relationship with the countryside. In particular, medieval towns, with their poor hygiene and higher mortality, grew only because of the influx of rural immigrants seeking employment and economic opportunity. Many cities, such as Venice and Nuremberg, annexed large areas of their surrounding lands to guarantee food supplies (a rural-urban symbiosis that remains common in modern China).
In addition to the commercial function, the main characteristic of the European medieval city that distinguished it as a separate entity was its legal status, which afforded citizens privileges denied to rural dwellers. The dictum that "town air makes free" was a powerful attraction for the rural peasantry and a major force for urban growth. The same privileges did not extend to medieval towns elsewhere." (Michael Pacione, 2005 AD, p. 48)

commercial buildings, the church, usually located in its own particular place, general buildings and private gardens of city.

The wall in Europe, in addition to being used as a customs barrier, kept its primary function as a defending element and considering that, horizontal growth process could not be easily possible and usually resulted in establishment of multiple walls in different urban development periods. Florence and Paris are clear examples for this concentric-ring growth.

Main thoroughfares, especially in planned towns were laid out from city center to gates and were naturally different from narrow and irregular lanes in organic growth towns. All medieval towns had at least one open space acted as a market. Although Howard Saalman emphasizes that the existence of such commercial spaces should not prevent of realizing the truth that in fact the entire medieval city was a market. Street frontage, especially near the gates and market was therefore considered a commercial investment. In all European countries, the street markets were in common use and probably the most important examples are in Germany, Austria and Switzerland.

During Middle Ages, buildings tended to intrude into streets, bridges and also public open spaces. Upper floors of the buildings advanced over the street even more; eventually shaking hands became possible through opposite windows. Thus the traditional street scene in medieval city - that informality romance and fantasy state full of visual amazements- was formed. More important is that this scene was clearly resulted from complete accidental growth although there was often collective action more than be anticipated. To make use of every foot of street frontage, houses in the streets located linear and continuous with ample gardens situated in the back all which symbolize the middle age business city. Of course because of overcrowding, these open spaces including gardens reduced especially in the end of Medieval and beginning of Renaissance.[10]

Map 2-16 Plan of Paris (1422-1589 AD)
Ref: www.wikipedia.org (06.2010)

10 – "two types are common in both planned and organic growth towns: first, where the market occupies a square to itself, normally located at or near the center; second where it is located at a widening of a main street. Paul Zucker defines two further types of marketplace in organic growth towns: as lateral expansions of the main street; and as squares at the town gate. In planned towns laid out with a regular gridiron structure, the market square is the most frequent type." (James Morris, 1994 AD, p. 101)

Parvis, which was the open space before the church frequently adjoined the market square, creating a two-part nucleus in the town; another typical feature of both planned and unplanned medieval towns. (James Morris, 1994 AD, p. 92-105)

"Generally speaking, it can be said that the builders of Middle Age cities didn't have a special premise about the form and totality of a city … whilst Zucker's statement that, 'except in the comparatively few planned towns, the organization of a town as a whole was neither understood nor desired by the builders of the middle ages'; is a fair summary of the situation, we must be careful not to presuppose that there was absolutely no concern for spatial organization or aesthetic unity." (James Morris, 1994 AD, p. 101, 102)

1- Square
2- Church
3- Parvis
4- City's wall and the gates
5- Residential districts
6- commertial
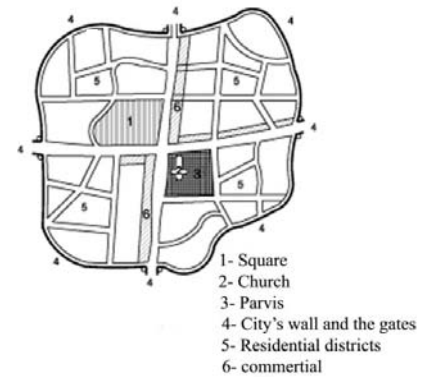
Map 2-17 Physical structure of mediaeval city
Ref: writer

d. Renaissance city (Neocene period)

The growth of cities is a prominent feature of the Renaissance period and was exemplified most completely in Italy and then Spain. The wealth and power of Italian merchants and traders of Venice and the development of commerce brought great affluence to Italian cities and provided the opportunity for expansion and renewal.In the late fifteen AD century, about ten cities in Europe had a population of more than 50 thousand persons, seven of which were located in Italy, and four cities had a population of over 100 thousand persons. During the years 1610 to 1660 AD, 17 cities had more than 50 thousand inhabitants, eight of which Italian.

The Renaissance sparked extensive changes through the combination of spaces and urban contexts. These spaces opened more than ever and extended outwards. Renaissance cities were beautiful, glorious with splendid statues and squares and had very beautiful inner spaces full of artistic paintings and engravings. (Fakuhi, 1383 AHS/2004 AD) The term Renaissance means, literally, rebirth: a revival of interest in the classical art forms of ancient Rome and Greece. The earliest

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Renaissance urbanism is considered to be the "Via Nova" in Genoa of 1470 AD. The Renaissance coincided with marked increases in the extent and population of European cities and in the closing decades of Renaissance did industry become a significant generator of urban settlement.

In his book, "History of urban form", James Morris writes: "*urban design appeared in this period in three different methods and forms. First, the emergence of new cities from the 15th to the 18th centuries AD, which were primarily either of a strategic military origin, like Palma Nova in Italy, Neuf Brisach as a Vauban example in France and Christiansand in Norway, or the result of autocratic rule, like Richelieu and Versailles in France and Karlsruhe in Germany. St Petersburg, the only example of a major city founded during the Renaissance period, combines both origins. The second and third methods -the most major appearances of Renaissance urban design- are recognizable by the expansion of existing urban areas or the redevelopment of particular parts of the city.*"

Five broad areas of Renaissance urban planning can be distinguished: fortification systems, regeneration of parts of cities by the creation of new public spaces and related streets, restructuring of existing cities by the construction of new main street systems which, extended as regional routes, frequently generated further growth; the addition of extensive new districts, normally for residential purposes; and the layouts of a limited number of new towns.

As Morris has mentioned in his book, Renaissance urbanists can be seen to have had three main design components at their disposal; first, the primary straight street; second, grid-based districts; third, enclosed spaces (squares, piazzas and places, closed traffic axes with special thoroughfares for pedestrians).

The primary straight street which was liberated from acting as the mere access to a building block as well as being an urban extension of

Map 2-18 Urban structure of Palma Nova in 1593 AD
Ref: www.en.wikipedia.org (04.2010)
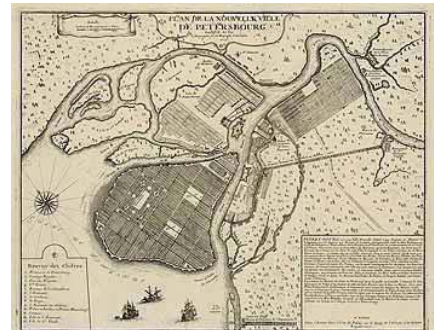
Map 2-19 St Petersburg in 1717 AD
Ref: www.wlf.photobank.com (04.2010)

1- Square
2- Closed residential space
3- City's wall and the gates
4- Residential area
5- Ditch
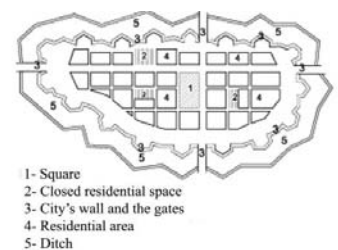
Map 2-20 Physical structure of Italian Renaissance city
Ref: writer

the national highway is a Renaissance innovation in urban design. The street was also introduced as an entire architectural element and its function was changed during the Renaissance period. The grid layout was used as the limits for dwelling regions or in the structure of new cities.

Walled and enclosed spaces received various appearances in Renaissance urban design structure: first, as traffic space which was part of the main urban route system so that before increasing urban traffic in 19th AD century, only few examples of specific designed spaces at the intersections of main streets were seen. Second, the creation of closed spaces made by buildings and elements rather than monumental elements; which is probably the most interesting role of the Renaissance period urban design. This space in the form of a square with central green space provided a basis for urban family life. Third, the creation of pedestrian spaces in which basically wheeled traffic was forbidden or movement of vehicles was organized so not to affect on pedestrian walk. Such spaces mostly used as square or the place for public gatherings in front of important civic, religious or royal buildings of (for example the Piazza of St Peters and Michel Angelo's Capitoline Piazza in Rome).

During the Renaissance period several design principles determined the attitude of urbanization in all countries: first, a special attention to symmetry which determined the structure of the elements of an urban design project to make a balanced composition around one or more main axes; Second point that designing with closed views through precise positioning of monumental buildings, obelisks or specific and suitable statues at the ends of long and straight streets, had a special importance; Third that integration of individual buildings into a single, architectural, coherent ensemble by repeating one pattern; fourth, using perspective theory which was one of effective facts in the art history. [11](James Morris, 1994 AD, p. 157-186)

1- Square
2- Church
3- Arcade
4- Town
5- Main gate
6- City's wall
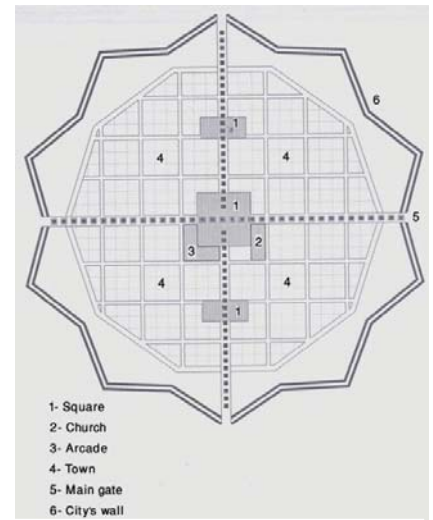
Map 2-21 Physical structure of French Renaissance city
Ref: writer

Figure 2-3 Piazza of St Peters, Rome
Ref: www.greatbuildings.com (04.2010)
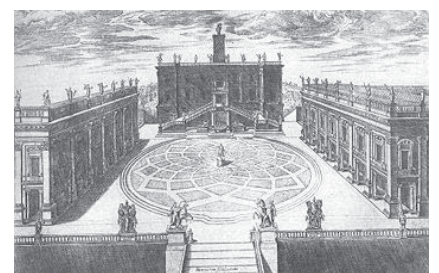
Figure 2-4 Capitoline Piazza, Rome
Ref: en.wikipedia.org (04.2010)

e. Industrial and post-industrial city

In the second half of the 18th century, through the development of industrial centers in cities and the increase of their population, Europe was encountered with a crisis situation of increasing prices in cities and an expansion of poverty, which occurred more than before in the cities of industrial countries such as England and France. The special feature of this period was the start of extended immigration of villagers to cities. In this period, industrial cities demonstrated a disorderly gathering of factories, workshops and workers' dwelling quarters, resulting in a very uncomfortable living situation. The European revolutions of 1848 were largely a result of these pressures. These critical situations resulted in extended immigrations during the 19th century and the formation of new cities in other parts of the world including America, Australia and South Africa.[12] Benevolo called these cities by a strange name of "liberal city" which was the result of the unregulated and uncoordinated superimposition of countless public and private developments and individual freedom was demanded as a pre-condition for the expansion of the industrial economy. (Benevolo, 1980, p.755)

Benevolo described the principal factors that affected the basic nature of urban and rural areas at this period as follows:

- The birth rate exceeded the level of deaths which resulted in the increase in population

- The increase in goods and services produced by agriculture and industry because of technological advances and economic expansion

- The redistribution of population: influx of people from the land towards urban areas in which factories and industrial centers were concentrated

11- The features of Renaissance town planning in comparison with Gothic and Baroque are explained by Morris as follows:
Gothic: asymmetrical massing, punctuated skylines and frequently intricate detailing. Renaissance: rejecting asymmetrical informality for a classical sense of balance and regularity. Emphasis was placed on the horizontal instead of the vertical. The desire for discipline and order was in contrast to the relative irregularity and dispersion of Gothic space. The impact of Renaissance is slower and quieter, but more enduring. Renaissance spatial organization aspired to a quiet, self-contained balance: the result is essentially limited space at rest.
Baroque: a definite sense of direction and not permanent and repose, Baroque wants to carry us away with the force of its impact, immediate and overwhelming. Its impact on us is intended to be only momentary. Baroque urbanism either strived for an illusion of infinite space, when contained within small scale limits. (James Morris, 1994 AD, p. 159-161)

12- "The complex series of innovations commonly referred to as the industrial revolution emerged in Britain from the mid-eighteenth century onwards, spreading from there to the European mainland and ultimately to other parts of the world during the nineteenth and twentieth centuries. The industrial revolution is typically thought of in terms of technology – the invention of complex machines and use of inanimate energy sources that greatly increased worker productivity – but important cultural, social and population changes were also involved. It is important to understand these and their effects on the form of the city." (Michael Pacione, 2005 AD, p. 50)

- The development in communication: the possibility of transportation for people and goods

- The speed and open-ended nature of these transformations and the failure in reaching a new period of equilibrium

- The new trends in political thoughts in order to weaken the traditional forms of public control over the environment, were regarded as remainder of a past period. (Benevolo, 1980, p. 733, 734)

In his report, "Towards Urban Renaissance" Lord Rogers of Riverside wrote: "*The industrial age was a period of phenomenal urban growth which made a lasting and indelible mark on the British attitude towards the role and function of the city. It marked a point of departure from the continental attitude towards urban development and urban living. The industrial city, with its population, its slums and its short term vision, destroyed our confidence in the ability of the city to provide a framework for humane civic life*." (Lord Rogers of Riverside, 2002, p. 26)

New approaches to urban organizing were needed to change the crisis-ridden situation of the 18th century with its new complications to beyond-industrial cities of the 19th century. The illustration of this evolution can be seen in the later years of the 18th and the beginning of 19th centuries in the cities of Europe.

The industrial and post-industrial city in fact claims that the city consists of order, symmetry, repetition, direct and straight lines and intellectual divisions and therefore tries to expel each kind of disorder and chaos from itself. In this way it ratifies hard laws against all the poor, slum-dwellers and vagabonds. (Naser Fakuhi, 1383 AHS/2004 AD, p. 93)

Since the beginning of the 19th century, urban development appeared at larger scales in all regions of the western world. At first, most such cities were extracting or factory production centers or both and in turn attracted the torrent of population toward themselves. It is this accelerating expansion and increasing number of cities and their

Figure 2-5 An Industrial city
Ref: www.wmatem.eis.uva.es (07.2010)

population that is the most prominent urban design phenomenon of the 19th century. Social disorder in the cities in first half of 19th century is evident and it was because of the separation in thought and feeling methods during this period. The increasing number of cities and expansion of industry had complete continuity with each other; the transformation of London from a small town to a large city during the 19th century occurred within a 50-year interval of this change taking place in Paris city.[13] (Hosseyn Shokuhi, 1358 AHS/1979 AD)

Based on "The Story of Modern Architecture", since beginning of 19th century, especially between 1830 and 1850 AD modern urban design was born. People's coexistence in industrial cities popped up new problems related to urban establishments: the existing facilities in old cities were not sufficient for new needs anymore and suitable tools for new situation should be established (for example urban sewage and litter networks, developed water systems and …). Cities became larger year to year and some such as London gained much larger dimensions so that its population in the late 18th century was about one million persons. (Leonardo Benevolo, 1971 AD, Persian translation by Bavar, 1358 AHS/1979 AD, p. 90, 91)

England's first public railway was opened in 1825 and the first locomotive started to operate in 1829; France and the United States of America received this innovation in 1830, Belgium and Germany in 1835, Russia in 1838, and Italy and the Netherlands in 1839. (Leonardo Benevolo, 1971 AD, Persian translation by Bavar, 1358 AHS/1979 AD, p. 97) It seems that industrial and post-industrial changes, or in other words the spread of modernity, also followed such an order in these countries.[14]

The Industrial Revolution made a great change in economic-social and cultural systems. These changes first appeared in societies that were sooner confronted with the effects of the Industrial Revolution. Economic factors have a determining role in cities' development, especially in cities that emerged after the Industrial Revolution. It is not

13 - In the beginning of Industrial Revolution, 1/5 of England's population lived in cities and the 4/5 remainder in farms and villages. Around 1830 AD the number of city-dwellers was almost equal with villagers. However in our period more than 4/5 of England's people live in cities. (Leonardo Benevolo, 1971 AD, Persian translation by Bavar, 1358 AHS/1979 AD, p. 88)

14- "For Weber (1958), a fundamental change in western cultural values was a prerequisite for the industrial revolution. Central to this was the concept of profit … In the absence of profit (defined as the excess of the selling price of goods over their cost) there could be no large capital accumulation to invest in the development of industrial society. This change in social outlook was stimulated by the Protestant Reformation, which fostered a new set of values that stressed rationality in interpersonal relations, including trade, hard work and the right to the material rewards of one's labor." (Michael Pacione, 2005 AD, p. 50)

an exaggeration if we consider many of today world's issues and problems as the result of the severe influence of this factor in comparison with other effective factors. The quantity and quality of a city's structure are determined by its production activities, income or its economic status in general and most of large cities developed because they were sites of the production and distribution of goods and economic activities.

Michael Pacione writes in his book "Urban Geography" about the industrial and post-industrial city:

"*The nineteen century witnessed the flowering of industrial capitalism in Western Europe and the rapid growth of the European industrial city. A major driving force was the factory system with its economies of scale, increased productivity and higher levels of output. The need for a large pool of labor as well as ancillary services and markets for their products encouraged factories to cluster together in towns. Successful towns attracted further economic activity that drew in more migrants in scratch of work in a cumulative process of growth[15]. In many of the great nineteenth-century industrial cities, wealth found civic expression in monumental public buildings and cultural institutions.*

"*Industrial capitalism also brought a major realignment of social structures with the creation of two main classes:*

1. Capitalists, who invested in labor with the goal of realizing a profit;

2. Labor, that sold its skills to the owner of capital in return for a wage." (Michael Pacione, 2005, p. 51)

[15]- "Town populations grew apace. By 1800 London was the largest city in the world, with a population of over 900,000. The population of Birmingham increased 273 percent between 1801 and 1851 from 71,000 to 265,000. Manchester grew from 75,000 in 1801 to 338,000 in 1851 (a growth of 351 per cent) and Glasgow from 84,000 to 350,000 over the same period (an increase of 317 per cent). Lawton (1972) estimated that almost all the 27 million increase in the British population between 1801 and 1911 was absorbed by urban areas." (Michael Pacione, 2005 AD, p. 51)

f. Modern city

Until the middle of the 19th century, industrial cities became increasingly condensed and produced serious structural disharmonies.

It should be mentioned that without Haussmann's Parisian street model and the pattern and great works that he performed in this city immediately after the ascension of Napoleon III and with his support , such a phenomenon in urban design, whose main stimulus were political problems, could not have taken on such surprising a speed.[16] Haussmann, the governor of the Parisian "Saint" district from 1853 to 1869, was responsible for designing and performing all urban design programs and the structural evolution of Paris. His efforts in the city followed a pattern since observed in many European cities. In Europe, the faults of copying Haussmann's works appeared soon. In 1889, Viennese urban designer Camillo Sitte in his book named "Der Staedtebau" suggested returning to artistic methods of Medieval. Siegfried Giedion wrote that technical and industrial factors should not be used to complicate urban life as in the 19th century, but vice versa, these factors should be used for resolving difficulties; only in this could urban units achieve movement and life. (Siegfried Giedion, 1941 AD, Persian translation by Manuchehr Mozayeni, 1354 AHS/1975 AD)

In the first half of 20th century, the conditions for transferring factories and removing them from the central parts of western cities developed; this was the preliminary step for the zoning cities and suburbs and the land-based allocation of particular activities and roles.

In his book, "Matrix of Man", Moholy-Nagy wrote:

"*CIAM, the congre´s internationaux d´Architecture Moderne, was founded in 1928 by a group of well-known modern architects. They developed a basic CIAM grid to serve as matrix for the re-planning of thirty-six cities in many countries and climatic regions. Man's urban needs were established as dwelling, work, communication and recreation, denying 5,000 years of emotional identification of city dweller and power image.*" (Moholy-Nagy, 1969, p. 195) In 1933, CIAM compiled the "Charter of Athens" in order to cut the old industrial and populous city to pieces and reorganize it according to its function and

16 - Haussmann's works during 17 years of his power are divided into four groups: First, exclusively construction works including establishment of new districts, laying out new streets in old quarters, reconstruction of building in the margin of new streets; Second, establishment of gardens and public parks; third, some renovation activities for water-sewage installations and other Paris's old utilities and fourth, reconstruction of official organization buildings in Paris. (Leonardo Benevolo, 1971 AD, Persian translation by Bavar, 1358 AHS/1979 AD, p. 132-151)

Map 2-22 Paris, Haussmann center, the main lines created or transformed between 1850 and 1870 in the center of Paris
Ref: www.en.wikipedia.org (06.2010)

performance. In this period, the idea of land subdivision was proposed. In reaction to the antiquated and overcrowded centers of cities and the unrestrained growth of residential blocks around them, urban planners began constructing completely separated city districts, each allocated exclusively to dwelling, industry, transportation or leisure time. (Michael Monninger, 1993 AD, translated into Persian by Shahrzad Mahdavi, 1373 AHS/1994 AD)

Modern designers with absolute authority and power used concepts such as the grid layout, hierarchy simplicity, monotony, low density, regional subdivisions, the international style, large-scale engineering, the separation of history and tradition, advanced construction techniques and machinism. They thought in the scale of moving vehicles. (Francis Tibbalds, 1992 AD, Persian translation by M. Ahmadinezhad, 1383 AHS/2004 AD)

Monninger counts the features of a modern city as follows: being scientific (the birth of the urban design field as an academic discipline), technology and industrial evolutions, intense changes in their old context and destruction of old works, the speed of urban construction activity, the production of new uses (railway stations, subways, zoning), the eradication of god (the change of a city's centrality from a focus on the church to economic centers as well as a change in the concept of pilgrimage to tourism), criticism and rethinking and an increase in the middle class. (Michael Monninger, 1993 AD, translated into Persian by Shahrzad Mahdavi, 1373 AHS/1994 AD)

The industrial style was the final product of modern thinking in urban planning. Some generalities of its principles in regional and pragmatic planning are including historical interruption, a pure contact with nature and anti-environment, Euclidian, logical and calculating designs and ordered and hierarchical planning. Today, the design principles have unintentionally created the same crisis that they intended to overcome. Single performance regions, owing to inflexibility and having inadequate density, have changed into obstacles in the path of dynamic urban development. The pressure applied to the

suburbs of cities that are surrounding open lands with uses such as sheer commercial, official or touristy has caused the separation of occupation place from dwelling place and covering long distances. (Michael Monninger, 1993 AD, translated into Persian by Shahrzad Mahdavi, 1373 AHS/1994 AD)

Destruction caused by the Second World War and the necessity of extended reconstructions especially in European countries who had been damaged during the war, suggested different designs in civil, development and review on modern urban design methods and paved the way for formation of post-modern and beyond-modern urban design theories.

g. Post-modern and beyond-modern City

More than 200 years following the beginning of the Industrial Revolution and then the realization of the modern city by Haussmann's first efforts in Paris, modern positivistic, scientific and logical thoughts that were influenced by critical thought in its nature, resulted in several self-reviews. These enunciated beyond modern and post-modern cities in their different types; thus were industrial and beyond-industrial city transformed into the Le Corbusier's *Radiant City* and *the city of tomorrow* and then into a post-modern *City Beautiful*. Cities that survived the 200 years of evolution resulting from industrialization and modernism have obvious features such as extension, zoning, a general lack of identity, heavy automotive traffic, a great distance between occupation and dwelling places, environmental pollution, and so on. Critics and urban design authorities have thereby in recent decades shaped their reforms from new and executive viewpoints.

Ever since Christopher Alexander proposed his people-friendly urban design based on the three principles of organic order, citizen participation and environmental recognition, urban design fundamentals has been geared towards considering the citizen's share in the official urban decision-making process. Modern planning with a

long-term view determined the position of physical planning in the forms of comprehensive, conductive and detailed plans. Different social trends and unpredicted events have therefore been less frequently considered in this planning, though beyond-modern urban design nonetheless plans flexibly for a variable and complicate society with an unforeseen future. So that urban design projects conform to society's changing needs and are not only methods and tools for reaching an aim, but the aims of the plans themselves have the capability to reform and change according to circumstances. In this regard, beyond-modern architecture can review the entire natural continuity progress of a project according to its specific needs. Other features of beyond-modern urban design include the accordance of planning with the various needs of each individual citizen, an attention to the quality of urban spaces rather than a mere performance-based view, attention to identity and values and heritage buildings, and finally, in contrast to a centralized hierarchical relationship between urbanism and democracy in Modern urban design, the post-modern that gives priority to common, has a decentralized participatory hierarchy in which public input plays a key role in the planning process. This has been one of the keys to the success of today's urban design.

Although the Garden cities' theory was firstly created by Ebenezer Howard in 1898, this theory has been redefined by the next theorists for creation of green cities. Lord Rogers of Riverside writes in his report, "Towards an urban Renaissance":

"*At their best, the garden cities and new towns have provided a form of suburban living where the relationship between urbanity and country; of public transport and walkability; of work and residence, continues to hold significant implications for sustainable planning today. Such places represented, however, only a small fraction of a general process of urban decline at the center, and expansion at the*

periphery, of our towns and cities, which began at the turn of the century and continues to this day." (Lord Rogers of Riverside, 2002, p. 26)

Although this summary is not the place for describing the features of beyond-modern urbanism, the following selected topics have been selected from different sources to demonstrate the trends of theorists, philosophers and contemporary urban designers in regards to social justice, ownership, development of public spaces, democracy and sustainable development in the last few decades:

- "Dennis J. Coyle" writes the following about the determination of land use in new urban planning:

"*Land use is not just about dirt and cement anymore; indeed it never was. The question of what uses will be allowed where on the land and who shall decide are inexorably tied up with issues about the nature of society, issues of freedom and responsibility, community and democracy.*" (Dennis J. Coyle, 1993 AD)

- For drawing attention to public activities and to problematic urban social spaces resulting from Industrial and beyond-industrial cities and the role of public participation, "Carol Rose" writes:

- "*In the absence of the socializing activities that take place on inherently public property, the public is a shapeless mob, whose members neither trade nor converse nor play, but only fight.*" (Carol Rose, 1986 AD)

- "Martha C. Nussbaum" also states in her book "Frontiers of Justice" the role of public urban space in making sense of social justice:
"*Public space is arranged to cater to the impairments of the normal case. Public space is an artifact of ideas about inclusion.*" (Martha C. Nussbaum, 2006 AD)

- In describing the policy of economical land management in Germany and the tendency of most urban design theories to sustainable

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development and the conservation of natural resources, "Dr. Benjamin Davy" writes that:

"Thrift refers to the careful and economical use of resources. Emphasizing the scarcity and ecological value of open space, land thrift means that open space should rather not be converted into other uses (e.g. building lands, roads). If land has to be used after all, however, land thrift also means that land must be used carefully and economically." (Benjamin Davy, 2009 AD)

- In explaining social aims of New Urbanism based on the Charter of New Urbanism (Congress for the New Urbanism 2000) and in evaluation of its three social goals of community, social equity and common good, "Emily Talen" writes:

"*This is in fact a long-standing idea that originated with Plato and Aristotle. It states that individual benefit must be secondary to common benefit, that it is possible to maintain conditions that benefit everyone, not just a few. This means that our civic and social institutions, our political and economic system, our environment, and our systems of justice must function in a way that benefits all the people. Certainly, clean air and clean water are prime examples of a common good from which all benefit ... There is thus an inherent difficulty in attempting to translate civic commitment into a utopian community structure that can succeed in contemporary society."*

In another part of this article, she writes:

"One of the most common ways in which social goals are linked to the planning process is through participatory design. In particular, public participation in the design process-through charrettes, for example- is one way to build community, based on the idea that social interaction (during the design process) leads to a stronger, affective type of community. New urbanism is committed to making physical improvements a public matter, emphasizing participatory design and publicly rather than privately produced plans as an approach that is

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likely to increase social interaction and collaboration. New urbanism's focus on the public realm also means that the whole town planning process is concerned with public rather than private matters."(Emily Talen, 2000 AD)

In his book "Urban Geography", Michael Pacione describes the cities of the future after explaining about the "dispersed city", the "compact city", the "regional city", the "network city" and the "solaris three-dimensioned city":

"... In contrast to the centrifugal pattern of urban population change in advanced societies, the centripetal processes of urbanization and urban growth continue to dominate urban population dynamics in the Third World.

"Continuation of these trends means that by 2025, 65 percent of the world's population will be urban dwellers. In the developed world, continued deconcentration of population at the national level and decentralization at the local urban level are producing a 'rurban' settlement pattern in which urban lifestyles influence most of the country." (Michael Pacione, 2005 AD, p. 605)

And in explaining the "virtual city" of the future, writes:

"The virtual city is an extension of the concept of the informational city. For some 'cyber-utopians', the virtual city represents a future urban environment liberated from the constraints of place-bound interaction."[17]

"Human rights", "sustainable development", "justice", "property" and "poverty", are crucial and basic topics in theories and suggestions for the beyond-modern cities of today and tomorrow.[18] Although the beyond-modern city does not claim to eradicate poverty, these cities show a tendency towards democracy and justice and in the direction of sustainable development, in turn working towards eradicating poverty in some way.[19] In his article, "The poor and the land: poverty, property,

[17]- "For others the virtual city heralds a dystopian urban future characterized by the kind of social disintegration portrayed in films such as 'Blade Runner' and 'Judge Dredd'. These extreme visions of the future city are based on a form of technological determinism that ignores the power of society to influence the use made of innovations in telematics." (Michael Pacione, 2005 AD, p. 621)

[18]- Article 25, para. I, of the universal Declaration of Human Rights of 1948 recognizes social citizenship:
"Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.
15 years after the Rio conference, the commission on Sustainable Development put the land rights of the poor firmly into the framework for sustainable development:
Secure access to land and other natural resources is an essential part of the local empowerment of marginalized individuals and groups and can be instrumental in poverty reduction. Access to land is often seen as a prerequisite to gaining access to other to other productive resources. Challenges that need to be addressed for sustainable and efficient land management include: providing secure land rights, strengthening capacities of communities, adapting land use planning technologies, and improving the provisioning of data." (Benjamin Davy, 2009, p. 241)

planning" Benjamin Davy explains the subjects of property, poverty and land policy and demonstrates the developing role of urban spaces in reducing poverty:

"Adam Smith, one of the founding fathers of modern economics, suggests that the government should protect the wealthy … the emergence of the welfare state in many western European countries is a prominent example of not following Adam Smith's advice. The welfare state can be constructed as normative expression of a just society: Helping the poor is a moral imperative.

"People spend much of their time on other people's land. We drive or walk on public streets; we enter shops we do not own; we work in office buildings that are rented from their owners… spatial planners have a huge responsibility for the quality of the commons as spaces of poverty. Of course, not all social injustices can be redressed by restoring drinking water fountains, community gardens and park benches. But planners, by paying more attention to spatial commons, can help the poor claim some of their citizenship rights to land."

(Benjamin Davy, 2009, p. 231, 234, 235, 258)

19- "Ebenezer Howard recognized poverty as a fundamental urban and rural problem. The vision of the Garden City – inspiring to town planning and land policy – employs the metaphor of three magnets, of which the town magnet and the country magnet both have disadvantages associated with poverty. The 'town-country magnet' of the Garden City, however, combines all of advantages of town and country; it renders the Garden City a perfect environment for a society without poverty. Spaces of poverty, however, cannot be eradicated without hurting the poor. Cities without Slums, the name of an alliance of donors and mega-cities that shaped the land policy of the UN Millennium Development Goals, is a dangerous misnomer. There will always be poor people living in the slums, shanty towns, favelas, barrios or gecekondular of mega-cities, or just around the corner." (Benjamin Davy, 2009, p. 240)

2.2 Factors influencing the growth and evolution of cities

In Childe's belief, the quantity and quality changes which have driven man from barbarity to city-dwelling include:

1- The development of agriculture economy

2- The creation of various proficiencies in technology and jobs

3- The use of ships and wheeled carts for making sea and land connections and distant commerce

4- Militarism and the establishment of ramparts

5- The construction of public utilities and buildings and the creation of central organized organizations especially around these thoroughfares

6- An increase in population

7- The advent of visual arts and establishment of monumental buildings (Childe, quoted by Malekshahmirzadi, 1378 AHS/1999 AD, p. 33)

Although Childe's mentioned headings consist of a set of causes and reasons and also chances for not only establishment of a city but also its development, these aren't comprehensive and it appears as though at least two other reasons can be added: first, the geographic and environmental factor, which, though not the reason for the emergence of cities, nevertheless (as an opportunity) greatly influences the development of cities and the reasons for settlement in a particular place; and second, the rule and centrality of government in controlling and policy-making as well as in managing human habitats (villages, …) within a region. This is possibly one of the most important reasons for the emergence of cities and is certainly not included in the militarism and establishment of ramparts category in Childe's vision. This must furthermore be considered as the most important or the main factor apart from economic forces for the existence and development of many cities.

In the first part of "Urban geography: a Global perspective", Michael Pacione writes:

"*Most fundamentally, the character of urban environments throughout the world is the outcome of interactions among a host of environmental, economic, technological, social, demographic, cultural and political forces operating at a variety of geographic scales ranging from the global to the local.*" (Pacione, 2005 AD, p. 3)

In the expression and description of the nature of these factors and processes and the relationship between global and local forces in the construction of contemporary urban environments, Pacione introduces the following seven influencing trigger factors and types of urban change: demographic change, social change, technological change, economic change, cultural change, political change and environmental change[20](Pacione, 2005 AD)

Paying attention to his explanations, one can realize the concept and similarities and differences between these factors from his point of view. It should be emphasized that, although he pointed to the religious factor as a cultural and political factor implicitly as ideology, it seems as though the effective role of the religious factor in the process of urban change, whether at the local or the global scale, has not been sufficiently considered. Second is the interaction and social relations element of urban management and changes, which has a decisive role in determining the characteristic and identity of a city, especially in the contemporary case. This role is diminished and hidden within the explanation of cultural, social and political factors. Following this correction and completion, a review of the mentioned categorization introduces us to a complete set of political, economic, social, cultural and geographical factors as the reasons for the existence or development of cities.

The short review of the course of urban evolution from the last chapter can, in my opinion, divide this historical process into two main

20-Global trigger factors:

- The economy: Economic forces are regarded as the dominant influence on urban change. Since its emergence in the 16th century, the capitalist economy has entered three main phases… The evolution of the capitalist economy is of fundamental significance for urban geography, since each new phase of capitalism involved changes in what was produced, how it was produced and where it was produced.

- Demography: Demographic changes are among the most direct influences on urbanization and urban change. Movements of people, into and out from cities, shape the size, configuration and social composition of cities… Demographic changes are related to other "trigger factors" such as economic growth or decline and political change.

- Politics: Cities reflect the political ideology of their society. The urban impact of political change is demonstrated by the case of Eastern Europe and the former Soviet Union … within western societies, changes in political ideology and subsequent modifications of economic and urban policy have had major impacts on city development … On the other hand, a poitical decision by central government not to provide a financial incentive package to attract inward investment by a foreign-owned TNC can affect the future economic prosperity of a city and its residents.

- Society: Micro-scale social changes can have a significant impact on the character of towns and cities. For example, social attitudes towards abortion or use of artificial methods of birth control may influence the demographic composition of a society and its cities. Popular attitudes towards ethnic or lifestyle minorities can determine migration flows between countries and cities, as well as underlying patterns of residential segregation within cities…

- Culture: One of the most significant of cultural changes in western society in the post-second world war era, particularly from the late 1970s onwards, has been the rise of materialism… The effect of cultural change on cities is encapsulated in the concept of post modernity or post-modernism. This embraces social difference and celebrates variation in urban environments, whether expressed in architectural or social terms …

- The environment: The impacts of environmental change on patterns of urbanization and urban change are seen at a number of geographic scales. At the planetary scale, global warming due to the greenhouse effect may require the construction of coastal defences to protect cities such as Bangkok … At the local scale, 'natural' phenomena such as earthquakes and landslides can force the abandonment of settlements (for example, Third world squatter settlements constructed on marginal lands) or require major works of reconstruction, as in Mexico city after the 1985 earthquake. (Pacione, 2005 AD, p.3-7)

parts, and the criterion of this division is another factor in the formation and development of cities, otherwise known as urban management and planning. The Industrial Revolution and development of human sciences in the 17th, 18th and 19th centuries were certainly effective factors in organizing urban design science, the development and control of cities or effective planning in the establishment of new cities (although, whether in primitive, ancient and historic cities or specially in the Renaissance-period cities, urban management and planning can be seen, though this factor's scientific and fundamental organization was realized following the Industrial Revolution). This factor has resulted in directing, controlling and organizing geographic, economic, social and cultural factors and opportunities towards the evolution of urban design over the course of several centuries.

Without exaggeration, city dwelling in its real and modern sense was first realized following the Industrial Revolution and, in other words, what established the basis of expansion and development of cities is to be found during the 18th AD century and the Industrial Revolution. The discovery of steam power in 1765 AD, the invention of electricity, the automobile, the train and the airplane, in addition to facilitating the conditions for stability and an easier life in cities, resulted in expansion of connecting networks and traffic (comings and goings). These factors prepared the groundwork for the development and growth of towns and the establishment of today's megacities.

The Industrial Revolution and aftermath resulted in a revolution in city-dwelling and revealed human settlement in cities in another form. Esmaeil Shieh expresses these factors in his book "Introduction to urban planning" as follows:

Evolution in transportation and the speed of exchanges, advent of expertise and job dividing, increase of population, increase of immigration, concentration of industry, commerce, development of economic exchanges, increase in income level, variety in occupations,

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advent and expansion of communication media. [21] (Shieh, 1379 AHS/2000 AD, p. 14-15)

During the history of urban dwelling, several factors were effective in the emergence of cities: suitable geographical and climatic conditions, religions and beliefs, military, trade and commerce, governmental and political factors and so on. These factors were and still are effective in "development and the state of growth" in cities as well. Nevertheless, over the course of history and depending on time and place, some factors have had preference or priority over the others or were more effective.

Although some of today's cities (Global Cities[22]) change or develop at a global scale according to the influence of these factors (cities like New York, London, Tokyo, Beijing are prominent examples), most of the cities in the world have a limited area of influence and are affected by many of the aforementioned social, economic, cultural … factors at the local scale and sometimes at the scale of the country in which they are located and their changes are dependent to forces within these boundaries.

The emphasis on this subject is completed by pointing to another topic: there is no precise and definite boundary between these reasons. In other words, we can hardly accept one or some of the factors to be uniquely economic or political or social, though one or some of the mentioned factors could play a larger role in a phenomenon or accident or a particular urban evolution. For a better explanation and understanding, it is necessary to review the mentioned factors and their contents independently:

2.2.1 Economic factor (Bazaar, employment and wealth)

Most urban development theories indicate the importance and priority of economic factors in the emergence, development and sometimes decline of cities. Economic factors and variables have a

[21]- As an example, Michael Pacione in his book, expresses the underlying factors for urban change in Asia:

"Urban change in Asia demonstrates how the growth or decline of cities must be understood in terms of the effects of the globalization of the world economy on the one hand, and economic, social or political changes that are specific to that city or region on the other hand. For example, the size and rapid growth of Delhi owe more to its role as capital of India than to a position within the global economy. Similarly, Karachi's population growth over recent decades to become one of the world's largest cities has been increased by immigration of refugees … by contrast; urban dynamics in Singapore are shaped more by the city-state's role within the global economic system than by its acting as a political or administrative center. Most of the other large cities in Asia come between these two extremes…

"Urban trends in all Asian nations are also influenced strongly by government actions. A significant policy change during the 1980s was the relaxation of government controls on urban growth in various countries and the downscaling of programs directing new investment into peripheral regions." (Pacione, 2005, p. 216)

[22]-"The global urban pattern is changing in three main ways as a result of:
I- *Urbanization:* an increase in the proportion of the total population that lives in urban areas;
II- *Urban Growth:* an increase in the population of towns and cities;
III- *Urbanism:* the extension of the social and behavioral characteristics of urban living across society as a whole." (Pacione, 2005, p. 71)

major effect on the formation and shape of cities, the determination of physical features, and the size and extension of cities. A city is basically an economic existence and phenomenon because of its inner accumulation of large amounts of wealth. The relationship between the city and its surroundings has always corresponded to the attraction of wealth since the beginnings of urbanism.

The production of sufficient amounts of food and the surplus of agriculture production as well as the need to store or sell and exchange these products provided the opportunity for a small percentage of the population to transcend from spending time hunting and gathering food and allowed these people to continue to live in larger settlements.

Ancient cities were centers for housing the elite who accumulated riches resulting from economic and agricultural activities; in this way, this wealth gave them the possibility to quit the production process and allowed them the time to govern political or religious matters.

Economic factors are the main grounds for the creation and expansion of population units, and population centers have grown and developed near seas and rivers, beside fertile lands, in the margin of connecting roads and anywhere that there was the possibility to produce and to employ. With their population, cities provide a remarkable consuming market for attracting more production activities.

In all of the world's cities, there is a basic dependence between city-dwelling levels and the economic development and existence of cities depends on several economic forces. The size of each city depends on the amount of goods and services that it exports to outside markets. Based on the fundamental theory of economy, there is a direct relation between development and the amount of exported goods and services. A city's development is thus influenced by its economic performance in areas including tourist, wholesale, military, cultural and health services. The production and distribution of goods and services create employment and the possibility of employment in turn attracts

people to a particular place. An increase in population and economic activity causes the development of lands and the physical growth of a city: cities with powerful economic foundations are usually inclined towards expansion.

The main basis of urbanism and urban design studies is made up by the study of a city's basic economy. Within this, employment, population, income and finally the amount of needed space are specified. Although economy is itself the trigger and the producer of the cities and the effective factor for their expansion, cities in today's world are themselves the tools and main creators of economic development.

Various types of economic activities in cities, the role of specialized and non-specialized cities in industrial productions and the presence of supply and demand market all emphasize the importance of cities in today's economy.

Economic studies are considered as the most important efforts in programming the development and growth of a city; these include the recognition of the potential and actual economic abilities of a city. This recognition includes studies in the fields of: demography and their economic features, the economic structure of a city in relation with different sectors in agriculture, industry and mine, employment, expense and income of families, the price and ownership of land, investment opportunities, and so on . In addition to that, it deals with the investigation and analysis of the influence of economic factors on the historical formation of urban structure as well as the prediction and determination of a city's future economic situation and its programming for controlling and directing physical development based on the predicted economic role. For development, planning should be done corresponding to the city's economic facilities; for more economic facilities, we should exploit the extremities of the present human and environmental potentials. These studies not only

investigate orientation but also recognize and measure their rate and intensity of development.

There is a need for designing analysis and calculating methods or producing economical models which can be divided into two groups:

a) Analytic models; b) operational or policy oriented models (political models). Analysis models examine the methods of economic relations in a city and the influencing ways of these relations on the formation of the structure of cities.[23]Political models are designed with the aim of adjustment, correction or modification of economic relations in a city area and the measurement of reciprocal effects of these relations on the formation of a city's structure. (Rafiee, 1371 AHS/1992 AD, p. 7)

In sum, it is interesting to point to materialistic views that profess to nothing except the rule of economy. In this view, other factors are just subsets of the economy or; more precisely, the political economy, environmental economy, cultural economy, economic management and ... are effective factors in urban creation, development and change.

2.2.2 Politics (government and urban management)

Just as economic points of view for defining and expressing the nature of a city assume that the city is an economic reality, political approaches to expressing the reasons for the existence or development of a city define the city as a legal-political reality. This view to urbanism emphasizes that the development of cities parallels the appearance of a kind of inequality in power that conforms with the advent of governance or commanding-obedient relations. (Fakuhi, 1383 AHS/2004 AD, p. 129- 136)

John Gutman believes that politics originally came to being in order to study urban affairs. He seeks the root of the word politic in the Greek term of "Polis", meaning city, and underscores how Aristotle had allocated his "Politics" book to the emergence subject

[23]- These models are divided into two groups:
a) Models which measure the growth of city using large scale economic methods like the method of estimating the production and income of city or the method of analysis the city's economy establishment
b) Methods which measuring the growth of city by the basis of small scale economy theories like classic economic models. (Rafiee, 1371 AHS/1992 AD, p. 7)

of cities. (www.aftab.ir, 04.2009) City is considered to be a kind of governance, or in other words a kind of power adjustment within the political sector. This government could start as a city or government-city rule and develop into a broad area like the governance of one particular city over several cities (capital) and several central cities (sub-governance centers); nonetheless, a unique logic is prevalent throughout all these forms: "the adjustment state of power relations in space"

Wars, change in governments, the efforts and decisions of policy makers and kings and their subordinates in provinces and cities as well as forced immigrations were all effective factors in the formation and development of cities over the course of urban history (the politics-government factor), though the management and control of cities through administrative organizations and based on definite and purposeful regulations and plans represents an additional aspect of politics and government that has affected the physical evolutions of cities and whose precedent is no older than 200 to 300 years.[24]

In his book, "Urban Geography", Pacione writes: "*The development of most urban areas is influenced, to some degree, by the processes of urban policy and urban planning. Urban planning and urban policy, with its origins in the 19th century in the UK, Europe and the USA, are concerned with the management of urban change. However, it is important to recognize that urban policy is not confined to activity at the urban scale. National and international economic and social policies are as much urban policy, if defined by their urban impacts, as is land-use planning or urban redevelopment*". (Pacione, 2005, p. 166)

Towards an explanation of the effect of policy and urban management on the physical structure of cities, an outstanding example is perhaps the evolution of urban design in East German cities following the Second World War in comparison with cities in western

24- Regarding that the first step in urban management is preparing a plan, the main aims of planning based on "Urban Geography" book are:
- To improve the information available to the market for making its locational choices
- To minimize the adverse "neighborhood effects' created by a market in land and development
- To ensure the provision of any 'public goods' including infrastructure or actions that create a positive 'neighborhood effect', which the market will not generate because such activity cannot be rewarded through the market
- To ensure that short-term advantage does not jeopardize long-term community interest
- To contribute to the co-ordination of resources and development in the interest of overall efficiency of land use
- To balance competing interests in the use of land to ensure an overall outcome that is in the public interest
- To create a good environment, for example in terms of landscape, layout or aesthetics of buildings, that would not result from market processes
- To foster the creation of 'good' communities in terms of social composition, scale or mix of development, and a range of services and facilities available
- To ensure that the views of all groups are included in the decision-making processes regarding land and development
- To ensure that development and land use are determined by people's needs, not means
- To influence locational decisions regarding land use and development in order to contribute to the redistribution of wealth in society (Pacione, 2005, p. 167)

Germany as well as the physical changes following their unification in 1990. In this case, a summary from the article, "New trends in urban development and public policy in eastern Germany: Dealing with the vacant housing problems at the local level", is revealing:

"*During socialism, the centrality planned and state-organized investment in urban development and housing was mainly restricted to large-scale, prefabricated housing estates on the fringe of existing cities. Most of the historical multi-storey dwellings in the inner-city were left to decay during this time. This has contributed to a 'dualistic urban structure' where approximately 420,000 housing units, mainly in the pre-war inner city neighborhoods, were already vacant prior to German unification.*

"*In 1990 nearly 20% of all citizens of the GDR lived in the prefabricated socialist housing estates, and living in one of these estates was perceived as a great privilege.*

"*... More or less all cities in eastern Germany have dramatically lost population and workplaces since the unification in 1990. These cities are confronted with massive processes of 'shrinkage' in urban development. One of the most obvious results is a structural oversupply of buildings, plots of land, housing units and commercial spaces that has resulted in high vacancy rates and incipient abandonment. While high vacancy rates are clearly a housing market problem, it is not confined to this as it is preceded and caused by the general trends of depopulation and deindustrialization in eastern Germany. The transformation from socialism to capitalism in East-Germany was state-led; the German Democratic Republic had joined the then existing Federal Republic of Germany in 1990. Because of this also the high vacancy rates are treated as a political problem.*

"*... In 2000 it was estimated that more than one million housing units in Eastern Germany are empty, thus affecting roughly 14% of all housing units in the region. Around 50% of those vacant housing units*

are active on the housing market, whereas roughly 50% have been vacant for more than 10 years and are not rentable due to their poor physical condition.

"These figures indicate that the vacancy rates go far beyond the normal "mobility reserve" (i.e. between 3% and 5%) that is supposed to be a necessary precondition for a functioning housing market. Recent studies have shown that, over the last two years, vacancy rates have been rapidly growing, further aggravating existing problems. It is predicted that by 2020 more than two million housing units will be affected by vacancy or abandonment.

"... Beginning in the 21st century, many localities have started to develop new policy strategies to address the vacant housing problem. All of these measures are supported by a federal program – the so-called "Stadtumbau Ost" program - that is promising more than 1.1 billion Euro for eastern cities within the next eight years. The program is designed to enable local administrations and city governments to develop coherent and city-wide approaches to the vacant housing problem. Its major goal is to retain socially mixed and attractive inner cities in eastern Germany. Therefore, comprehensive urban development plans, funds for the demolition of housing units, as well As, the upgrading of neighborhoods and the promotion of homeownership in inner cities have been introduced as main policy strategies." (Glock & Haeussermann, 2003 AD, p. 2,3,4,5,11)

2.2.3 Geography and environment

Many authorities consider the role of geographic and environmental factors in the nature of cities as uncontested and consider the history of urban development a witness for the claim that "city is a geographical reality". A city is the result of a relationship between humans and their surrounding nature; city is in fact a man-made environment and every "built" object finds

meaning in its "place" domain. The location and grounds for the realization and emergence of cities is therefore "nature".

The relationship and dependence of human activities to the place within the realm these activities appear and coordination and discordant with this ground have a great importance. Over the course of the history, humans have established their specific types of livelihood and economies as well as their corresponding types of rural or urban accommodation and dwelling based on natural parameters. Throughout human civilization, natural features such as plains, seas, mountains and deserts on the one hand and climatic factors on the other hand have played an effective role in the development of cities as well as their loss of powers or demolition.[25]

Among several effective geographical factors like land situation, quality of soil, vegetation, altitude, location and vulnerability to natural disasters, water has been the aspect which had the most deciding role in the location and establishment of cities as well as in their growth or collapse. Especially in regions with a general shortage of water (such as Iran), this factor was historically so vital that even the size of a city could be compared and proportioned with its amount of available water.

In my opinion, even though the geographical factors have played an effective role in determining the fate and structure of urban development over the course of history, it can be asserted that this factor is not as critical as economic and political factors in deciding the reasons that cities emerged. The geographic factor much rather influences the chance and potential for the location and the shape and direction of urban expansion.

A city is a complicated set of human relations with the surrounding environment. By interfering with their environment, humans have succeeded in organizing its physiognomy and

25 - Ecology point of view in urban sociology is on the basis that cities don't grow accidentally but in reaction to appropriate environmental specifications and develop based on three important processes of rivalry, aggression and substitution. (www.ArashRezaei.ir, 06.2009 AHS)

configuration. In this way, city is born, developed and controlled. Geographical studies in the mentioned topics and the recognition of natural environment, whether in order to establish a city or to observe the method of urban development and expansion as well as determine negative impacts on natural systems resulting from the expansion of cities, could play key roles in diagnosing the potentials and limitations of urban growth.

2.2.4 Society and Culture

Cities have always been designed and built by humans and for their own life; the quality and quantity demands of human beings therefore determine the reason of existence and features of cities. Of these human factors, quality aspects are typically investigated in social studies such as intensity of population, age and gender, immigration, population growth rate and "population prediction". Social subjects with qualitative aspects can normally be investigated for their cultural characteristics, such as the history of the literature and culture of a particular nation, its tendencies and interests, religion, traditions and popular customs and manners. It should nevertheless be accepted that it is very difficult to separate social and cultural factors and that in many studies and researches, the lack of attention to common aspects of these two factors has resulted in fundamental problems in the final study results. For example, phenomena like cooperation and mutual assistance, citizenship and collective presence are located somewhere between the focus points of social and cultural studies.

A sociological approach to the explanation of cities defines these as a social reality. Here, city is the final result of a set of relations between social actors; there is thus a belief that the formation of urban spaces and patterns follows these relations. [26] (Naser Fakuhi, 1383 AHS / 2004 AD, p. 34)

As an example, various models have been presented in the case of increasing and decreasing population in the centers and suburb of cities.

26- For explanation the impression of social subjects and specially demographic shifts or its decrease and increase and the state of their influence on physical structures of cities, a summary of an article is presented in the following with the title of, "Living on the edge: Decentralization within cities in the 1990s" which is a research about shift of population in 100 cities in USA:
"Viewed at the city level, demographic shifts such as population and income growth/decline, racial/ethnic change, aging, and migration can indicate important changes in the ability of cities to serve public needs. At the end of the day, the city itself must deliver services to its residents, and raise the revenues to fund those services (or seek them from another level of government).
Population changes at the neighborhood level, by comparison, may better signal changes in the private markets in which city residents operate. Neighborhood population growth, for instance, can lead to increasing property values, and new jobs and retail opportunities for existing residents. In some cases, it may lead to displacement of lower-income residents due to higher housing costs. As such, exploring population dynamics at both the municipal and neighborhood levels is crucial for understanding the changing fortunes of cities and their residents.
This study finds that America's cities underwent complex patterns of neighborhood population change in the 1990s. As with cities themselves, most urban neighborhoods grew over the decade, and not surprisingly, cities that grew had more growing neighborhoods. Yet in many cities that grew overall, neighborhood population loss was pervasive.
… It appears that the larger trend of metropolitan decentralization begins inside city borders- that is, sprawl does not start at the city's edge. Central cities are made up of both healthy and distressed and neighborhoods, and efforts to help slow the tide of decentralization must be focused on reinvigorating areas of slow growth or decline … the fact that declining inner-core neighborhoods often surrounded growing CBDs suggests that the need for more inclusive 'downtown strategies.' In developing targeted revitalization strategies for downtown areas, city leaders should include efforts to engage or respond to the needs of surrounding neighborhoods …" (Berube and Forman, 2002, p. 9)

Pacione points to a model which is presented by Klaasen (1981AD) and Van den Berg (1982 AD). This model examines the stages of cities development based on direction in four stages:

1. *Urbanization*: when certain settlements grow at the cost of their surrounding countryside;

2. *Suburbanization* or *exurbanization:* when the urban ring (commuter belt) grows at the cost of the urban core (physically built-up city);

3. *Disurbanization* or *counterurbanization:* when the population loss of the urban core exceeds the population gain of the ring, resulting in the agglomeration losing population overall;

4. *Reurbanization:* when either the rate of population loss of the core tapers off, or the core starts regaining population with the ring still losing population. <small>(Michael Pacione, 2005 AD, p. 83)</small>

Figure 2-6 The stages of urban development model
Ref: Pacione; Urban Geography: A Global Perspective, 2005 AD

For a better explanation of the position of economy in the process of urban development and evolution, again a summary from the article; "New trends in urban development and public policy in eastern Germany: Dealing with the vacant housing problems at the local level":

"*The transformation of the former socialist economy resulted in a process of deindustrialization that was faster and more thorough than any such economic transformation in the west. As measured by jobs per 1000 residents, eastern Germany, which during the socialist period was a highly industrialized economy, now has the lowest rate of industrial jobs within the European Union. There have not been new employment opportunities in the service sector, and consequently, unemployment rate in eastern Germany is more than double that of the west, 17.5% versus 7.4%, respectively (see Statistches Bundesamt Deutschland 2002). Under these conditions, young and better educated Easterners have left the region, looking for jobs in the west, thereby reducing cities' population bases.*

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"Consequently, the population in eastern Germany declined from 16.0 Mio in 1990 to 15.1 Mio in 2000. Between 1991 and 1999 roughly 1.7 million people emigrated, and 1.2 million immigrated to the region, resulting in a 'negative migration'. It is estimated, that in 2030 the population size of eastern Germany will be reduced to 12 or 12.5 million.

"High unemployment rates, the devolution of the socialist welfare state, and the resulting feelings of social insecurity have not only lead to a high outward migration but have also contributed to a significant drop in birth rates after unification. Eastern women went collectively "on birth-strike", and the birth rate declined, from 1989 to 1994, by more than 60%. Altogether, the region lost more than 700,000 inhabitants due to a natural demographic decrease. Additionally, the demand among eastern Germans for single-family housing had not been met over decades so that there were a relatively large number of individuals in 1990 eager to buy new suburban homes.

"Together with federal grants this has lead to a substantial process of suburbanization, and one can observe a growing competition between cities and suburbs for taxpayers.

"A survey conducted in 2001 has shown that in 15 out of the reviewed 30 cities, mobility within the same region (suburbanization) is responsible for at least 50% of the population losses. All cities in eastern Germany, with the exception of those located within the agglomeration of Berlin, have experienced declining population."
(Glock & Haessermann, 2003AD, p. 6, 7)

This example from social changes in eastern Germany and their effect on the structures of urban development highlights not only social factors but also the reciprocal relations between economic, social and cultural factors.

In the subset of cultural views to the city, the symbolic and semantic aspect of a city's presence is also discussable. In this

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understanding, each of the urban elements including humans, junctions, thoroughfares, buildings and open spaces as well as other objects can be considered as significant and changeable signs for building more or less widespread semantic networks.

2.3 Iranian Cities

(Physical evolution course of cities in Iran and effective factors)

"Beyond the gate of time, lays a civilization with 7000 years of celebrated heritage: a cradle of civilization; a tolerant world empire; a crossroad of civilizations; a world of artistic forms and shapes; a wondrous globe of architectural marvels …: Iran." (Rezaeian, 2007 AD)

2.3.1 Emergence and effective factors of evolution

The geographical zone of the Iranian Plateau, whether for its special desert climate, which exists in most of its regions, or for its position as a bridge between the east and west (central Asia and west Asia) which made it an important route for goods trade caravans, as well as for its unique resources of gold, copper, stone and more recently oil, has a unique situation in comparison to other parts of the world. The situation of Iranian cities, more than just preparing the possibility for continuous contact with different ethnic groups and cultures, provided the grounds for invasions by many nomad and barbarian tribes who were interested in capturing the territory or passing through the land and imposing special political, cultural and social appearances on this region and its resident ethnic groups. This naturally had an influence on the local way of life, the morphology of cities and the way of urban development and destruction.

Map 2-23 Iran; a bridge between east and west
Ref: www. Travel.nationalgeographic.com (07.2010)

Dr. Smith relates the Neolithic Period in Iran, the build-up to the settlement and establishment of residential complexes, to about 5000 BC and expresses his views as follows:

"Anyway it seems that around 5000 years before Christ, the remainders of the Paleolithic Period life were totally removed and in all of Iran the method and texture of living, agriculture and producing food were replaced by life through collecting and gathering food." (Rezaeian, 2007 AD)

Chicago University Professor Abbas Alizadeh expresses that:

"The first region in Iran to develop a recorded history was Elam in present-day Khuzestan that bordered Mesopotamia and was one of the earliest civilizations on the globe. Choghamich was settled around 6800 BC by early farmers. It gradually developed into a major town in 4ᵗʰ millennium BC that was ministered by state organizations. This city was designed in such a way that administrative quarters and residential quarters and workshop quarters were all separated. The alleys and streets communicated beautifully with one another and the city had a sewer system". (Rezaeian, 2007 AD)

Map 2-24 The position of ancient civilizations in Iran's today map
Ref: Rezaeian; Iran: Seven Faces of Civilization, 2007 AD

City-dwelling or the beginning of civilization was the second revolution in human culture and the city of Susa is a very prominent example for understanding how urban life emerged and evolved in ancient Iran whose residents took the first steps in city dwelling.

The Elam expert Dr. Pierre Amiet expresses in Louver Museum:

"In my opinion, this extraordinary land -Susa- was the origin of a phenomenon in the world which we call the 'urban revolution'. The Sumerians and Elamites had taken the fateful steps towards establishing civilization while the rest of the world was still in prehistoric era". (Rezaeian, 2007 AD)

Figure 2-7 Graphical reconstruction of Choghamich
Ref: Rezaeian; Iran: Seven Faces of Civilization, 2007 AD

The Medes and Persians were immigrant Aryans who came from northern lands (the Aral Plain and southern Russia) to the Iranian Plateau and resided there. Ghirshman believed the date of this event to be during the second millennium BC and named the immigrant nation *Hindu European*. (Ghirshman, n.d.)

In 559 BC, The Great Cyrus united Medes and Persians and established the world's first empire. The city of Pasargad (Takhtejamshid) is an interesting example of a governmental city which was established during this period with unique architectural monuments and gardens renowned to four-parts, that was later used as a symbol for Pardis (Iranian gardens) and copied in other parts of the world (India and Spain). The greatest symbol for Iranian tolerance in ancient times is Cyrus's Cylinder, an inscription discovered in 1879 AD during the excavation of Babylon. Here, Cyrus is named a man of law, and citizens' rights and law declared the fundamental nature of cities. It is thus no exaggeration to consider Cyrus and the Achaemenian dynasty the innovators of true cities with lawful identities and an observance of citizens' rights.

Surely all the effective factors for the establishment and expansion of cities and their conditions, including political, geographical, economic, social and cultural factors, are also effective for the reason of their emergence, their location, their structure and their development. Nevertheless, distinctions can be found in the quantity and sort of influence of the aforementioned factors in different times and places for each Iranian city and in comparison to other Iranian cities or to cities in other parts of the world.

In his book "From Shar to City", Dr. Habiby points to three main effective factors in the emergence of cities: different worldviews, including religion, ideology, and different social and religious sects; economy, or the way of defining the material world, including production, distribution and consumption method of goods and its relation to physical structure, and finally the environment and region, including climate and general ecological elements. (Habiby, 1380 AHS/2001 AD, p. 6, 7)

The separation of these factors from each other is very difficult and a combination of these sets of factors during the formation of cities

Figure 2-8 Part of the original drainage system of Chogamish
Ref: Rezaeian; Iran: Seven Faces of Civilization, 2007 AD
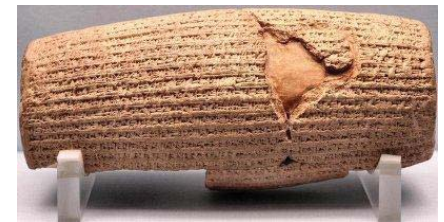
Figure 2-9 The Cyrus Cylinder, 539 BC, British Museum
Ref: gigadl.net (08.2010)

appears in practically every historic period. If one considers the first mentioned factor in this categorization the same as the culture and society factor and the second and third ones, economy and geography, a very effective factor which is mentioned as the main formative element in some approaches to the concept of city -the politics factor- goes missing in this new classification. By politics, I mean the ruling government structure that also encompasses aspects of military and defense. This factor, whether in Iranian or non-Iranian cities, has been one of impressive and very important factors in the creation and development of cities over the history of urbanism. A lack of academic attention to this factor leads to problems in study results.

Although this research does not present a great enough opportunity for the investigation of the state of these factors' effects on the development and evolution of Iranian city types, a short and fast review of this subject is required to continue these topics. The following discussion gives examples of the influence of these factors on the physical structure of Iranian cities.

The climate and geography of the Iranian Plateau*:* owing to the desert climate in most of this region, there is a shortage of water in most of the area. The plateau is surrounded by two mountain chains: the Alborz in the north and the Zagros in the west and southwest. These have made numerous various effects in the area's urban design: the dispersion of resources like water, fertile and cultivatable land, vegetation, which are mentioned as positive and valuable factors for the birth and development of cities, resulted in the dispersion of settlement points and cities in this expanse of plateau. Only in the north and in few regions of west Iran, continuous regions of urban settlement exist owing to moderate weather and the existence of water and suitable vegetation.

Water and its worth for the people of this region have come into proportion and unity between the existence of water and the existence

of city over the course of history. The Persian word "Abadi", a designation for settlement patterns such as village, countryside, or city is derived from the word "Ab" (i.e., water) and its meaning corresponds to fertility. This shows the conceptual and symbolic standing of water in this nation's culture. Emphasizing this, the relationship of the garden and city to water is so tightly woven that the size of a garden or city in this territory can be measured by its access to available water stocks.

Because of a shortage of large streams in the territory, few cities in Iran are river cities (cities with permanent rivers passing through or beside them). For such cities, rivers can act both as a reason for existing as well as an opportunity for growth and development. A remarkable example of this kind of city in Iran is Esfahan, in which the Zayanderood River was an extraordinary chance for development; it is now the third most populated city in Iran and its river played a role that is not to be understated in the establishment of the city's historic and cultural position in Iran and the world.

In the meantime, there are cities whose development has been stopped or that have ceased to exist because of water shortages, being far from water resources or the cutting off of their water supplies (for example the running dry of a nearby stream). In this case, one can point to the city of Toos, with a few thousand years of cultural precedent, which lost its last chance for revival because of the redirection of the Golasb Spring (one of its main sources of water) to Mashad.

In many locations in the central Iranian Plateau, the existence of a spring may have sparked the birth of a city, although its further growth and need for more water, in addition to threatening the city's development, created a need for the invention of one of the most advanced water supply techniques. The city of Gonabad has owed its life to its several aqueducts and subterranean canals (in Persian, Ghanat), but water shortage very likely resulted in its present reduction in growth and development.
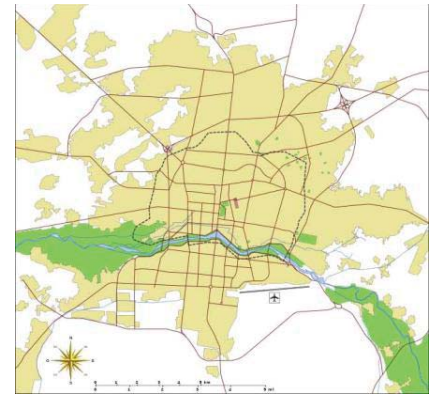
Map 2-25 Esfahan map
Ref: www. Wikipedia.org (07.2010)

Figure 2-10 Zayandehrood, Esfahan
Ref: www.Imna.ir (01.2012)

Many cities in Iran, such as Tehran, Karaj, Varamin, Qazvin, Mianeh, Hamadan, Qom, Kashan, Garmsar, Semnan and Sabzevar are located in foothill positions or foothill plains in order to make use of the water resources of adjacent mountains in addition to underground waters of low slope plains in foothills. In highland regions and elevations above 2000 meters, we hardly confront urban centers.

The geographical position and marginality (in other words the geographic deadlock), which may be because of neighboring countries' borders, mountains or other natural obstacles, could have resulted in the slow growth or stop in development in some cities in Iran. As an example one can name Sarakhs in the farthest north east region of Iran, in the Khorasan-e Razavi province and also the city of Maragheh, which has grown slowly in spite of the presence of the Tehran-Tabriz railway owing to the closing of connections to southern regions. (Rahnamaie, 1371 AHS/1992 AD, p. 38-40)

Map 2-26 The position of Maraqeh and Sarakhs cities in Iran
Ref: www.mappery.com/iran-map-2

Political and military factors have been also very effective in the modes of formation and growth in Iranian cities. The establishment of fortifications such as ramparts for cities especially in this unsettled region, apart from providing an impetus for a city's life, has also been a reason for slow urban growth. Most Iranian cities that had the possibility and necessary conditions for growth, had to expand and grow their inner area by establishing another rampart at the outer limits of the city. This historical development pattern has traced deep effects on the structure and morphology of regions, especially those with disturbance and in the north and northeast of Iran. The meaning of city

was therefore tightly linked to rampart, citadel and similar fortifications.

The establishment of military fortifications such as the Anushiravan wall and dam in the Gorgan region, with a length of 300 kilometers, and the establishment of dams such as Tamishe, Darband and Marv are other examples of the effect of political and military factors. The military factor is the main point for the establishment of some cities in Iran in recent centuries, for example the settlement of the Bushehr harbor during the contemporary period.

Sometimes a governor or king's efforts or orders have resulted in physical changes to cities, for example Nader Shah's order of migrating one thousand Armenian households to Mashad in 1147 AH, which, more than just increasing Mashad's population, established a quarter outside the Painkhiaban Gate. Contemporarily, the land reforms of the second Pahlavids period under Mohammad Reza Shah made changes to cities and villages. The development of cities with a political aim and the choice of a capital (Pasargad, Tehran, Esfahan and Mashad) is another example that confirms the widespread effects of this factor in both Iranian cities and cities around the world.

The city of Esfahan was chosen as the capital of Iran during Safavids period. Because of Shah Abbas's policy and the efforts of scientists such as Sheik Bahaie, this city experienced noticeable development so that it was named "half of the world". Considering this precedent today, it is one of UNESCO's selected world cultural cities.[27]

Over the last century, Iranian cities have been confronted with the phenomenon of modernism, which formed through the influence of several social, economic and cultural factors. This phenomenon, especially because of a lack of skillful management mechanisms, has resulted in several crises in cities. These are manifested in population increases, unrestrained immigration to cities, urban traffic, inadequacy of green space, and environmental pollution.

27- All the capitals of Iran since the beginning of the first kingdom by the Medes, have been faced to desert and located along two main roads which laid out on the inner sides of two chains of mountains: From the west to the east in a military and commercial road, extended parallel to the Alborz chain of mountains including cities of Hekmataneh (Hamadan), Qazvin, Tehran, Rey, Sad Darvazeh (Damghan) and Harat. In the southern road include the cities of Esfahan, Pasargad, Estakhr, Takhtejamshid and Shiraz which were located along with the Zagros chain of mountains. (Ghrishman, 1954 AD, Persian translation by Moieen, 1372 AHS/1993 AD, p. 36)

The accelerating growth and horizontal expansion of cities in Iran may be more serious than in many developed or developing countries. This problem became more complicated after the Islamic revolution. If we investigate the reasons for this situation, various aspects of management, politics, economics and social factors are deciding. Dr. Mohammad Mehdi Azizi points to some of these cases in his book, "Density in Urban Planning":

"The lack of fundamentals for land logistics in Iran has disorganized the urban design and urban planning system. Urban growth rate, urban hierarchy and the number of cities are thus not follow a planned standard and the location and capacity of cities have not been specified by economic and social development…. Growth of city-dweller population in country has had an upward trend. This is whereas the total growth of country's population is high in comparison with the world scales and these situations have resulted in an uncontrollable expansion of urban framework.

"After the Islamic revolution, urban land laws may have been one of the most effective factors in expansion of cities. Taking possession and cession of land in the large scale and dwelling production in wide scale, especially in first decade after the revolution are capable of deliberating. Its witness is the proportion of dwelling production to population growth in 1355-65 AHS/1976-86 AD decade; whereas the population growth in country was 3.9 percent, dwelling production reached to 4.3 percent. In the above form, land cession and land preparation policies have also increased the physical expansion development of cities."[28] (Azizi, 1382 AHS/2003 AD, p. 13, 14)

By studying and pointing to the role and influence of cultural factors in Iranian cities, which had a prominent and effective role in the explanation and development of human science and culture over history, I complete the mentioned factors:

[28]- Land cession plans in the early years after the revolution as well as the primary land preparation plans in 1360 AHS/1981 AD decade were either mainly low density urban plans or have reduced the population density of the city. These factors have changed the rapid urban expansion in Iran to a phenomenon that its consequences have resulted in different economic, social, political and environmental aspects. (Azizi, 1382 AHS/2003 AD, p. 14)

With its special geographical position, Iran not only acted as a bridge for transferring eastern culture to the west and vice versa, but also sparked an exchange and development in human settlement culture over the course of world history. With their unique intelligence and talent as well as diligence, Iranians established a civilization by adding to the impression and perception of other nations. In this regard, the number of Iran's writers, scientists and poets is outstanding for this position. If we consider our cities and architecture to be the bearers of this culture through history, it is essential to know this country's culture by reviewing its cities:

The worldview and religions of Iranian ethnic groups, whether before or after the introduction of Islam to the country, had a basic role in the emergence of certain cities or in the determination and formation of their structure. Cities such as Mashad and Qom have owed their existence and evolution to the religious values of the country. Additionally, many of Iranian cities have borrowed their form, morphological structures and symbolic elements from the religious beliefs of these people. Special places of worship in pre-Islamic cities such as Chogha Zambil and Firuzabad as well as the special position of mosques in the structure and cohesion of Islamic cities attest to this.

Figure 2-11 Chogha Zambil
Ref: Rezaeian; Iran: Seven Faces of Civilization, 2007 AD

Figure 2-12 Ardeshir Palace (Fire Temple) in Firuzabad
Ref: www.cais-soas.com (08.2010)

Urban elements such as mosques, seminaries, Sufi monasteries, tombs, Hosseiniehs (assembly halls for mourning the martyrdom of Imam Hossein ceremonies) and Takaya (places of public mourning) are from religious elements that, since the introduction of Islam, had fundamental roles among Iranian urban elements in creating a related urban system. Special principles of Islamic architecture such as introversion, privity, the avoidance of sculpture and a tendency to painting and relief were other effective factors in the formation of Iranian cities' textures during this period.

Traditions and popular customs, in the meantime, also played a special role. For example, endowment is one of the most effective

customs, especially in religious cities, and was much encouraged. Its effects influenced the bases of many Islamic cities and their urban systems, in addition to cultural, social and urban behavior influences.[29]

In the cities of Iran, the economic factor also had normally an effective and essential role. In some cases, this role becomes so bold that other factors seem to be completely ignored.

As mentioned, the position of the Iranian plateau within the boundaries of other great civilizations and the movement of several caravans, especially over the historic path of the Silk Road, were the reasons for the economy and birth and growth of several cities in this region. Some of these cities have maintained their service roles (entertainment and provision) over the years and continue growing; some, for reasons such as the decline of this service role, lost their economic chances and stopped growing.

Many settlements in desert regions of Iran which had developed and turned into cities at the time of their commercial flourishing were completely destroyed or kept on in hardness as small villages after having lost their economic and commercial position. Some of these cities, in spite of similar factors, because of the construction of main highways for vehicular traffic, could maintain their service role as midway cities and have survived.

Access to foreign free markets has resulted in the continuance and growth of certain cities, like commercial and port cities, in spite of difficult weather situations; for example, cities on the southern coast of country such as Chabahar as well as cities like Sarakhs and Maragheh are other examples of centers of commerce, exports and imports from the last few decades. (Rahnamaie, 1371 AHS/1992 AD, p. 40)

There exist cities merely established or developed for the residence and dwelling of employees of one or many industrial factories, mines or oil refineries. For example, one can point to Abadan and Asaloye in the south and Binalood in the north of Iran.

[29] -Considering its religious identity that originated from the proximity with the holy shrine of Imam Reza -the eighth Imam of Shiite Moslems-, Mashad city is accustomed to endowment for a long time. The reason for endowment was to endure the durability and physical permanence of endowed property or because of social-economic considerations emerge from good ideas and for the purpose of social strata and the common people beneficiary. Wealthy people, governors, philanthropists and benefactors as endowers endowed many of their lands, settlements, aqueducts and buildings under the written substances and instructions in the deed and under supervision and superintendent of special people who were mostly the Islamic jurists and clerics at their time.

Map 2-27 The routes of Silk Road
Ref: www.atimes.com (08.2010)

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Concluding the topic of the influence of economic factors, one must point to the uncontested role of bazaars in the structure of Iranian cities, especially following Islam, which as the city's spine has connected other elements of city such as mosques, seminaries and commercial centers and has thus given a special and specific structure to the cities of Iran and pointing to a second emphasis on economic role. For example, Esfahan was located on the way to old large commercial areas such as Dameshgh and Halab in the west and Samarkand and Bokhara in the east. The existence of several caravanserais is a testament to this, as in Saljuqids period more than ever, the economy was noticed and that government decided to increase caravanserais for the comfort of merchants. This had a fundamental role in the development of cities in that period.

2.3.2 History of physical evolution in Iran
(types, structures and elements)

In his book, "Beginning of urbanization in Iran", Yousef Majidzadeh wrote that urbanism and city-dwelling in Iranian cities can be grouped into three general time frames. These three periods are:

- From the 9th century BC to the 7th century AD: from the beginning of Iranian urban civilization until the emergence of Islam.

- From the 7th century AD until 1786 AD (1200 AH /1165 AHS): from the emergence of Islam in Iran until the industrial age and the beginning of the Qajarid dynasty.

- From 1786 AD/1165 AHS to 1979 AD/1357 AHS: from the Qajarid government until the Islamic revolution in Iran. (Yousef Majidzadeh, 1368 AHS/1987 AD)

Habiby describes these three periods and their features in greater detail in his valuable book, "From Shar to City":

From the formation of first Iranian city -Hekmataneh- until the present day, different methods and styles dominated urban design and can be studied through a general division into three periods; before Islam, after Islam and contemporary period:

- First Period: the structure and context of shar (city) from the 9th century BC to the 7th century AD/1st century AH with a separation of three styles: the Persian style (9th to 4th century BC), the Persian-Hellenic style (3rd century BC) and the emerging concept of the "shar" (city) and its organization (end of 3rd century BC to 7th century AD).

- Second Period: the structure and organization of the city from the 1st to the 14 century AH/7th to the 18th century AD , divided into three periods: first; a new birth of the shar (city), considering a new

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worldview from the emergence of Islam (1st to 4th century AH/7th to 11th century AD); second, a source of science, literature and art revival during the two centuries and the birth of the Razi Style of architecture, literature and art (4th to 7th century AH/11th to 14th century AD), and last phase of this period, a regeneration of the concept of shar (city) and its renewal, the birth of the Esfahan style of art, architecture and urban design (11th to 13th century AH/17th to 19th century AD).

- Third Period: first, a change in the way of looking at the concept of shar (city) and the formation and birth of the Tehran style of architecture and urban design in the middle of Qajarid government (Naserid) and its continuation until the coup d'état in 1299 AHS/1920 AD as well as a change in production and re-production concepts and methods and finally in the world perspective (1165 to 1300 AHS/1786 to 1921 AD); second, the formation of Tehran pattern, influenced by the International Style that had spread by global movement patterns and modernism (1300 to 1320 AHS/1920 to 1945 AD); finally, the period of the expansion of Tehran pattern in urban design and architecture and then, understanding the concept of the city and its spatial organization (1320 to 1357 AHS/1941 to 1979 AD). <small>(Habiby, 1380 AHS/2001 AD, p. seven, eight, nine, ten)</small>

This periodic classification with a more precise examination of the urban design precedent in Iranian cities seems neither at the beginning nor at the end (the first and third periods) of its history perfect or precise and requires modifications in its middle period:

The beginnings of urban design and city-dwelling in Iran–which also encompassed the Khuzestan and Susa regions—reaches back to the fourth millennium BC (when not considering the recent archeological results that show the possibility of city-dwelling in the central plateau of Iran as early as the fifth millennium BC). The first Iranian city had thus emerged alongside state organizations and a designed urban

structure near the Choghamish archeological valley in Khuzestan during the fourth millennium BC.[30] Archaeologists also discovered the existence of another city from the second millennium BC near Chogha zambil (Untash) which is amazing. Besides that, the possibility of city-dwelling precedent in Susa city (the capital of Elam) is attributed to about 3000 BC; each 3 cases are contrary to the above classification.[31] The end of the third urban design period in Iran was stated to be the beginning of the Islamic revolution in 1357 AHS/1979 AD. Although the Islamic revolution as a political-religious phenomenon had an important role in the physical evolution of cities after this date, the end of this period should not be seen as this time. The beginning of planned urban design reaches back to the second Pahlavids period, during which the preparation of comprehensive urban plans was considered by governmental organizations and institutes established for directing planning and controlling urban development, such as the Organization of Development and Houses. Nevertheless, the birth of an institute named "municipality" can also be considered as an evolution in urban design in Iran that stretches back to 1286 AHS/ 1907 AD.

The last suggested change in the classification is related to the Islamic period, which Habibi divides into the four styles of Khorasani, Razi, Azari and Esfahani. In his opinion, the Razi style could be found from the 4th until the 7th century AH, although it should be noted that the peak of evolution in city-dwelling in the Khorasani Style (during the Samanid period) resulted in a movement in politics, art, architecture and urban design during the 4th-century AH Buian period in Iran. This occurred since elements such as Buian's freethinking led to major evolutions in urban design that were completely unique and can be seen as a veritable urban design Renaissance. Because of its different governmental structure, this period is different from that of the 5th and 6th centuries AH (i.e., the Saljuqid government period), when the Razi style reached its pinnacle in art, architecture and urban design. I

30 – Refer to section 2.3.1 of the thesis

31 - Chogha zambil, established by the King of Elam Untash-gal around 1250 BC in the city Dur Untashi in Susa and dedicated to Inshushinak, the great god, means "God of Susa" and appeared in the form of a bull. (Kambakhsh, 1380 AHS / 2001 AD)
Ghirshman pointed that the city was located in a short distance from the Dez River and this location was chosen to have a commanding view of the whole plain; in a clear and smooth weather, both Susa -the capital- and a large city which was at the location of present-day Shushtar, could be seen from its top. Susa is one of rare cities in the world from around the 3rd millennium BC that has remained populated until now (with a short pause). It is an expression of 5000 years of history of human settlement in this region of the world. Ghirshman explained the importance of this city as follows: Susa after having a role as the capital of Elam was chosen as the capital of the Achaemenians Empire. It experienced a significant decline during the Sasanid period. At the time of the Arab conquest, it was connected to the main Far East commercial road and received new power and validity (Roman Ghirshman, quoted by Karimi, 1385 AHS/2006 AD)

therefore believe that the Islamic period consists of five different styles in urban design and separate the Buians period style as an urban designing Renaissance from the Razi style.

By emphasizing the mentioned cases, we can consider Iran's precedent for urban design evolution as taking on the form of five major periods, which is a completion and correction of previously proposed classifications:

Historic Period
Since 4th BC millennium until emergence of Medes government in 9th BC, Elamite civilization

Pre-Islam Period
9th BC until 7th AD

Islamic Period
7th until 19th AD

Pre-modern and Modern Period
1786-1941 AD

Contemporary Period:
Urban organization and management 1941 AD until present time

Medes city
9th BC– 6th BC
Medes Government

Persian city
7th BC- 4th BC
Achaemenians

Persian-Hellenic city
3rd BC
Seleucids

Parthian city
3rd BC- 3rd AD
Ashkanids

Sasanid city
3rd AD- 7th AD
Sasanids

Khorasani Style
7th AD - 11th AD centuries
Samanids

Urban design Renaissance
11th AD century
Buians

Razi Style
12th and 13th AD centuries
Saljuqid & Kharazmshahids

Azari Style
13th AD - 17th AD centuries
Ilkhanids & Timurids

Esfahani Style
17th and 18th AD centuries
Safavids

Tehran Style
1786 -1921 AD
Qajarids

First Pahlavid period
1921 -1941 AD

Second Pahlavid Period
1941-1979 AD

After Islamic Revolution
1979 AD until now

Figure 2-13 Writer's suggestion for classification of Iranian urban design styles and methods
Ref: writer

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Part **I**
Theory ⎯ **2** Basic studies
Physical evolution course of **cities**

a) First period (Historic period)[32]:

This period began in the fourth millennium BC, during the Elam civilization and at the same time as the establishment of the first Iranian city (Choghamish) in Khuzestan. It lasted until the rise to power of the Medes government in the Iranian central plateau and the birth of the first Median city (Hekmataneh) in the 9th century BC[33]: In the fourth millennium BC, Choghamish had an urban design plan in which official, residential and workshop quarters were separated from one another. The streets and lanes of this city were well connected and the city additionally featured an underground sewage system. (Rezaeian, 2007 AD)

The start of city-dwelling in Khuzestan was linked to the emergence of a powerful government in that region.[34] In the 13th century BC, at the time of its most powerful king, Untash-Napirisha, Elam reached its economic and cultural pinnacle. In historic texts, this king is introduced as the founder of a holy city on the banks of the Dez River. Elimate cities, like many Mesopotamian cities, had a religious origin. Ghirshman introduces the city Dur Untashi as a religious centre with no tower or ramparts. Its permanent inhabitants were clergymen and only at the times of the year that were relevant to religious and ritual occasions, the king, courtiers and social strata came to this city as a pilgrimage and to perform religious ceremonies. These people resided temporarily in the city until the end of the ceremonies. It was a city whose duty was the unification of different religious sects of Elam at that time. Ghirshman believed that the zoning of the city was in relation to the pilgrimage and praise route that was performed for different gods and goddesses; each gate was thus allocated to a route and to the performance of a special ceremony (Karimi, 1385 AHS/2006 AD). In other words, the cities of this period did not develop around a palace or a castle but around temples, which was also served as the center for all social and economic activities.[35] (Afzalinezhad, 1380 AHS/2001 AD, p. 67)

32- The invention of script is known as the boundary between pre-historic and post-historic periods. It is believed that this innovation was for the need to record the transactions and commerce in cities. Accepting the theory of formation of script in cities, we thus name this as a historical period that started since pre-history (i.e., the formation of the first city).

33 - Of the very important discoveries of archeologists in Choghamish are several stamp motives on mud balls showing types of urban buildings. These were used as sources for the graphical recreation of 4th millennium BC Choghamish. (Rezaeian, 2007 AD)

34 – Elam land consisted of Anshan or present-day Fars and Susa or present-day Khuzestan.
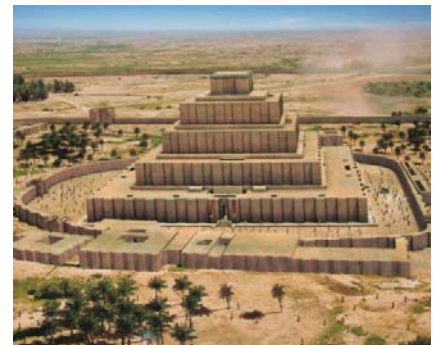
Figure 2-14 Graphical reconstruction of Chogha Zambil
Ref: Rezaeian; Iran: Seven faces of civilization, 2007 AD

35 - In the local language, it was called Chogha zambil. A splendid ziggurat with a 100×100 meter-dimension was located in the center of this religious city. This incomparable ziggurat included five-storey platforms a height of about 50 meters. Here, religious leaders performed ritual ceremonies; sacrifices were performed on special platforms. (Rezaeian, 2007 AD)

I separate this period of Iran's urban history from the next period for two reasons: first, the territory of Elam had a strong cultural dependence and connection with cities in Mesopotamia and, until that time, the Iran central plateau and the settlements situated in it had likely not evolved into urban entities. Second, these cities were naturally religious and ziggurats stood in the centers of both mentioned cities (Choghamish and Chogha Zambil) for housing religious ceremonies. The spread of the culture of urbanization across the Zagros mountain chain to newcomers in the central plains and plateau of Iran until the formation of city-like living sets in this region can itself be considered as a major historical evolution that resulted in the establishment of Medes and Persian cities in later periods.[36]

b) Second Period (Pre-Islam Period):

This period contains the Persian, Parthian and Persian-Hellenic styles. Through the addition of Medes and Sasanid styles, Iran experienced a total of five methods of urban design during this period.[37]

36 - Although it is mentioned in many sources that the Aryan nation and Medes, who settled in the Zagros mountains and its plains became acquainted with city-dwelling by confronting Mesopotamian and Elam residents, new archeological discoveries in the Iranian plateau show the existence of city-dwelling in this area from the 5th millennium BC.

37 - Habibi and Majidzadeh pointed to the three styles of Persian, Parthian and Persian-Hellenic in the first period of city-dwelling in Iran; however, because of definite distinctions between the Median Style and Persian cities, it is also necessary to regard the former style in the set of urban design styles. Although Durant believed that this short period (i.e., Medes) was not sufficient to have a great share in foundation of civilization culture and it only paved the way for the Persian culture and civilization, this is not accurate and shows insufficient information. Basic differences are distinguishable between the Medes art and the Achaemenian, Parthian and also the Mesopotamian art. Recent archeological finds show the deep impression of this period of Iranian art on architecture, urban design, craftsmanship and decoration during different periods. The Medes period and its architecture and urban design styles should therefore not be attributed to the Persian Style. (Durant, 1935 AD, Persian translation by Aram & others, 1365 AHS/1986 AD, p. 406)(For more information refer to: Ghirshman, Art of ancient Iran, Medes and Achaemenian periods.)

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● **Medes city:** The Aryan nation, who was settled in the Zagros Mountains and its plains, confronted inhabitants of Mesopotamia and became acquainted with a new type of settlement: urban dwelling. Arthur Pope writes that, from about 800 BC onwards, a new world force formed on the Iranian plateau and its western highland border and that massive migration took place in this area. People living in cities with towers and fortresses or in scattered villages temporarily united in order to confront the common danger of attacks from Babylon and Ashur. From this union finally emerged the Medes, which eventually became dominant. [38] Pope writes that, in 613 AD, Neynava was conquered and in the late 7th century, Ecbatana (modern-day Hamadan) was chosen as the official capital as the Medes government received its independence from Ashur. (Arthur Pope, 1965 AD, Persian translation by Sadri Afshar, 1373 AHS/1994 AD, p. 21) They developed from simple rural into urban societies and the physical emergence of these evolutions was embodied in the establishment of Hekmataneh city-power. The Aryans learned the rules of civilization from Mesopotamian inhabitants, the reason for the similarities between Hekmataneh and Ur, Babylon, Neynava as well as Elamite cities. However, in spite of these similarities, Hekmataneh displayed particular differences. This city was not only like a Mesopotamian city-temple and thus considered as both city-temple and city-power, but it was also the gathering place for three nomadic, rural and urban societies. Such gathering had not been seen in Mesopotamia.

In this period, Medes Shar consisted of

38 - Based on the history of Iran, the Medes period began with the immigration of Iranian descent people from beyond the great Khorasan to the western edge of the Iranian Plateau. A few ending centuries of second millennium BC and the first half of first millennium BC was the time of massive immigrations towards the west of the Iranian plateau. The names of Medes and Persians for the first time were mentioned in the Ashurid texts because of their consecutive wars… Contrary to the south Mianroodan, the north Mianroodan which was the place of Ashurids' extension and settlement, suffered from lack of water and fertile lands. There was thus no trace of the splendor and wealth of Babylon and these situations caused several military campaigns of this ethnic group to here and there including Iran. Finally, the greatest king of the Medes, Hovakhshatreh, could end to these conflicts by destroying Neynava city. (Malekzadeh, 1374 AHS/1991 AD; Durant, 1935 AD, Persian translation by Aram & others, 1365 AHS/ 1986 AD, p. 406)

1- Royal palace
2- Exchequer and storehouses
3- Residential of governor's relatives
4- Barrack
5- City
6- bazaar
7- Living points
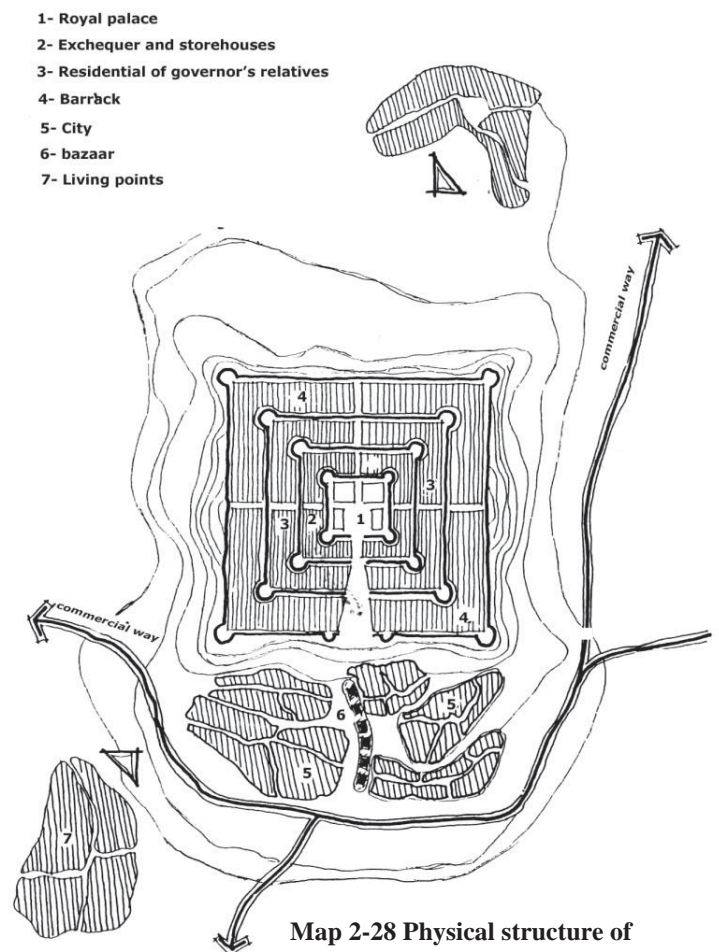
Map 2-28 Physical structure of Medes Shar
Ref: Habibi; From Shar to City, 1380 AHS/2001 AD

strong and stable castles over hills or a strategic spot within whose domain small and large living points were scattered. In this period, city, living spots and bazaar which was in its embryo state, were situated outside the castle. Generally speaking, we can say that the city was not yet all-embracing and did not exist in its mature meaning.[39] The Medes design method reached its final form in the 9th century AD with the establishment of the city Hekmataneh. (www. Shahrsazi.mhud.ir, 06/2008)

- **Persian city:** After having conquered Babylon, the Achaemenian government was confronted with the splendid cities of Mesopotamia and established its commercial relations with the farthest points of the world. During this period, good for good relations were replaced by good-money-good followed by money-good-money relations and for the first time, the Persian urban area became a center for such activities. The military-agriculture shar (city) of the Medes period was replaced by Persian military-commercial shar in the boundaries and commercial-agriculture shar in the central lands. At this time, the bazaar first emerged in the city and urban society received its real meaning. The Persian shar in this period was a city-bazaar in addition to a city-temple. History observed the flourishing of Persian urbanism in cities like Susa, Estakhr and Passargad.

The spatial-physical organization of urban areas in the Persian style consisted of a governmental castle, central shar (city) and outer shar. The governmental castle was comprised of a set of palaces, temples,

1- Royal palace
2- Barrack
3- Storehouse
4- Habitat of governor's relatives
5- City
6- Bazaar
7- temple
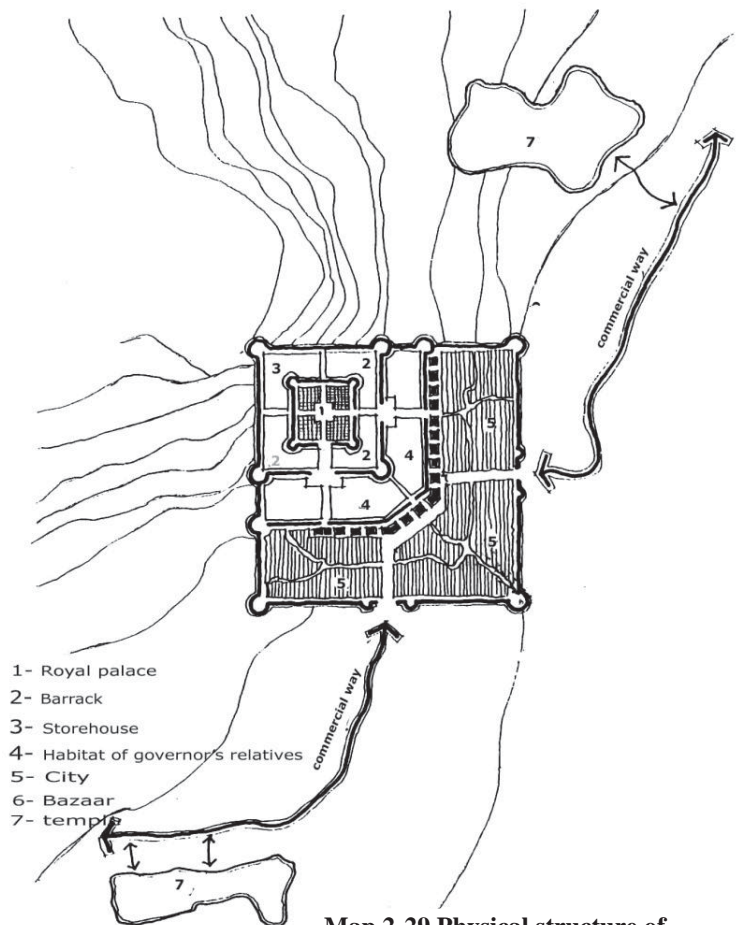
Map 2-29 Physical structure of Persian city
Ref: Habibi; From Shar to City, 1380 AHS/2001 AD

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verandas, military and official installations as well as provisions and reserves stores. This castle was protected by stoned walls and situated at the most strategic point of city. In the case of a lack of suitable natural conditions, artificial hills were established for the construction of such a castle. The central shar was a set of quarters considered for high-rank class settlement and consisted of rather similar houses, in whose centers a bazaar was located. The central urban area was surrounded by a strong wall that had gates for entrance and departure. The outer shar consisted of quarters and houses, bazaars, gardens and scattered fields over a wide area and was usually separated from the outside environment by a natural boundary such as a mountain, hill, river, or forest. In the Persian style, the outer shar can be imagined to resemble modern large villages and most of the urban society lived there. (www. Shahrsazi.mhud.ir, 06/2008)

The end of this period and this method of human settlement coincided with Alexander of Macedonia attack during the third century BC.

- **Persian-Hellenic city:** As a result of the Attack of Alexander of Macedonia and the dominance of Seleucids, Iranian urban design was transformed into a combination of the Persian and Hellenic styles, thus establishing the Persian-Hellenic style.

The Persian-Hellenic style of Iranian urbanism was formed by a mixture of two philosophies and cultures. One philosophy was based on the cultural origin of the government's structure and the other was based on the material origin of the government's structure. In the first (Iranian) philosophy, the government had divine and celestial power and was protected by the Magi and thus conjoined with Zoroaster religion. In second philosophy, the government's power was owing to its authority formed on the basis of social agreement and was in this regard terrestrial (material). In this period, cities were established that complied with both Greek urban forms (city-states) and Iranian models

(city-power); from this, a kind of eclecticism appeared in Iran urban design that did not last for more than one century.

In order to consolidate and spread its dominance over conquered lands, the Seleucid government established more than 400 new cities near military castles, of which the most famous is Sad Darvazeh (100-gate city) near the modern-day city of Damqan. The location of Persian-Hellenic cities was determined based on proximity to main roads, military castles or old cities and considering the strategic importance of this site. New towns of this period were primary centers of give and take and commerce owing to their Greek base and they expanded commercial and industrial relations with correspondingly influenced villages owing to their Persian basis. The city was recognized as a set of castle, town and connected villages.

The spatial-physical organization of new cities with the Persian-Hellenic style was similar to Hypodamus' classical Age plan: a grid thoroughfare network at a human scale. Like the Agora, the square was considered a center for cultural, commercial and official exchanges and was the physical point manifestation for Greek and Iranian viewpoints.

The Persian-Hellenic city, similar to the Persian city and the Greek city-state, was the settlement point for higher-rank social classes; only citizens accompanied with Seleucids and Greek aristocrats or their dependant natives resided in cities, while other people dwelled in the areas surrounding the city. (www. Shahrsazi.mhud.ir, 06/2008)

- **Parthian method:** using the Seleucids government, the Ashkanids government succeeded in creating a centralized, powerful and suppressive administration for the first and last time in Iran by mutual of different clans and could in this way significantly

1- Royal palace
2- Barrack, storehouse and exchequer
3- Habitat of governor's relatives
4- City
5- Bazaar
6- Cultivated land

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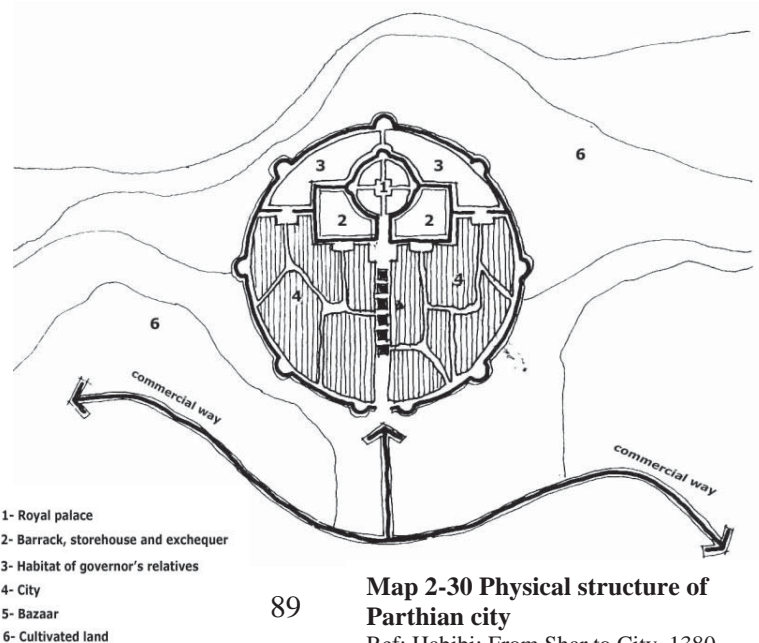
Map 2-30 Physical structure of Parthian city
Ref: Habibi; From Shar to City, 1380 AHS/2001 AD

push forward commerce and marketing and accelerate city-dwelling and urbanism. Ashkanids eradicated Greek concepts as much as possible by integrating and combining Persian-Hellenic city-states with their surrounding residential spots and eliminating social, cultural and economic inequalities between city and village, thus returning to native and land concepts in all environmental and production dimensions, especially to the Persian method. This updating and revisiting resulted in a mode of settlement and living that is called the Parthian style.

In this style, the village and city did not confront each other but rather completed with one another as in the Persian style. In addition to being a center for exchange and industry, the city also produced agriculture and the village also had an important role in marketing and industry. In fact, the word "shar" had a meaning beyond that of a town and in mutual relation with village. (www. Shahrsazi.mhud.ir, 06/2008) In fact, the Parthian style emerged from the struggle for dominating environmental concepts.

By destructing the physical organization of the Seleucids government, the Ashkanid government also changed its origin (i.e. Persian-Hellenic city), integrating the city with its surrounding environment and imposing a spontaneous environmental order over the existing logical and planned order. Circular cities were formed for the first time in this period and cities such as Nesa and Firuzabad were born. This method first began as a simple expression, but over the course of time, the intricate physical-spatial organization of the 7th century appeared in it. Like the Persian style, the Parthian style Shar had divisions such as the governmental castle, central and outer Shar, which had rather similarity to Persian style components.

Sasanid city: The concepts of the Parthian style evolved in Sasanid's period and became more complex. The emerging Sasanid government, which was the first movement of urban society that had achieved power, significantly affected production methods as well as

Figure 2-15 Aerial view of Ardeshir Khurreh (Firuzabad)
Ref: Rezaeian; Iran: Seven Faces of Civilization, 2007 AD

Figure 2-16 Graphical reconstruction of Ardeshir Khurreh (Firuzabad)
Ref: Rezaeian; Iran: Seven Faces of Civilization, 2007 AD

clan and tribal living so that clan aristocracy was practically eliminated from social classes replaced with the caste system. The city was still the settlement of high-rank social classes such as Zoroastrian priests and Mages, warriors and troops, teachers, physicians and farmers. A wide range of people, including tradesmen, merchants and craftsmen were not considered part of these classes and consequently lived outside of the Shar walls.

The Sasanid shar, in the same manner as the Persian shar under the Achaemenid government, was built on the basis of religious beliefs and influenced from its particular worldview. The city was usually delineated by a wall that had four gates towards the four directions of the world, hinting to the cardinal points and the four elements. The Sasanid Shar had a grid layout and was sometimes built in the form of animals. As an example, Susa city was designed in the shape of a falcon and Shushtar city like a horse. The spatial-physical organization of the Sasanid Shar was similar to that of the Ashkanid Shar and consisted of the governmental castle and central and outer shars. The outer shar was a settlement of people who did not belong to the four high-rank classes of Sasanids and had no role in their government. The most considerable point about the morphology of Sasanid cities was the prominence of the local bazaar and square. The bazaar in its present scale was first formed, gave its form to city quarters and acted as the spine of the city. The square was the place to which the bazaars led and was place at which the government's decrees were announced.[40] (www. Shahrsazi.mhud.ir, 06/2008)
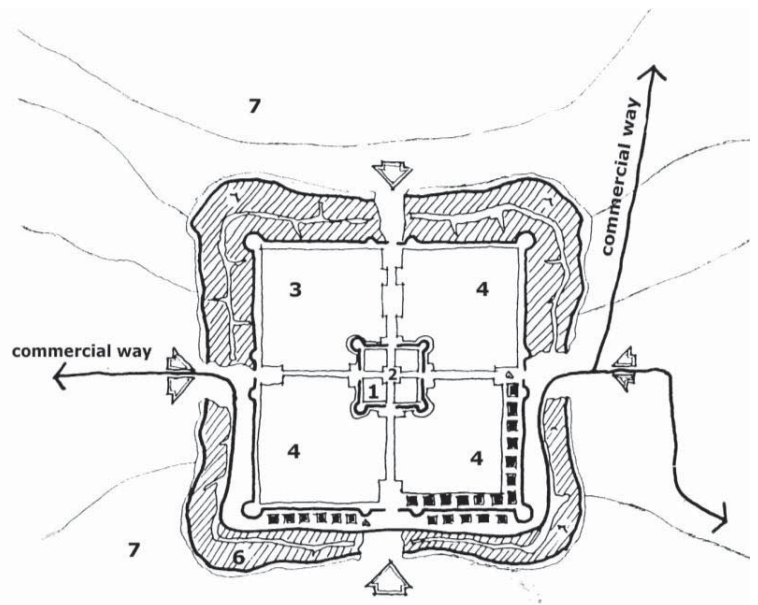
1- Exchequer and royal palace
2- Fire temple
3- Barrack and storehouse
4- Shar and habitat of governor's relatives
5- Bazaar
6- City
7- Cultivating land

Map 2-31 Physical structure of Sasanid city
Ref: Habibi; From Shar to City, 1380 AHS/ 2001 AD
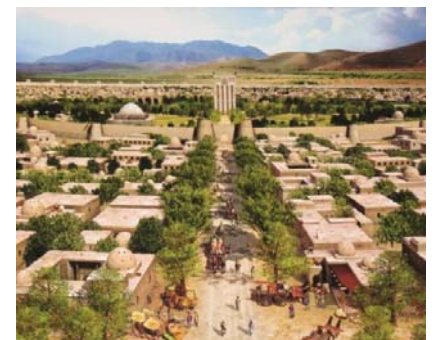
Figure 2-17 Graphical reconstruction of Sasanid city
Ref: Rezaeian, Iran: Seven Faces of Civilization, 2007 AD

40 - Of course this had a different role from the agora and forum. The agora in Athens and the forum in Rome were squares that frequently had social, cultural and leisure functions. In these squares, people gathered together and set up feasts and races.

c) Third Period (Islamic period)

The conquer of Iran by the Moslems in the 7th century AD (around 650 AD) was practically accompanied by revolt of the outer shar (Rabaz) against the inner shar (Sharestan) and the governmental castle (the Kohandezh; i.e., the old castle). The Islamic-period city was not a city-state and the symbol of central powerful governance as with the Sasanid city; here there was no similarity with Greek and Roman city-states. The Islamic city, similar to the medieval city, had no special privilege over its surrounding area. There was from its beginnings a close relationship between the concept of the city and the Islamic worldview. By changing the name of the city of Yasreb to Madineh (which means city in the Arabic language), this became the first city to be set up with an Islamic worldview. Madineh was a

1- Palace
2- Congregation mosque
3- Bureau
4- Seminary
5- Inner Shar bazaar
6- inner Shar
7- Passage-quarter center
8- main city bazaar
9- main city
10- Seasonal mart
11- Cultivating land

Map 2-32 Physical structure of city in the beginning of Arab dominance over Iran
Ref: Habibi; From Shar to City, 1380 AHS/ 2001 AD

place for implementing justice. The existence of a city was considered as a necessity for Islamic government. The Islamic worldview made Islamic cities different and distinct from previous cities. Citizens of Islamic cities, like rustics and tribe members, believed in the Islamic worldview and were obedient to Islamic rules, the Imam, caliph as well as their representatives, so the city did not have an independent and specialized life with different regulations. Based on this viewpoint, there was no difference between city and village (except differences resulting from population, the positioning of official offices, the congregational mosque and so on) and religion had priority over the military-economic purposes of urban government.

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Some distinct models of this city can be seen in the Islamic period: the first were old cities that maintained prior physical-spatial bases. The replacement of new elements like the congregation mosque, the expansion and development of the outer shar and a weakened or abandoned inner shar are typical features of such cities. Examples include Rey, Esfahan and Neyshabour. Next were new towns, which were usually military bases established by the government or built to make older cities lose their standing. Baghdad (as a pre-designed city) and Kufeh, Neyshabour, Esfahan and Rey (intuitively and without a previous plan were established.

Cities that represented the power of government or of Islamic governments are another city type from the Islamic period. These centers inherited the concepts of city-wealth and city-ideal in addition to the general city-state. The city of Baghdad, the Abbasids clerical and political caliphate center in the second AH century, Fas, the center of Odrisids caliphate in the third AH century, as well as Morocco and Samera are of this type. One can point to another type of Islamic cities established around a place of martyrdom or the tomb of Imams, such as Mashad, Qom and Karbala. (Habibi, 1380 AHS/2001 AD, p. 38-42, 50-52)

Considering the common features of Islamic cities, different urban design styles in the Islamic period are examined in the following: Khorasani, the Renaissance of urban design, Razi, Azari and Esfahani.

- **Khorasani Style:** The Khorasani style is the first Iranian-Islamic style in architecture and urban design and first emerged in the area of Khorasan. The dominance of Islam in Iran and especially the fall of the Omavids government as well as the beginning of the Abbasid dynasty mark the point in time when Iranian scientists and bureaucrats first began to influence the formation of the Islamic government structure. The formation of Samanids government in Transoxania and the Great Khorasan in the second AH century (8th century AD) was

simultaneous with different movements in science, literature, education, religion, and mysticism, which grew for reasons including the elimination of caste system, mixture of different civilizations, permission for free contacts of opinions and thoughts from the government and the considerable production of paper in China. The Khorasanid style thus emerged on different fronts, including urbanism.

The organization of the city in the Samanid period was completely different from what existed. Because of relative security, the city became noticeably vaster than its predecessor and the walls of the shar (resulting from the caste system) collapsed to form a new urban pattern.

Two main directions toward the cardinal points met together in a central square, where, in addition to offices, the congregation mosque was also situated around it and the entrance to the main side of the bazaar was open to it. The bazaar was extended towards the city gates, thereby creating different quarters. This situation remained present until the 14th AH century. It was first to be seen in Baghdad and found an Iranian counterpart in Samarghand.

Agriculture, commerce and industry as well as three tribal, rural and urban societies were mixing together and the city included both the main city and the nearby villages. One of the considerable characteristics of the Khorasanid urban structure is its organic cohesion of physical spaces, which stimulated a particular order in the design and provision of the water system, structure of thoroughfares and connections, neighborhood, squares and small squares.(Habibi, 1380 AHS/ 2001 AD, p. 61, 63, 66; www. Shahrsazi.mhud.ir, 06/2008)

- **Renaissance of Urban Design** (4th century AH/11th century AD)**:**

This historical period can be considered as the Renaissance age of Iran. During this period, the history has been the witness for the pinnacle of science and literature and the advent of political-religious independency from Baghdad's central government as well as the return

and re-innovation of old Iranian ceremonies in the framework of Shiite religion theories. [41]

The liberal-mindedness of Buian's government and the attention given to education and corporative associations are some of the achievements of this period. Freedom of religion and thoughts and a return to the concepts of fraternity and equality became the motor for the spatial-physical organization of shar in this period; in this regard, the fourth century can be considered as one of the most important and meaningful points in urbanism and city-dwelling in this country. This period is therefore often used as a reference point for urban design and urban thinking. During this timeframe, large cities such as Siraf, Rey, Esfahan, Neyshabour, Toos, Jorjan and Shiraz (Fanagerd Khosro) recorded their names in history, earning competition with Baghdad and other Mesopotamian cities.

The basics of the urban structure from this period are the same as those defined in the Transoxiana and in Samanid's governance and adopted theoretical concepts of Buian's government. The physical components of the city were as before established on a central square at which offices, bazaars and a congregation mosque were located. All city quarters without any tribal-religious or race supremacy expanded around the central core and bazaar, which presents an exception to the previous and following periods. (Habibi, 1380 AHS/ 2001 AD, p. 68-71; www. Shahrsazi.mhud.ir)

- **Razi Style** (5th to 7th AH/12th and 13th centuries AD, Saljuqids and Kharazmshahids periods)**:** Obtaining sovereignty from the Saljuqid Turks in Transoxiana and Khorasan by forming a centralized and powerful governmental system and eliminating all cultural and ideological liberties of the 4th AH century (Buian's period) resulted in the formation of a style in urbanism referred to as the Razi style. The political, economic, social and cultural features of this period can be seen in the way of exerting power through offices, the supreme

41 - In his book, "From Shar to city", Habibi divided the Islamic period styles into four groups and located the Razi Style –the second style after the Khorasanid Style- in the time period from the 4th to 7th century AH. But the evolution of city-dwelling and urban design of the Samanid period (Khorasani Style) owing to the democracy and liberal-mindedness of the Buians period, determined a method of urban design which is different from the Saljuqids period with the government's absolute rule. Considering that the Saljuqids period is known as the pinnacle of the Razi Style, I name the 4th century AH as the Renaissance of city-dwelling and urban design and 5th to 7th AD century as the Razi Style. It is necessary to say that this division is examinable and controllable in literature and other arts which are not in this study's domain.

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governmental ownership of all producing and wealth distribution resources (especially water and land), the dependency of the economy on gold because of flourishing commerce, the declaration of Shafe´ie as the official religion and the elimination of any kind of freedom of religion, as well as the official education for heralding and expanding the Saljuqid government's ideological system.

Three urban, rural and tribal societies were performing production in all aspects of industry and agriculture. The rule of government through an advanced bureaucratic system and the positioning of government in the city sparked the growth and prosperity of city-dwelling and urban design; from this, the large and extended shar of the Saljuqid government and then the Kharazmshahids' emerged.

An expansion of commercial activities and exchange in this period gave the shar a complete commercial image. The vast, expanded bazaars, mentioned in historical texts prove this claim.

Afterwards until the attack of the Mongolians, city quarters were manifestations of ethnic and religious conflicts and dispersions. The form of the city included a large main square (often in the middle of city) surrounded by palaces, offices, a congregation mosque and sometimes a hospital. The main entrance to the bazaar opened to this square and the bazaar reached its branches into the city. The main seminaries and mosques usually opened to a bazaar or to main passes. Each quarter had its own individual arcade, bath, mosque and cemetery. (Habibi, 1380 AHS/2001 AD, p. 72-77; www.Shahrsazi.mhud.ir, 06/2008)

1- Palace
2- Congregation mosque
3- Mosque
4- Seminary
5- Bureau and government
6- Inner Shar
7- Quarter center
8- Bazaar
9- Main city- rabaz
10- Seasonal mart
11- cultivating land
12- gate
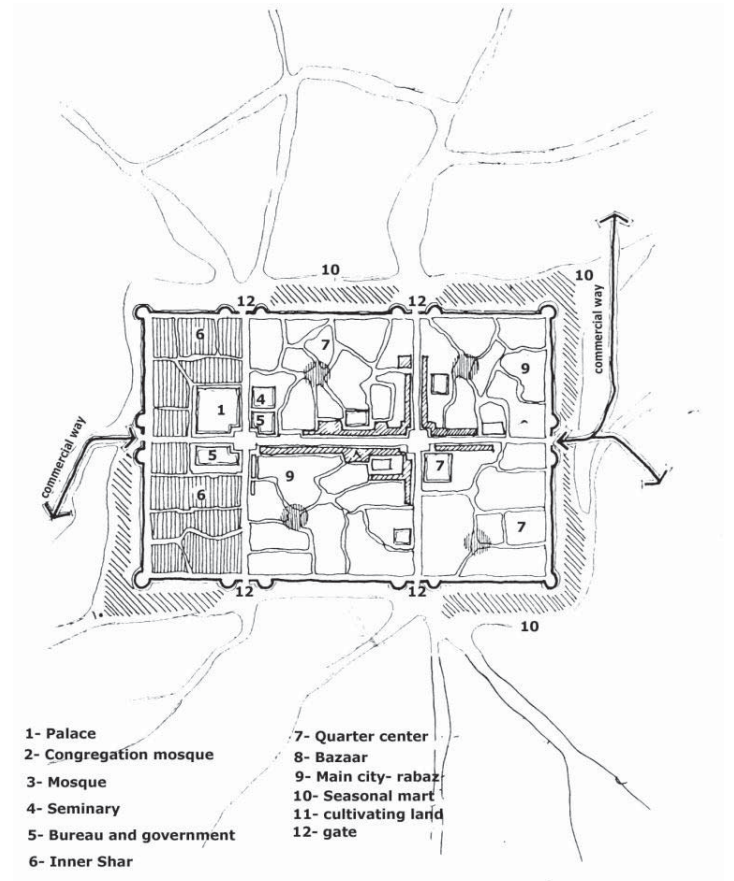
Map 2-33 Physical structure of Saljuqid city (Razi Style)
Ref: Habibi; From Shar to City, 1380 AHS/2001 AD

- **Azari Style:** (7th to 10th AH/13th to 17th AD) – The collapse of urban organization and redefinition of the meaning of "shar": The Mongolian raid in the 7th century AH /13th and 14th centuries AD marked an end to a scientific, literary, artistic and urbanism movement that had lasted for 400 years. Nonetheless, the results of these advances along with the Mongolians' raid to the west set the foundation for an acceleration of the western area's transition from the Middle Ages to Renaissance.

   The Mongolians dismantled the bases and urban organization of the country and made urbanism and city-dwelling meaningless for an entire century. In this period, large cities such as Marv, Bokhara, Samarghand, Neyshabour and Rey were looted and turned into ruins. Because of the very close relationship between city and village along with the fall and demolition of the city, the corresponding villages were also destroyed.

   The absence of a central government, presence of Mongolian laws[42] in spite of efforts to modify them, as well as the oppression of Mongolian Ilkhanid motivated many people to settle around the cities in which a Mongolian tribal chief was located. During this period of Ghazan Khan, large single cities (such as Tabriz) were founded and constructed with a grid street pattern. Sultanieh is another example, established at the time of Sultan Mohammad Khodabandeh in the Zanjan plain using a grid form.

   The Azari style can be further separated into two styles and periods: the first Azari method is related to the Ilkhanid period, with the centrality of Tabriz, and the second method is related to the Timurid period, with Samarghand as the capital. The Timurid period marks the peak of Azari Style. In spite of the decline of city-dwelling, Shahrokh and his successors' efforts to construct and further develop cities such as Mashad, Harat, Bokhara and Samarghand in the great Khorasan and Aghghoyonlu governments in the west (the Amd city in the Diyarbak region) as well as the Ghareqhoyonlu government in the northwest of

42 - The first efforts were performed at the time of Holaku Khan with the assistance of Khaje Nasiroddin Toosi, the famous scientist and bureaucrat and the city of Maraqe was selected as the first Mongolian capital. The second move was during Ghazan Khan's reign with the presence of Khajeh Rashidoddin Fazlollah, resulting in the first Iranian bureaucratic movements for organizing production, distribution and exchange matters. (Habibi, 1380 AHS/2001 AD, p. 81)

Tabriz at the time of Jahanshah and the Al-e Mozaffar government in Kerman, Shiraz and Yazd resulted in the second slow beginning of urbanism and city-dwelling and the emergence of the Azari style in art, literature and architecture.[43]

Although there is no considerable information about urban design in this period, Rob-e Rashidi may be used as a case example. The city was established on the eastern side of Tabriz and outfitted with one thousand houses. The city contained different quarters, buildings and a big library laid out upon a grid street plan. In addition to Rob-e Rashidi, the two cities of Shanbeh Ghazan and Sultanieh also had grid street plans.

Generally speaking, the growth of single cities and the separation of quarters were typical characteristics of the Azari style. (Habibi, 1380 AHS/2001 AD, p.79, 82, 83, 84)

- **Esfahani Style** (11th to 13th AH/ 17th to 19th AD centuries)**:**

A kind of ideological unity began with the Sarbedaran movement and resulted in the settlement of the Safavid government in the 10th century AD. This government gave the impetus for the ideal that Islamic-period Iran had followed since surrendering to Islam. In this way, the first national government came into existence in Iran. (Habibi, 1380 AHS/2001 AD, p.88)

Similar to the land policy in the Sasanid period, regions and lands were given as a fiefdom, not to a person or a chief of the settled nomadic tribe in the region, but to the government agents. The Safavid government created an independent military force under the supervision of the government and the king himself. All residents, from ministers to simple laypeople, took on the role of a peasant in the face of the Sufi leader, the *absolute owner* and *the shadow of god on earth*.

43 – Urban changes in Samarghand are exceptions, as Timur campaigned hard for its development. Ghazani (Shanb Ghazan), Rob-e Rashidi and Sultanieh were new cities established during the Mongolian period. (www. Shahrsazi.mhud.ir, 06/2008)

Figure 2-18 Graphical reconstruction of Rob-e-Rashidi near Tabriz
Ref: Rezaeian; Iran: Seven Faces of Civilization, 2007 AD

Job affairs were completely under the supervision of the government and official agents. The government's great investments in infrastructure and utility affairs (for instance, rebuilding intercontinental silk and spice roads, digging great networks of *qanat* and aqueducts, building middle-way caravanserais and cisterns and establishing new settlements) sparked the florescence both of urbanism and of city-dwelling; the concepts of shar and belligerent quarters (quarters whose residents were hostile to other quarters) appeared again, though this time in a new form.

The Esfahan-style shar in the Safavid government showed a political-ideological blending and mixing of Iranian and religious concepts. This shar was a collection of complete historical achievements, not as a reproduction of old concepts, but as a redefinition and renaissance of these ideas.

Although the reconstruction and redefinition of the city and of urban concepts that had emerged before the Safavid government and during the Ghareghoyonlu and Aghghoyonlu governments arrived with the establishment of the Hassan Padeshah complex in Tabriz, the first examples of this had already come forward during Shah Tahmaseb governance and the selection of Qazvin as the capital. Here, the Aliqapoo complex was established, which included a square and bazaar. At the time of Shah Abbas, the change of the capital city from Qazvin to Esfahan and the planning, design and execution of the new shar of Esfahan for 25 years after the turn of the of 11th AH century (17th century AD) resulted in a new pattern in urban structure and a

1- Mansion
2- Congregation Mosque
3- Mosque
4- Bureau and government
5- Seminary
6- Path
7- Square
8- Bath
9- Caravanserai
10-CiTY- settlement for all strata
11- Tannery
12- City gate

Map 2-34 Physical structure of Safavid city
Ref: Habibi; From Shar to City, 1380 AHS/2001 AD

realization of the utopia of the Safavid government. The Chaharbagh axis, which was matchless until that time, acted as a linear joint between old and newly established spatial organizations, passing across the Zayandehrood (natural and organic) axis and the Naghsh-e Jahan square as the new city center and a symbol of the power of the Safavid government. This axis had a unique precision in attention to the geometric and spatial arrangement and adjustment of surrounding and internal elements. The Ganjalikhan complex in Kerman is one of the most distinct examples of the application of the Esfahani style in a provincial capital.

Figure 2-19 Naghsh-e-Jahan Square, Esfahan
Ref: Rezaeian, Iran: Seven Faces of Civilization, 2007 AD

The urban features of this period can be briefly summarized in the appearance of the meaning of "street" in opposition to "desert" (for example, Chaharbagh in the case of Qazvin city and Chenarestan in the case of Tehran) and the combination of organic and rational design methods. Each living complex contained a square or a central node with the main governmental and bureaucratic, religious and economic … elements located on its sides. Urban installations and utilities (water stores, bridges, caravanserais, gardens and streams ...) were not singularly conceived but as a coherent structure in hierarchy and location. The city was transmuted in its surrounding area so that it was in complete consent with its environment and in multidirectional consent and coexistence with surrounding villages. (Habibi, 1380 AHS/2001 AD, p.92-106)

d) Tendency towards Modernism

The influence of industrialization followed by modernism trends in the western world on Iranian urban evolution is introduced as the period of a "tendency towards Modernism". From the writer's view, Iran never became fully modern, whether in the Tehran style, a link between the Esfahani style (past) and the future or in Pahlavid's first Haussmannian urban design evolutions in Iran, although modernism

was approached through imitations, it never became fundamental or internalized.

- **Tehran Style:** A general and probably conceptual change began in the middle of 13th AH/19th century AD. The revival (return to the values of old architecture and urban design) movement was gradually replaced by a simple style and unadorned writing. This evolution later spread to other arenas. The Qajar government intended to establish its utopia in order to suitably respond to two internal and external groups of factors that affected the revival movement. The new city was an interpretation with temporal and local concepts in the Esfahan style. (Habibi, 1380 AHS/2001 AD, p. 128)

The Tehran style was conceived as early as the time of the Qajarid government's formation, but it needed two important historical events in order to define its real meaning: one was the measures of the reformist Mirza Taghikhan Amirkabir for creating a new governmental organization and the other was the presence of European teachers and engineers in the Darolfonun school, the first school of higher education.

Like the Esfahan style, the Tehran style refrained from great interference with the historic urban context and also caused social displacements through movements within the city. The city center moved from Sabzehmeydan and Arg squares to Tubkhaneh square. The quarter in the Tehran style was not likewise a place for ethnic-tribal demonstrations and was afterwards considered the symbol for social distinctions (rich and poor quarters).

The square was also arranged in another form in terms of meaning, construction, organization and function. The squares of Tupkhaneh, Arg, Baharestan and Aminolsoltan were each physical manifestations and signs of this change. In these squares, contrary to Esfahan-style squares, instead of mosques, seminaries, governmental palaces and the bazaar, other elements such as a telegraph building, post office, bank, municipal office and police department were to be found.
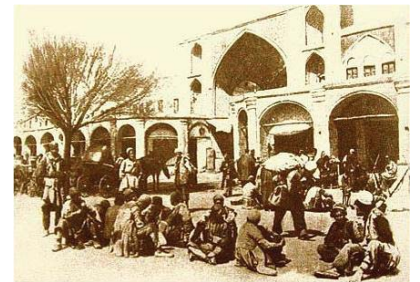
Figure 2-20 Sabzehmeydan in Qajarid period
Ref: www.seemorgh.com\culture (11.2010)

Figure 2-21 Tupkhaneh Square in 1320 AHS/1941 AD
Ref: www.seemorgh.com\culture (11.2010)

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The bazaar was confronted with a strict rival, and new functions such as the theatre, cinema and hotel changed the visage of city and replaced it at least superficially with a European city concept. The street, neither like that of the Esfahan style, which had just a recreational role, nor like those of following periods, which were only planned for traffic, was a living, dynamic urban space.

In this style, the confrontation of polar concepts (new and old, modern and traditional, European and native) gave off its first spatial-physical effects so that streets and squares with their new surrounding elements were loci for modernist social strata (so-called Europeanized) and bazaars, arcades and centers of quarters were the places of transit for the majority of society who still lived according to ancient and older standards. The Tehran style, in contrast to the Esfahan Style, could for several reasons not extend its changing domain to all Iranian cities. The style was not considered in interruption but contingent to the Esfahan style and was a style that once again groomed the old urban society. (Habibi, 1380 AHS/2001 AD, p. 128-141)
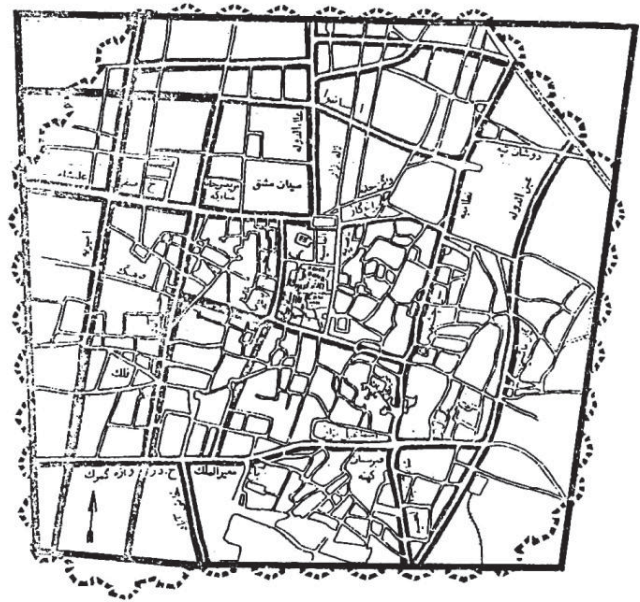
Tehran's ring roads plan in 1939 AD

Physical interference in city according to 1930's plan

Map 2-35 Collapse of Tehran's wall and construction of ring road
Ref: Seyed Mohsen Habibi; From Shar to city, 1380 AHS/2001 AD

- **First Pahlavid Period:**

The Pahlavid government formed on the basis of a bureaucratic organization and a military force independent from old social-nomadic divisions and became dominant over nomadic tribe, rural and urban societies. This government was conceived in 1300 AHS/1921 AD and in 1304 AHS/1925 AD came into power. Comprehensive effects of this period can be traced in Tehran city:

At the beginning of this period, the physical structure of Tehran was confined to the Naseri ramparts. Following the expansion of the city outside its fortifications, which began in 1309 AHS/1930 AD, the ramparts were demolished beginning in 1311 AHS/1932 AD and completely removed by 1316 AHS/1937 AD. (Tehran Municipality, 1376 AHS/1997 AD)

During this period, the expansion of the city was mainly towards the north and northwest. The expansion towards the south proceeded slowly owing to the presence of holes for brick-burner houses, the existence of farming lands as well as old cemeteries and the destructed walls of Naseri rampart.

The most important efforts from this period were the widening of streets and the establishment of governmental buildings. By filling the moat in the four cardinal points, four wide streets were formed: in the north, Shahreza; in the south, Shush; in the west, Simetri; and in the east, Shahbaz. Certain old streets were also changed into new boulevards with geometric and regular forms. Following the pattern of western cities, many streets were widened and adorned with a checkerboard pattern. Squares were established in the course of main streets or at their intersection and their surroundings were harmonized and conformed to them. Efforts were made to change the situation of the city from a single center (Tupkhaneh square) to enhancing the importance of each square. Squares such as Hasan Abad, Mokhberoddoleh, E´dam, Rah-Ahan and Bagh-e Melli portal region are considerable examples from that period. One of the noteworthy points in this period's urban design was the unity in form in the design of streets such as Amirieh and Cheraghgas. (Tehran Municipality, 1376 AHS/1997 AD)

New constructed streets over old trench
Streets to be constructed over old trench
Underconstruction streets
Streets that have never been constructed
Constructed streets
new squares
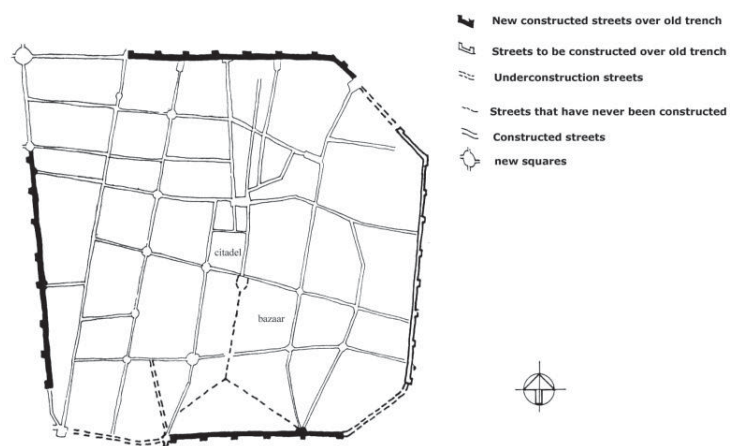
Map 2-36 Tehran, 1932 AD
Ref: Habibi; From Shar to city, 1380 AHS/2001 AD

Generally speaking, it can be said that during the first Pahlavid period Tehran city was influenced by the international dissemination of the modernist movement. In fact, the Haussmannian changes to Paris in the 19th century inspired the reordering of urban form in the cities of Iran.

e) Urban organization and management

- **Second Pahlavid Period**

As a clearer pattern for these changes in the second Pahlavid period, Tehran can be investigated at three historic points in time:

First period: 1320-1332 AHS/1941-1953 AD; second period: 1332-1345 AHS/1953-1967 AD; third period: 1345-1357 AHS/ 1967-1979 AD.

During the first period, development was on the basis of a rhythmic growth in rural immigration, which had existed traditionally and historically. The development of the city took place gradually in a checkerboard form outside the old urban structure and was steered by engineers and architects who had graduated from the fine arts faculty. Considering the political situation of that time, the Pahlavid government tried to democratically form the city by administering urban changes through public consultation.

Graduates of technical schools, who were under the influence of the international style made efforts that rapidly and widely reflected as a modern pattern in urban development. Impressed by this style, Tehran pattern put forward a new definition for the city and its development.

In the second period, an open-door policy for the import of industrial and agriculture goods struck the final blow on economy and production and changed the city into a phenomenon of consumption. During this period, urban land use conceived of the direction of development as a profitable good. While in the first Pahlavid period the

city had a coherent (albeit non-native and foreign) vision of streets and squares, urban architecture began to lose its meaning at this stage.

In the third period, the preparation of comprehensive urban plans for solving new urban problems such as the rapid expansion of the city began. In this period, the utopia of the Pahlavid government was appeared through the establishment of the Development and Housing Ministry and measures for preparing comprehensive urban plans.

Without first considering underlying economic and social problems, comprehensive plans were imposing their patterns on cities. While in 1310 AHS/1931 AD urban plans put forward Haussmann-type thoughts, the plans of this period followed "bulldozer" urban design tactics. The destruction of streets—again in the old-fashioned context— and the emergence of the slum-dwelling phenomenon was influenced by these comprehensive urban plans.

The city was confronted with a dwelling crisis and the construction of suburban settlements opened up a new gate in urban design. During this period, Tehran grew recklessly and was tagged with titles such as "mirage city", "deception city" and "trick city". (Habibi,   1380 AHS/2001 AD, p. 153-158)

3 Chapter

................Case Study: Mashad City

3.1 National Geography
3.2 Cultural and Social studies
3.3 Economic studies
3.4 Physical Evolution of Mashad

3.1 Natural Geography
(position, climate …)

Mashad, the center of Mashad Township and "Khorasan-e Razavi" province, is with approximately 20,000 hectares of area the second largest city of Iran and one of the world's religious metropolises.

The average altitude of Mashad Township is 985 meters above sea level. The city is located at 59˚ 36' east longitude and 36˚ 17' north latitude. Mashad city is bordered on the north and northwest by the cities of Dargaz and Chenaran, on the east by Sarakhs and Kalat, on the southeast by Torbat-e Jam, on the south and southwest by Fariman and Torbat-e Heydarieh and on the west by Neyshabour cities. (Afshar Sistani, 1377 AHS/1998 AD, p.325;   Jafari, 1363 AHS/1984 AD, p. 120)

Naturally and geographically, Mashad is located at the farthest end of the Kashafrood plain. The Hezarmasjid and the Kopet Dagh mountain chains in the north and the Aladagh highlands as well as the Binalud mountain chains in the south limit this plain. (Asiaie and Ghavami, 1383 AHS/2004 AD, p. 147)

Mashad's climate is variable, with warm and dry summers and cold and humid winters. The maximum average temperature in summer is as high as 26.4˚C and the minimum average in winter is 4˚C. (Ardam consultant, 1367 AHS/1988 AD, v. 4, p. 38, 40) The average amount of annual rainfall is 260 mm and the rain season continues from the
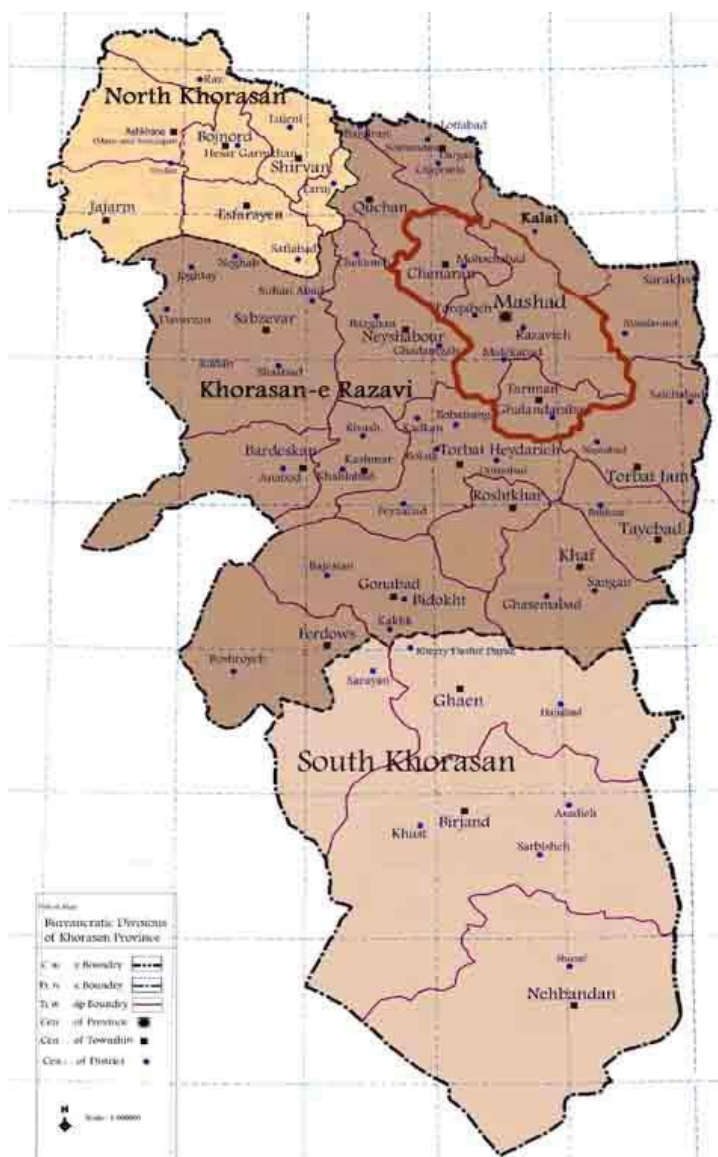
Map 3-1 Political divisions of Khorasan Province
Ref: Iran's Interior Ministry, Administrative divisions section

second half of November until the beginning of June. (Farnahad consultant, 1382 AHS/2003 AD, v. 3, p. 117)

The main water resources of Mashad are mainly shallows and underground waters. The shallows are supplied by 24 lines of rivers, including the Golestan River, the Torogh River and the Kardeh River. Mashad's streams are mostly seasonal and join in the north with the Kashafrood River. (Asiaie and Ghavami, 1383 AHS/2004 AD, p.144)

Wells and aqueducts are the main resources for supplying water for farming and gardening in Mashad, although these encounter severe shortages because of irregular and unlawful use.

Geologically, Mashad has a sedimentary with plenty of limestone. Most of the mountainsides around Mashad have siliceous and mineral crystalline stones. There are active faults in the cities around Mashad and the city is situated in a region of relatively high seismological danger, although only one destructive earthquake (in 1084 AH) has taken place during its 1200-year history.

Figure 3-1 Hezarmasjed mountain ranges
Ref: "Khorasan, the land of sun" Multimedia CD
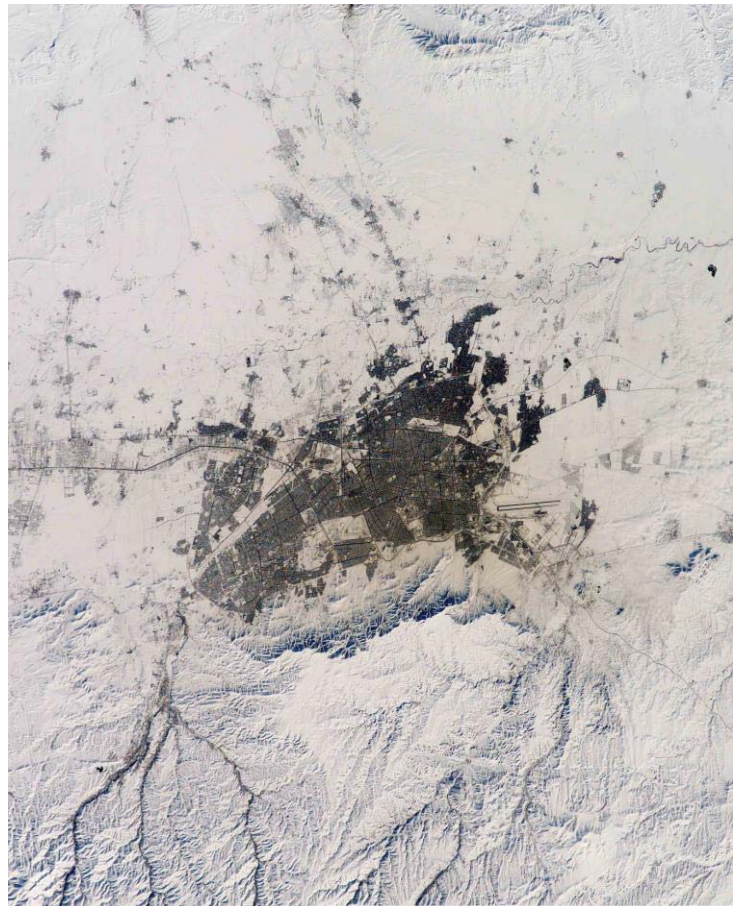
Figure 3-2 Satellite photo of Mashad, 2002 AD
Ref: www. Nasa.gov (02.2005 AD)
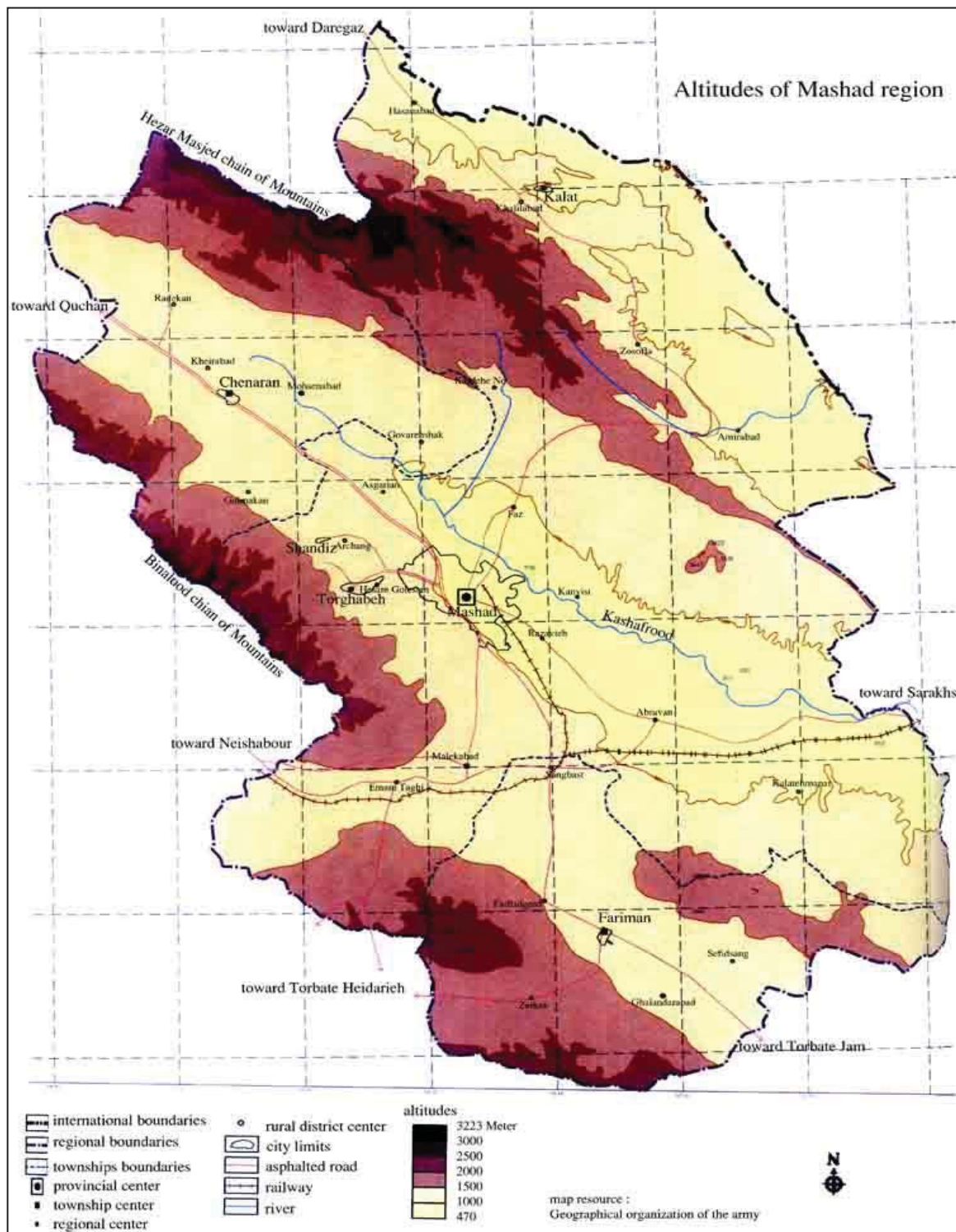
Map 3-2 Natural characteristics and position of Mashad city and Mashad Township
Ref: Geographical Organization of the Army

3.2 Cultural and Social studies

What distinguishes humans from other living beings is culture. In commentators' definitions of culture, we find an integrated collection of thinking styles, sense and operation. Culture includes a set of beliefs, knowledge, rites and values of a society. It has been said that cities are definitions of nation's cultures and in order to understand the cultures of nations we can refer to their architecture and urbanism.

This section shows the tight connection between culture and the physical evolution of cities and thus the first stage of studies, following a description of the historic urban population structure, will examine Mashad's people. Cultural specialties and different aspects of ethnicity, language and beliefs will then be introduced.

3.2.1 Population growth

The evaluation of Mashad's population historic position requires examining various factors, such as growth rate, age, immigration, the floating population (tourists and pilgrims), and number of residents in the city boundaries. These have been noted in brief hereafter:

Since the time that Mashad could first be called as a city (i.e., since the construction of its first ramparts in 510 AH/1116 AD) until the 7th century AH/13th century AD, when Tabaran was the center of the Toos province, the population of Mashad was reported as less than Tabaran and thus less than 20,000.

With the Mongols' invasion and the ruining of areas close to Mashad, especially the destruction of Tabaran in the 7th century and the resulting influx of migrants, Mashad's population began to increase and reached 30,000 in the Timurid Age (8th to 10th century AH/14th to 16th century AD).

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The only available information about Mashad's population is found in the reports of travelers and tourists. These are presented in the following.

Source	Narrator	Period and Year	Population
Sir John Malcolm (1815 AD), Persian translation and printed in 1362 AHS/1983 AD	Sir John Malcolm	Nader Shah 1211AH/1796 AD	60000 households
MacDonald (1813 AD), quoted by Etemadosaltaneh, 1362 AHS/1983 AD	MacDonald	Fat'h'ali Shah 1813 AD	50000 persons
Fraser (1825 AD), quoted by Etemadosaltaneh, 1362 AHS/1983 AD	James B. Fraser	Fat'h'ali Shah 1238 AH/1822 AD	32000-40000 persons
Conolly (1834 AD), quoted by Etemadosaltaneh, 1362 AHS/1983 AD	Arthur Conolly	Fat'h'ali Shah 1246AH/1830 AD	45000 persons
Burnes (1834 AD), Persian translation and printed in 1366 AHS/ 1987 AD	Alexander Burnes	Fat'h'ali Shah 1248 AH/1832 AD	40000 persons
Ferrier (1856 AD), quoted by Etemadosaltaneh, 1362 AHS/1983 AD	J. P. Ferrier	Mohammad Shah 1261 AH/1845 AD	60000 persons
Khanikov (1866 AD), Persian translation and printed in 1375 AHS/ 1996 AD	Nikolas Khanikov	Nasereddin Shah 1275 AH/1858 AD	60000 persons
Eastwick (1864 AD), quoted by Astane Ghods Razavi yesterday 'n Today, 1356 AHS/1977 AD	Edward B. Eastwick	1279 AH/1862 AD	10000-80000 persons
Sa'dvandian & Etehadieh, 1368 AHS/1987 AD	Headmen of city's quarters	Nasereddin Shah 1284 AH/1867 AD	60000 persons
Nepner, quoted by Astane Ghods Razavi yesterday 'n Today, 1356 AHS/1977 AD	Nepner	1291 AH/1874 AD	45000 persons
Zeinolabedin Mirza Ghajar, 1382 AHS/2003 AD	Zeinolabedin Mirza Ghajar	1295-6 AH/ 1878 AD	57287 persons

Table 3-1 Mashad population in different periods (Before contemporary census)
Ref: Rezvani, Alireza; In search of urban identity: Mashad, 1384 AHS/2005 AD

Among these statistics, the notable report belongs to that from 1295 AH/ 1878 AD, which was gathered by Zeinolabedin Mirza Ghajar, one of the men of the governor of Khorasan, Roknoddoleh. This person had become the agent of statistics for Mashad by order of Roknoddoleh.

Starting in the first Pahlavid age (1300 AHS/1921 AD), with the establishment of safety and the beginnings of the renewal, Mashad's population started to increase. This increasing has continued until today but has followed various speeds in different decades. The following table shows Mashad's population since the beginning of the current century until now.

The population growth rate based on statistics rendered from the first 21 years (1297-1318 AHS/ 1918 – 1939 AD) was at about 1.87%. This grew to 5% in the year 1345 AHS/ 1966 AD and between 1355 AHS/ 1976 AD and 1365 AHS/ 1986 AD (since the Islamic revolution) increased to 8.16%. This can be attributed to the amalgamation of the surrounding estates and villages as well as the immigrations through years of the Iran-Iraq war).

From 1365 AHS/ 1986 AD until the census in 1380 AHS/ 2001 AD, in which Mashad's population was estimated to be about 2,150,000, the average population growth rate was approximately 2.58%, which was higher than other provincial centers in Iran. (Iran Statistics center, 1380 AHS)

Row	Year (AHS)	Year (AD)	Population in persons	Source and Explanations
1	1297	1918	100,000	Elis, 1372 AHS, p. 117
2	1318	1939	176,471	Saeidi Rezvani, 1344 AHS/1965 AD, p.191, based on census of 1318 AHS in Mashad
3	1335	1956	241,989	Iran Statistics Center, Iran's first general census of population and houses,1335 AHS/1956 AD
4	1338	1959	200,000	Lockhart, 1345 AHS/1966 AD, p.137. [considering the official statistics of 1335 AHS, Lockhart's estimated number is wrong]
5	1342	1962	350,000	Saeidi Rezvani, 1344 AHS/1965 AD, p.191
6	1345	1966	409,616	Iran Statistics Center, Iran's general census of population and houses, 1345 AHS/ 1966 AD
7	1355	1976	667,770	Iran Statistics Center, Iran's general census of population and houses, 1355 AH/ 1976 AD
8	1365	1986	1,463,508	Iran Statistics Center, Iran's general census of population and houses, 1365 AHS/ 1986 AD
9	1370	1991	1,759,155	Iran Statistics Center, Iran's general census of population and houses, 1370 AHS/ 1991 AD
10	1375	1996	1,887,405	Iran Statistics Center, Iran's general census of population and houses, 1375 AHS/ 1996 AD
11	1380	2001	2,150,000	Statistics Report of Mashad's Municipality, 1380 AHS/2001 AD
12	1385	2006	2,427,316	Iran Statistics Center, Iran's general census of population and houses, 1385 AHS/ 2006 AD

The war in Afghanistan triggered the immigration of about 146,900 people to Mashad Township during the decade 1355 to 1365 AHS /1976 to 1986 AD, of which about 41.7% settled in Mashad itself

Table 3-2 Mashad population in contemporary censuses
Ref: Rezvani, Alireza; In search of urban identity: Mashad, 1384 AHS/2005 AD; Iran Statistics Center, Iran's general census of population and houses in 1385 AHS/2006 AD

and particularly in its margins. Estates such as Golshahr and Sakhteman arose from this mass migration.

Based upon some estimation, Mashad's population in 1400 AHS/ 2021 AD will be about 3,172,000. (Farnahad Consultant, 1382 AHS/2003 AD)
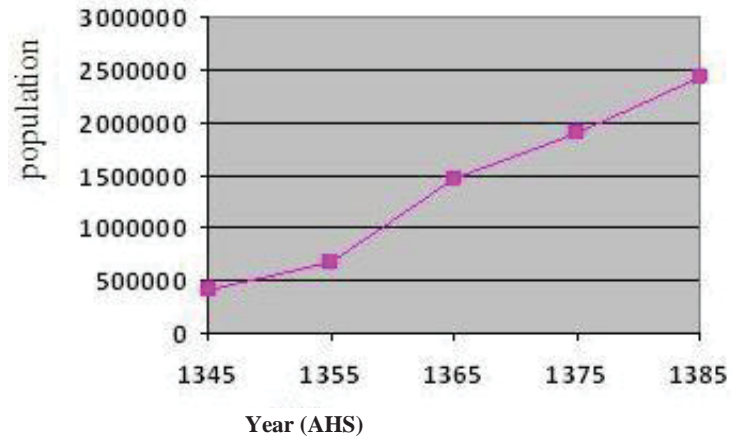
3.2.2 Floating Population (Pilgrims, Tourists)

The Imam Reza holy shrine attracts great numbers of people from different areas of Iran and foreign countries every year. According to acquired statistical information, the number of travelers and pilgrims to Mashad in the last 100 years has increased from 100,000 to more than 15,000,000 anually. 39% of the travelers come to Mashad in the summer, 24% in the spring, 20% in the autumn and 17% travel in winter. The average duration of stay in Mashad increased from 3.8 nights in 1365 AHS/ 1986 AD to 6.6 nights in 1379 AHS/ 2000 AD, and the average of each family of 2.02 persons increased to 4.7 persons. The number of travelers and pilgrims has always increased and based upon different predictions, the number of annual pilgrims in the year 1400 AHS/ 2021 AD will be between 23 and 31 million persons. (Tash consultant, 1383 AHS/2004 AD, p. 84, 85) Thus, considering the average time of 7 nights per stay, Mashad will have a crowd around 4 million persons each day of summer.

Figure 3-3 Population growth in Mashad from 1345 AHS/1966 AD until 1385 AHS/2006 AD
Ref: writer
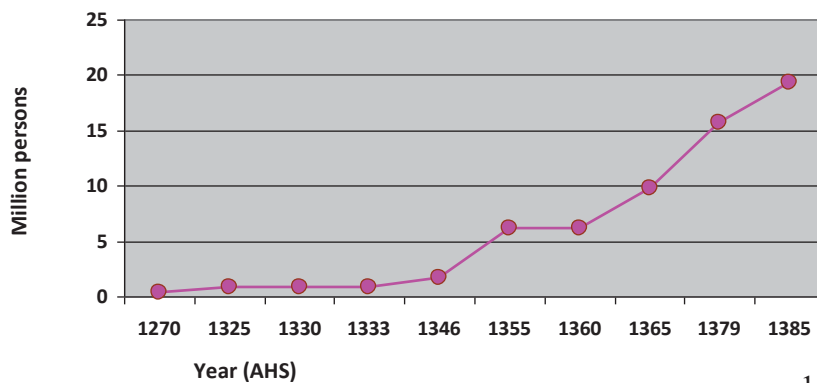
Figure 3-4 The annual number of pilgrims and travelers to Mashad from 1270 AHS/1891 AD until 1385 AHS/ 2006 AD
Ref: writer, based on Tash Consultant base information

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3.2.3 Public Culture

(Language, race, ceremonies and rites, cultural places)

Khorasan is the cradle of many of Iranian tribes and races. In 300 BC, the Parthians chose Khorasan as their first gathering point and in 256 BC, First Ashk, the Parthian king, set out against Seleucids, forcing them to leave Iran and providing the basis of Ashkanids (Parthian) government. Old Khorasan, with its centrality to Marv, Balkh, Harat and Neyshabour, can be considered among the most organized centers of civilization in Iran. Following the entrance of Islam into Iran and Khorasan in 1st and 2nd centuries AH/7th and 8th centuries AD, Khorasan was still a place of relation, interaction and rivalry between different cultures and tribes owing to its positioning on the Silk Road as well as its proximity to different nations. The formation of the primary core of Mashad in 203 AH/818 AD and the following immigrations of different population groups to this city not only for trade or agriculture, but also due to their religious beliefs, has transformed Mashad to a city composed of many various races and ethnic groups. (Seyyedi, 1382 AHS/2003 AD, p. 22)

Except for natives to Mashad, who have settled in this area since its beginnings, other ethnic groups such as Turks, Baluchs, Armenians, Jews, Haratis, Marvis, Bokharaeis and Keshmiris have settled in Mashad and its surroundings. The reasons for this are diverse and include war, mass immigration and forced migration by the governments of each of the time periods. The variety of races and ethnicities in Mashad has resulted in definite variations in traditional clothing, beliefs, games, ceremonies and music.

Eastern Iran, particularly Khorasan, was from the introduction of Islam in Iranian kingdoms (Taherids, Saffarids and Samanids) and in ages of foreign governments (Timurids, Ghaznavids) recognized

Figure 3-5 Kurds' of Khorasan traditional clothing
Ref: "Khorasan, the land of sun" Multimedia CD

Figure 3-6 Men's formal clothing in Qajar period (1310 AH)
Ref: Ghajar, Zeynolabedin Mirza; Nofus Arz-e Aghdas or People of Old Mashad, 1382 AHS/2003 AD

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as an important cultural area, and Mashad with the blessing of the Imam Reza shrine has always been an important cultural center.

Some believe that the formation of Mashad occurred at the same time as the foundation of the seminaries. The Timurid and Safavid ages represent an essential cultural period for the construction of seminaries and the development of education. Several seminaries were built in this age, such as the Dodar Seminary (843 AH/ 1439 AD), the Balasar Seminary, Parizad (823AH/ 1420 AD), the Kheirat Khan Seminary (1057 AH/ 1647 AD), Mirza Jafar (1059 AH/ 1649 AD), and Fazel Khan (1075 AH/ 1666 AD). This cultural feature continued through the Qajarid age and beyond, so that today Mashad is still considered as an educational and training center for religious sciences. (Etemadosaltaneh, 1363 AHS/1984 AD, p. 45, 36)

Mashad is also considered as the focal point for secondary education in the eastern part of the country. Ferdowsi University, Medical University, Islamic Azad University, Payame Noor University, and many other educational institutions in affiliation with the government and individual foundations are active in this city; more than 50,000 students receive their education at these centers.

The school-building movement, the artistic-cultural precedent (drawings, Tazheeb—a religious ornamental art, tiling, calligraphy, literature and architecture) and the construction of mosques in Mashad not only show the urban functional and structural values, but are hints at the capabilities and rich capacities of artists in this area.

Based on information gathered from the Office of Culture and Islamic Guidance of Mashad in 1382 AHS/ 2003 AD, there were 41 public libraries, eleven libraries of Kanoon-e Parvaresh Fekri Koodakan (a center for children), 15 cinemas, two art-culture complexes, 108 press and 87 centers for culture, art and sport, in addition to several museums and professional libraries in this city. (The Office of Culture and Islamin Guidance report, 1382 AHS/2003 AD)

Figure 3-7 Razavi University of Islamic sciences (Mirza Jafar Seminary)
Ref: "Khorasan, the land of sun" Multimedia CD

Figure 3-8 Ferdowsi University of Mashad
Ref: writer's archive
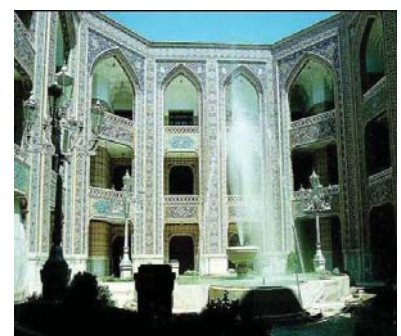
Figure 3-9 Astan-e Ghods-e Razavi Library
Ref: "Khorasan, the land of sun" Multimedia CD

Mashad should be recognized as one of most important centers in advertising and spreading Islam and Shiite religion since the early centuries of Islam. Many religious rituals have a special aspect in this city, and some of them are completely specific to Mashad. Ceremonies such as "Tazie'e Khani", "Ghobar roobi", "Naghare Zani", "Sine Zani", "Alam Gardani", and "Et'am" are examples of these.

Figure 3-11 Naghghareh Zani, 1283 AHS/ 1904 AD
Ref: Archive of Musa al- Reza Sayyah

Figure 3-10 Praying rites in the holy shrine of Imam Reza
Ref: "Khorasan, the land of sun" Multimedia CD

Figure 3-12 Et´am ceremony
Ref: www. Imamreza.net (04.2005)

Figure 3-13 Alam Gardani
Ref: writer's archive

3.3   Economic studies

3.3.1   Mashad's economy through the ages

From its very beginning, Mashad's economy was influenced by different factors including the natural conditions of the region (suitable soil for cultivation, various mines), the political situation of the country and the Khorasan and Toos provinces (including wars and insecurities) and especially the religious situation and the presence of Imam Reza shrine.

Noghan, which was the primitive core of Mashad city, was the center of the Toos province before Tabaran city. Its situation and its proximity to the Silk Road and its caravanserais made this city well-known.

The writer of the book "Hodood-al Alam" in 372 AH reported the presence of turquoise, copper, lead, coal and shabah (a kind of black stone) in the mountains around Toos and the manufacture of stone pots in Noghan, which were among the most important exports of Noghan city. Until the end of Ghaznavids, stonework was the main profession of Mashad people and the Toos province was a rich land and a place for the passage of commercial caravans.

Even in the Ilkhanid period were Toos natives, especially the people of Mashad and Noghan, great stoneworkers. The author of "Athar-al belad" wrote at that time that as the god had made the iron soften in David's hands, he also softened the stones in the hands of Toos people. (Qazvini, 674 AH, Persian translation by Sharafkandi, 1363 AHS/1984 AD, p. 188)

In his book "Ahsan-ol Taghasim", Moqaddasi informs of the presence of bazaars around the congregational mosque. The existence of several and prosperous caravanserais and bazaars in each period are clear witnesses to an economic flourishing. By examining the situations of both of these urban elements we can survey the economic situation

Figure 3-14 Sangbast Caravanserai (Mil-e ayaz)
Ref: "Khorasan, the land of sun" Multimedia CD
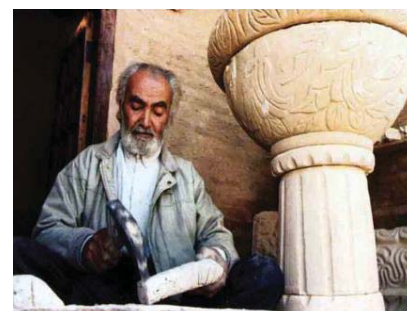
Figure 3-15 Stone work in Mashad
Ref: "Khorasan, the land of sun" Multimedia CD

Figure 3-16 Stone-made dishes
Ref: "Khorasan, the land of sun" Multimedia CD

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of the city in each period. (Moqaddasi 985 AD, translated into Persian by Alinaghi Monzavi, 1362 AHS/1983 AD, V.2)

The economic growth of Mashad began seriously in the Safavid period. The improvement and extension of roads, repairing and building of caravanserais and security stations by Safavid kings and the importance of Mashad as a religious city transformed Mashad into a cultural-pilgrimage and a commercial-economic center. (Tahernia, 1376 AHS/1997 AD, p. 175)

Especially at the time of Shah Abbas, who avoided the relocation of Iranian capitals to the cities of Mecca and Medina, sequential effective measures for Mashad's prosperity and the fulfillment of the needs of pilgrims were performed. The establishment of caravanserais, the construction of Khiaban, i.e. street (Balakhiaban and Painkhiaban) and the symbolic travel of Shah Abbas from Esfahan to Mashad on foot were all factors which, by the tourists' dictum, turned Mashad's bazaars into a lively stereoscope of different eastern nations. (Bartold, 1903 AD, Persian translation by Sardadvar, 1308 AHS/1929 AD, p. 134)

Of Mashad's important products during the Safavid period, one can mention silk, cotton, the meat and hide of domestic animals, turquoise, iron, copper and lead. Moreover, part of the surplus productions of cultivated land around Mashad and across the country entered the city as endowments and vows. (Tahernia, 1376 AHS/1997 AD, p. 126; Clavijo, 1782 AD, Persian translation by Rajabnia, 1366 AHS/1987 AD, p. 168)

At the time of Nader Shah, Mashad established connections to many large cities in its region that were mostly annexed to Iran during Nader's conquests, which sparked a commercial flourishing in Mashad. The increase in the number of caravanserais to 90 is a witness for this upswing.

During Nader's governance in 1153 AH/ 1740 AD, the English merchant George Thompson wrote that Mashad was a developed city in which trade had a great flourish and every day caravans from Balkh, Badakhshan, Ghandehar, India and every part of Iran's land were

Figure 3-17 A caravanserai in Qajar period
Ref: Mahvan, The history of Mashad al-Reza, 1383 AHS/2004 AD, p. 302

Figure 3-18 Turquoise
Ref: "Khorasan, the land of sun" Multimedia CD
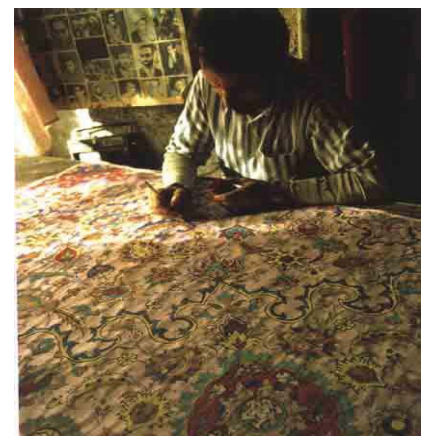
Figure 3-19 Carpet designing
Ref: "Khorasan, the land of sun" Multimedia CD

entering Mashad. He added that large and single-built Bazaars in that city were full of valuable goods and a large group of trade men from different nations had gathered there. (Thompson, quoted by Afshar Sistani, 1378 AHS/1999 AD, p. 338)

During the Qajarid dynasty, Mashad maintained its mercantile performance. However, the insecurity caused by the weakness of the central government, interior and exterior wars, interior autocracy and so on decreased the number of caravanserais. In 1889 AD, Lord Kerzen wrote about the bazaars in Mashad during the Qajarid period that Mashad Bazaars had been previously well known for their Turkmen carpets, eastern jewelry and ancient weapons but, they had no credit then and all the stocks had been taken to Russia and Europe. (Lord Kerzen, quoted by Seyyedi, 1378 AHS/1999 AD, p. 400)

Despite the calamities, wars and difficulties imposed by the rivalry of foreigner governments, Mashad kept its significance for the area. This city was regarded as a center for exporting goods from middle Asia and India to the center of Iran and then onward to European countries. Some of its goods, such as a kind of fine white stone named "Avani" (used for making dishes) as well as its turquoises, were world famous.

With the establishment of the railway and airport in Mashad during the Pahlavid period, the local economy faced an important change, so that Mashad became a significant center of transportation. The establishment of sugar lump, cement and spinning factories as well as animal and cultivating products, carpet weaving, leather industries and the city's traditional pilgrimage role were different economic factors at that time.

The Britannica Encyclopedia from 1940 AD states that:

Mashad, the official center of Khorasan province, is located on the way of connecting roads. There is a suitable road for motorized vehicles in the north of Khorasan to Tehran via Shahrood city. Also a

Figure 3-20 Skin industry
Ref: "Khorasan, the land of sun" Multimedia CD

Figure 3-21 Carpet weaving
Ref: "Khorasan, the land of sun" Multimedia CD

Figure 3-22 Old Bazaar
Ref: Writer's Archive

road is paved in south towards Dozdab [Zahedan] and it is connected to Indian railway. The commercial passing volume via Mashad during 1925 and 1926 AD was equivalent to 38,400,000 Qeran [a monetary unit of the Qajarid period] from which 19,000,000 Qeran used for imports.

Exporting goods measured in volume, contained carpet, hide and leather, opium, wood, cotton, cloth, silk and Turquoise and importing goods were lump sugar, leather and hide, cotton cloth, minerals and metals. (Britannica Encyclopedia, 1940 AD, V. 13 and 15)

It was also mentioned in the Americana Encyclopedia from 1963 AD that:

Mashad is an important center of transportation and commerce. This city is connected to Tehran via railway and its airport has started to work. The main industries of Mashad contain cotton processing, wool, leather, food materials, carpet weaving and leather production. (Americana Encyclopedia, 1963 AD)

With the expansion of capitalism and the growth of the national and international economic sectors in Iran during the past few decades, prominent changes have occurred in the economic structure and social relationships of Mashad. The general trend of the changing pattern of Khorasan cities between the years 1335 and 1375 AHS/ 1956 and 1996 AD mostly favored service industries, which, considering Mashad's special capacity in delivering various services, has been especially prominent in the city.

Social inequality in Mashad is a result of the special situation of economic system in Iran.

3.3.2 Human factors in the economic sectors of Mashad

(industry, services, agriculture)

The active and employed population of Mashad doubled and the unemployed population grew by 2.5-fold during the two decades from

Figure 3-23 Mashad carpet
Ref: "Khorasan, the land of sun" Multimedia CD

Figure 3-24 Souvenirs of Mashad (Saffron)
Ref: "Khorasan, the land of sun" Multimedia CD

Figure 3-25 International airport of Mashad
Ref: "Khorasan, the land of sun" Multimedia CD

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1355 and 1365 AHS/ 1976 and 1986 AD. We can clearly see two different periods in the change of the employment situation in this city. In the years 56 to 65 AHS/ 77 to 86 AD, in spite of immigrations from Afghanistan to Mashad, revolution, war and an intense increase in the natural growth of population, the growth of the active population of the city was still at around 2 percent in year. However, the employment rate in Mashad from 95.4 percent in 1355 AHS decreased to 88.5 percent in 1365 AHS and the rate of unemployment reached 11.5 percent. In the decade 1365 to 1375 AHS/ 1986 to 1996 AD, the growth of the active population increased by 4.6 percent. This increase mainly happened because of changes in the age of the population and the population born during the first years of revolution reaching the age of working, as well as the continuing trend of the immigration of young Afghans to Mashad. However, the growth of the economic capacity and job creation in Mashad was answerable so that the rate of employment in 1365 from 88.5 increased to 94 percent in 1375 AHS and the rate of unemployment decreased to 6.1 percent. (The statistics center of Iran, 1355, 1365, 1375 AHS/1976, 86, 96 AD)

Figure 3-26 Souvenirs of Mashad (sugar-candy)
Ref: "Khorasan the land of sun" Multimedia CD

The economy of Mashad has mainly been built upon services. In 1355 AHS/ 1976 AD, of the total number of employers, 55.4 percent were in service sector and 38.2 percent were in industrial sectors. These proportions in 1365 AHS/ 1986 AD reached 59.3 percent for services section and 35.6 percent for industry. In 1375 AHS/1996 AD, 61.2 percent of the total number of employed was in services section and 34 percent in industry.

Figure 3-27 Some handicrafts of Mashad
Ref: "Khorasan the land of sun" Multimedia CD

According to growth estimates for the number of pilgrims and tourists in the next two decades and the economic flourishing of tourism in Mashad, the share of the service sector in the city's total employment would doubtlessly increase.

The private sector occupies the prevailing share of Mashad's economy. This role however decreased due to the war economy in the

decade from 1365 AHS/1986 AD, so that certain activities became governmental over the past two decades. In 1355 AHS, more than 81 percent of the total number of employed were working in the private sector. In 1365 AHS, this proportion reached 68 percent. The government sector in this year made up 27 percent of employed and 5 percent worked in cooperative or unspecified activities.

The job situation of the working population in Mashad confirms the important role of pilgrimage and tourism in this city's economy. The personnel of commercial affairs and the salespersons during the last two decades formed around 10 to 14 percent of the total employees of Mashad. Administrative and specialists form at the present time more than 13 percent of Mashad's labor force. (Tash, 1383 AHS/2004 AD, p. 11, 12; Iran center of statistics, 1355, 65, 75 AHS/1976, 86, 96 AD)

Following Tehran, Mashad has the second-largest market in the whole country with an employed population of more than 1.2 million persons. In this region, the changes in working forces were affected by the overall economic changes in the country, the effects of the imposed war, political changes in Afghanistan and the prolonged foreign immigration to this city. According to census statistics, Mashad has produced close to 4.1 percent of gross domestic product (not counting petrol). Its share of production in the total gross production in the Khorasan province was 44.3 percent and from the influence area's production was 76.8 percent. In the same year, the city comprised 2.8 percent of the population of the whole of the country, less than 28 percent of the provincial population and around 72 percent of the population of the influence area.

The concentration of population in this pilgrim-tourist city, its centrality in the view of official, educational and hygienic services and on the other hand, the ease of communication and expansion of its market has turned this region into act the service hub of the province.

Of all the employers in the service sector in Khorasan, around 52 percent are working in the influence area of Mashad and their share in the added value of service section in province is around 71 percent. Based on the existing official statistics from 1365, about 9,000 people in the city are employed in the agriculture sector and undertake the production of 1.4 milliard Rials of economic value in Mashad, equivalent to 1.3 percent of the city's gross production. (Ardam consultant, 1368 AHS/1989 AD, V. 8, p. 34)

According to the most recent statistics, the skilled employees in the agricultural sector in urban areas of Mashad Township consist 2.5 percent of the total employer population, which compared to employment in other sectors, comprises a small proportion.

	Activity rate (percent)				employment rate (percent)				unemployment rate (percent)			
Year(AHS)	1355	1365	1375	1385	1355	1365	1375	1385	1355	1365	1375	1385
Mashad city	40.6	38.2	33.7	39	95.4	88.5	93.8	93	4.6	11.5	6.1	7
Khorasan * province	46	40.8	37.10	42.7	95.6	88.9	93	99.2	4.4	11	6.9	0.8
Whole the country	47.2	39.6	35.3	44.29	85.7	88	91	91.88	14	12	9	8.12

Table 3-3 Activity state in Mashad city in 1355- 1365- 1375- 1385 AHS/ 1976- 1986- 1996- 2006 AD
Ref: general census of population and houses in 1355, 1365, 1375 and 1385 AHS/1976, 1986, 1996 and 2006 AD
*The statistics given for 1385 AHS/2006 AD is for Khorasan-e Razavi province

Mashad is the most important industrial hub in Khorasan and one of industrial centers of the country. According to statistics from three census decades (1355 – 1365 – 1375 AHS/1976 – 1986 – 1996 AD), there is however a downward trend in occupation in this sector. At the end of 1378 AHS/1999 AD, Mashad city had 1997 active industrial units in which 59,140 people were employed. This number makes up 66 percent of employers in the industrial units of the province.

Based on recent statistics (1380 AHS/ 2001 AD) of the total number of employers in the industry section, 23.01 percent were in food industry, 16.43 percent in the non-metal mineral industry, 17.54 percent in weaving textile, clothing and leather industry, 10.16 percent in industries related to machinery and facilities and 23.93 percent worked in other industries.

According to the statistics from the year 1375 AHS/ 1996 AD, the majority of activities in the services section of Mashad are related to wholesale and retailing activities. Comparing the rate of retail in Mashad with this number for the province shows that around 40 percent of all retail sales and 52 percent of government employees in this service group in the province were working in Mashad.

Figure 3-28 Reza Bazaar
Ref: Writer's archive

In the field of hotel management and restaurants, according to the statistics from the year 1375 AHS/1996 AD, this group's rate of activity in the different urban areas of Mashad Township is 5920 persons, which consisted around 2.1 percent of active sections in service part. Based on statistics from the same year, transportation employed around 36,159 active sections in urban areas of Mashad Township, which consisted 13 percent of those actively employed in service section. (The organization of tourism of Khorasan province, 1380 AHS/2001 AD, p. 167)

The pilgrimage-tourism capability of Mashad and the traveling of millions of pilgrims and tourists to the city every year have caused this sector to obtain an added value in the share of the local employment; it can thus be seen as the main economic presence in the city.

3.3.3 Tourism economy in Mashad

Mashad is a unique case for the tourism industry. It is one of the world's religious metropolises and possesses a 1200-year history. It has political-geographical centrality in the east of country and a place in the network of international and transnational connections and interactions to different economic, social and cultural sectors. The history of the

tourism industry goes back to the time of Imam Reza in the third century and has over the centuries experienced an upward trend and an incredible growth, which can be accredited to Moslems' devotion to and belief in the holy prophet's household. According to statistics and censuses from the present century, the annual tourist population of this city in the form of pilgrims and passengers has increased from around 100,000 persons in the year 1307 AHS/ 1928 AD to 12 million persons in 1380 AHS/ 2001 AD.

Because of this special capability as a pilgrimage destination as well as its natural setting and special climate, Mashad is an important location for the realization of a tourist economy. The main effective factors in this field are:

- The unique role of religion and pilgrimage (the holy shrine of Imam Reza)

- The location on the route of the historic Silk Road and the old province of Toos

- The political and military centrality during the historic period (Samanids, Ghaznavids, Timurids, Safavids, Afsharids)

- The unique geographic and natural situation (Kashafrood Valley, Hezarmasjid and Binalood Mountains)

Figure 3-29 Homa Hotel 1 (Ahmadabad Square)
Ref: Writer's archive

The importance of tourism in the local economic system is so great that it rationalizes other forms of economic activities in proportion to the needs and sufficiency of the tourism trade. The presence of tourists creates extensive job opportunities in trade. According to some estimates, each industrial job creates 1.5 job opportunities, while each tourist can trigger nine job opportunities. This knock-on effect emphasizes the importance of the attention paid to the tourism industry.

In addition to special employment, the existence of millions tourists in Mashad has caused a special demand for food supplements and goods in the region, which has affected the fortunes of the

Figure 3-30 Homa Hotel 2 (Khayyam Boulevard)
Ref: Writer's archive

agriculture industries, including animal husbandry and farming, as well as other industrial branches. Other results of the tourism market are the demand for urban lands and countryside for the special needs of tourism, such as the construction of hotels and restaurants, and consequently the increase in land and building values compared to other cities.

With an approximate calculation of the minimum number of annual tourists (ten million persons), and assuming an average length of tourist stay of four full days and nights as well as the similarity of expense parameters and demands by national and international tourists, the estimated total of tourists' expenditures during their stay can be considered minimum 5400 billion Rials (assuming the expense of each tourist during the day is 135,000 Rials). This amount does not include the expenses of residence, transportation and the midway costs of each traveler, which affects the economy of cities and the related centers in origin, destination and midway. (Farnahad consultant, 1382 AHS/2003 AD, V.5, p.8)

3.3.4 Economic activities in city (Commerce, industry)

a) **The Commercial Performance Area in Mashad**

These areas of usages are inseparable parts of the urban form of Mashad. Although it was tried in both master plans of Mashad to define the paths of thoroughfares and routes in the city by zoning commercial lands according to traffic and vice versa, Mashad's specifications in delivering various services, the presence of millions of pilgrims and travelers in this city and the economic priority of constructing commercial centers has gradually transformed most of the thoroughfares into commercial areas and places for various activities such as wholesale, retail trade, repair centers, trading offices and commercial complexes. In the meantime, certain complexes are prominent in this area, including Reza Bazaar (situated in Beyt-ol Moghaddas Square), Zistkhavar (a commercial-residential tower in

Figure 3-31 Zistkhavar commercial-residential complex
Ref: "Writer's archive

Shariaty Square), the Refah Markets, a set of shopping arcades and commercial complexes in Ahmadabad, Sajjad and Emam Khomeini (once Arg) streets, the trading market of Fat'h'abad-e Noghan and finally the commercial complex of Almas-e Shargh at the end of North Khayyam Boulevard.

b) The Industrial Areas of Mashad

The expansion of Mashad and its residential lands pushed the industrial businesses into the main thoroughfares outside the city owing to various contaminations and an increase in land prices. Currently, the majority of industrial centers and factories are located in two industrial estates: Toos, situated in kilometer 15 of Mashad-Quchan Asian Road and Kalat in kilometer 20 of the secondary road of Mashad-Kalat. Toos industrial estate has 441 industrial units and Kalat industrial estate has 191 industrial units. There are also industrial centers located around the Quchan, Neyshabour and Fariman Roads.

Figure 3-32 Almas-e Shargh commercial complex
Ref: Writer 's archive

Of all industrial workshops located in Khorasan province, around 78.1 percent are located in Mashad and the north of Khorasan, of which 73 percent are situated in Mashad itself.

3.3.5 Accommodation economy in Mashad

According to the statistics from 1383 AHS/2004 AD, 2,090,000 persons, including 461,000 households, were living in 394,000 residential units. During the four decades from 1345 to 1382 AHS/ 1966 to 2003 AD, the population of Mashad grew fivefold; the number of households was multiplied by more than 5.3 and the number of residential units in the city by a factor of 7.8.

Currently, 20,000 residential units are built every year in Mashad. Land price in the city during the years 1371 to 1381 AHS experienced an unprecedented and unparalleled growth. The price of each square meter of land rose from 165,000 Rials in 1371 AHS/ 1992 AD to 1,698,000 Rials in 1381 AHS/ 2002 AD, which representing a growth

of more than 10 times during this period of time. The average annual growth of land in this decade was 23.6 percent, which was more than the growth of overall level of prices.

The utmost price growth of residential lands in Mashad was seen in 1381 AHS, which was 64 percent higher than the previous year. (Tash consultant, 1383 AHS/2004 AD, p. 116)

The differences in land values in different parts of the city in addition to the quality and the direction of the city's expansion follows the trends and the false advertisements of land so that the relative growth of land prices in some areas doesn't have an acceptable coordination with the actual conditions on site.

The average price of one square meter of residential infrastructure in Mashad in 1371 AHS/1992 AD was 291,000 Rials, which, with a growth factor of 9.8 until 1381 AHS/ 2002 AD, has reached 2,601,000 Rials for each square meter. The mean growth of house price in this decade was around 23.1 percent annually. The trend of an increase in the price of housing during the years 1373, 74, 75, 80 and 1381 AHS/ 1994, 95, 96, 2001 and 2002 AD has unprecedentedly increased and has reached rates of 42.5, 37.2, 49.7, 30.1 and 65.7 percent respectively.

The mean growth rate for one square meter of land in Mashad in the previous decade was 21.2 percent and the rate of growth in the price of one square meters of villa-style residence was 58.4.

Along with the increase in the price of land and dwelling, the rental price for residential units also experienced a striking growth. The average rent for one square meter in a residential unit grew from 1092 Rials in 1371 AHS by a factor of 7.4 to 8131 Rials in 1381 AHS. The mean growth in rental units during the decade 1371 to 1381 AHS in Mashad was equal to 20 percent, which is close to the general growth rate in the price level of services and goods (inflation). This growth for

renting apartments was 20.4 percent and for villa-style residential units

was 19.1%. (Tash consultant, 1383 AHS/2004 AD, p. 132,112)

whole city / year	1371 AHS /1992 AD	Growth rate	1372 AHS /1993 AD	Growth rate	1373 AHS /1994 AD	Growth rate	1374 AHS /1995 AD	Growth rate	1375 AHS /1996 AD	Growth rate	1376 AHS 1997 AD	Growth rate
Residential unit	201	- 10	181	- 10	258	42.5	354	37.2	530	49.7	620	17
Apartment	281	- 8.5	257	- 8.5	338	31.5	448	32.5	655	46.2	768	17.3
Land	165	- 9.1	150	- 9.1	212	41.3	336	58.5	426	26.8	427	0.2

Whole city / year	1377 AHS /1998 AD	Growth rate	1378 AHS /1999 AD	Growth rate	1379 AHS /2000 AD	Growth rate	1380 AHS /2001 AD	Growth rate	1381 AHS /2002 AD	Growth rate
Residential unit	768	23.9	820	6.8	920	12.2	1197	30.1	1983	65.7
Apartment	846	10.2	899	6.3	1035	15.1	1319	27.4	2254	70.9
Land	636	48.9	671	5.5	776	15.6	1035	33.4	1698	64.1

It should be mentioned that based on the writers' studies, during the years 1380 to 1388, the price rate of land and dwelling had an upward rising growth which has been shown in the drawn diagram.

Table 3-4 The price (1000 Rials) and growth rate (percent) for one square meter of building area (residential unit, apartment and land) in Mashad
Ref: Tash consultant, 1383 AHS/2004 AD
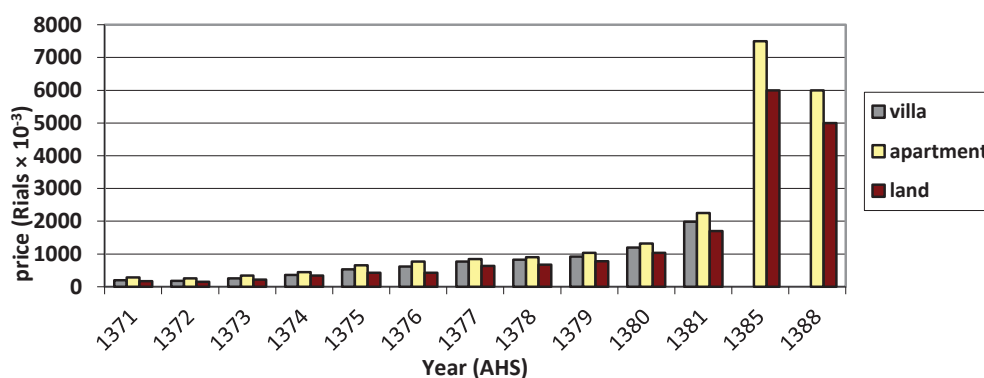
Figure 3-33 Chart of comparing the average price of villa, apartment and land (1000 Rials) during the years 1371 AHS/ 1992 AD to 1388 AHS/2009 AD
Ref: Writer

T heor Part I
heory 3 Case study
Physical evolution course of **cities**

3.4 Physical Evolution of Mashad

3.4.1 Mashad over the course of the History

- **The birth of the city**

Mashad (meaning "the place of martyrdom") was born under this name since Imam Reza (peace be upon him) was martyred at the beginning of 203 AH (818 AD). In the second half of the 2nd century, Hamid ebn-e Qahtabeh Taie, a governor of Khorasan, had a palace and garden in the Sanabad village near the town of Noghan and in 193 AH/ 808 AD, this residence became the burial place of the caliph Harun ar-Rashid.

Ten years later, Ali ebn–e Musa ar-Reza, the eighth Imam of Shiites, was buried at the same tomb. The tomb chamber of Imam Reza had a 10×10 m structure, probably having been built by Ma'mun in the neighborhood of the palace. By gathering the Shiites and Seyyeds around Imam Reza's Shrine in the 3rd and 4th century, structures were built near the shrine and a fortress was constructed around this in the middle of fourth century. This complex became the central castle or citadel of town.

In the first three Islamic centuries, Noghan was the most important city and the center of Toos. It seems that the birth of Mashad near Noghan caused an increase in population and a shortage of water, so that in the fourth century the regional center moved from Noghan to Tabaran (Toos). This change of centrality and the difference in religions ignited rivalry and hostility between the two cities and at the day of Ashoora in 510 AH /1116 AD, Tabaran's people attacked Mashad after a dispute between one of Mashad's Alavids and a scholar of Tabaran. Following that, in 515 AH /1121 AD, Azad ad-Din Faramarz Ali built a defending wall around Mashad. (Modarres Razavi, 1378 AHS/1999 AD, p. 16)
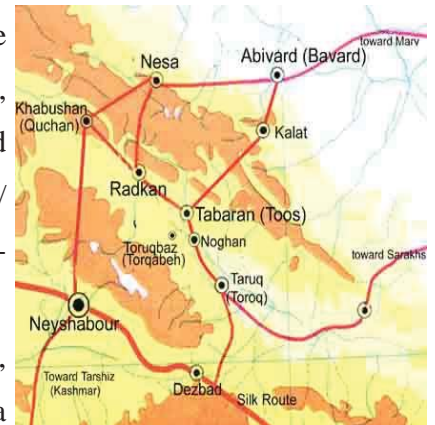
Map 3-3 The old Toos Province
Ref: Rezvani, In search of urban identity: Mashad, 1384 AHS/2005 AD
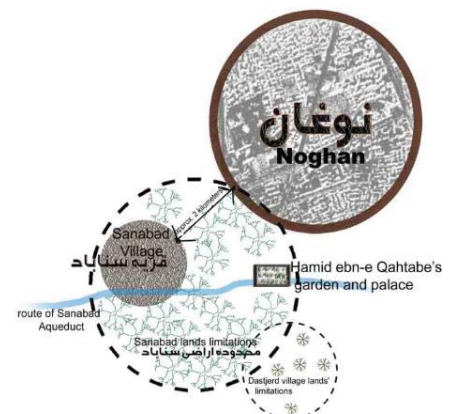
Map 3-4 The position of Noghan and Sanabad in the early Islamic age
Ref: writer

In the 6th and 7th AH/ 12th and 13th AD centuries, Mashad was still a complex of neighboring villages. Although it had rampart and bazaar, it could not be considered a town. The main bazaar of Mashad was along a northeast-southwest axis and extended between two gates towards Noghan and Sanabad. This lane specified the positioning of many surrounding structures around the holy shrine and of the city in the future.

With the destruction of Tabaran by the Ghoz Turks (548 AH/1153 AD) and then the Mongolians (616 AH/1219 AD), the rivalry between Noghan and Tabaran decreased while Mashad remained safe. Therefore, when Miran Shah (the son of Tamurlane) looted Tabaran in 791 AH (1388 AD) and massacred its population, Toos's livelihood came to an end and most of survivors moved to Mashad. (Fasihi Khafi, 1339 AHS/1960 AD, v. 3, p. 115 to 117; Seyyedi, Yahaghghi, Labbaf Khaniki, 1369 – 1374 AHS/1990 – 1995 AD)

- **Mashad during the Timurid Period**

Shahrokh of the Timurids (807-850 AH/1404-1446 AD) built a government palace-garden named Chaharbagh, which remained the main governor's seat of Mashad until the Qajarids. The efforts of Shahrokh and his wife Goharshad to establish and extend religious structures such as the Goharshad Mosque, Parizad Seminary, Dar Al-Hoffaz, Dar As-Siyadat, the Kheshty Dome, Mosalla of Torogh and Dodar Seminary increased Mashad's significance. The construction of Chaharbagh in particular gave the city a real urban identity and the main urban elements of that era, including the governmental center, religious center, the bazaar and rampart were formed.

Figure 3-34 Goharshad Mosque
Ref: Eiah.org, (06.2010)

The important aspect of the Timurid structures situated around the old Bazaar of Mashad was their dual function in that most of them, in addition to being mosques or seminaries, were used as family tombs. (Seyyedi, 1378 AHS/1999 AD, p. 64, 65)

Reviewing the changes in Mashad during the Timurids, one can observe one of the most prominent and valuable periods in the history of this city. Although the Timurids were Sunnite Moslems, Shiites had no limitations during their governance. Not only did they not interfere with the shrine's management and its endowments, but their efforts also endowed Mashad with a valuable heritage from that time. By constructing buildings such as the Goharshad Mosque, Parizad Seminary, Balasar Seminary and Dodar Seminary along the axis of Mashad's bazaar, which connected the two quarters of Noghan and Sarshoor with the Amir Shah Malek Mausoleum (built in 809-829 AH /1406-1425 AD) and the Kheshty Dome (built in 832 AH/ 1428 AD) at its two ends, this axis become one of historic and precious axes of Iran. The construction of the governmental building at Chaharbagh gave Mashad the only remaining element of a real city. The bazaar row was considered to be the major physical element in Mashad and remained the central and historical bazaar of this city until recent century.

The growth in population and in the number of pilgrims led to a shortage of water again in Timurids time until the close of 9th AH/15th AD century. For this reason, Amir Alishir Navai moved the Golasb fountain (Cheshmeh Gilas) from west of Toos city to Mashad. (Turkaman, 1335 AHS/1956 AD, p. 856;   Seyyedi, 1378 AHS/1999 AD, p. 82)

The living quarters in Mashad were at that time Noghan, Sarshoor, Eadgah and Sarab. There is not a remarkable amount of information about Mashad's image and form during the first Islamic centuries, especially in the residential context. However, particular records suggest that the city had a confused and irregular shape caused by several reasons such as insecurity, change in government and numerous immigrations to the city. Due to the lack of strength, there isn't any remainder of the common people's constructions. The custodians of the Razavi shrine and the governors built the city's religious structures and the general visual vision (aesthetic) of Mashad was influenced by

Figure 3-35 Parizad Seminary
Ref: Archive of Mashad Cultural Heritage Organization

Figure 3-36 Amir Shah Malek Mausoleum (Shah Mosque)
 Ref: CD of Cultural Heritage Organization of Khorasan

Figure 3-37 Kheshty Dome, before and after renovation
 Ref: Rezvani; In search of urban identity: Mashad, 1384 AHS/2005 AD

Islamic architecture and religious motifs. The construction of Torogh Mosalla approximately six kilometers southeast of the city on the Torogh River demonstrates the direct area of influence at that time.

Until this period, the defensive points of the city were, in addition to the shrine's rampart as the religious center and the fortified wall of Chaharbagh as the governmental center, the rampart built at 510 AH, which seems to have been mainly inefficient at that time. The natural obstacles, the Kashafrood River in the north and northeast and the Torogh River in the south, acted as protection for the city.

- **Mashad during the Safavid and Afsharid periods**

Mashad became an important center in the Shiite Safavids period, though it also experienced great damage from the dominance of the Uzbeks at the beginning of the 10th AH/16th AD century. King Tahmaseb built an approximately nine kilometer-long rampart around the city, which increased the area of town to 800-900 Hectares. This rampart was built from stratum and clay and had a height of between 6 and 7.5 meters as well as a reported 140 to 300 towers. Constructing the rampart defined and separated some quarters inside and outside of the wall and since then, Mashad has had the identity of a large city with a complete array of urban elements. Four gateways, named Noghan, Sarab, Eadgah and Mir Ali Amuyeh, were constructed in the north, west, south and east to connect the interior with the adjacent villages.

Following the recapturing of Mashad from the Uzbeks by King Abbas after ten years (997-1006 AH /1588-1597 AD), the city once again confronted water shortages. After his traveling on foot from Esfahan to Mashad in 1010 AH /1601 AD, Shah Abbas built a three-kilometer street from the northwest to the southeast of city and afterwards ordered the channeling of aqueducts to the Golasb fountain and their further routing to the middle of the street. At the beginning and end of this street, two new gateways (Balakhiaban and Painkhiaban) were built, increasing the number of gateways and

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1 holy tomb
2 Balasar Mosque
3 Minaret
4 building belongs to Timurids
5 Dar–as–syadah
6 Parizad Seminary
7 Dodar Seminary
8 Balasar Seminary
9 Goharshad Mosque
10 Bazaar
11 Atiq Courtyard
12 Dar–al–hoffaz
13 Amir Alishir Veranda
   (Gold Veranda)

Primary building
Development in Ghaznavids
Development in Ilkhanids
Development in Timurids
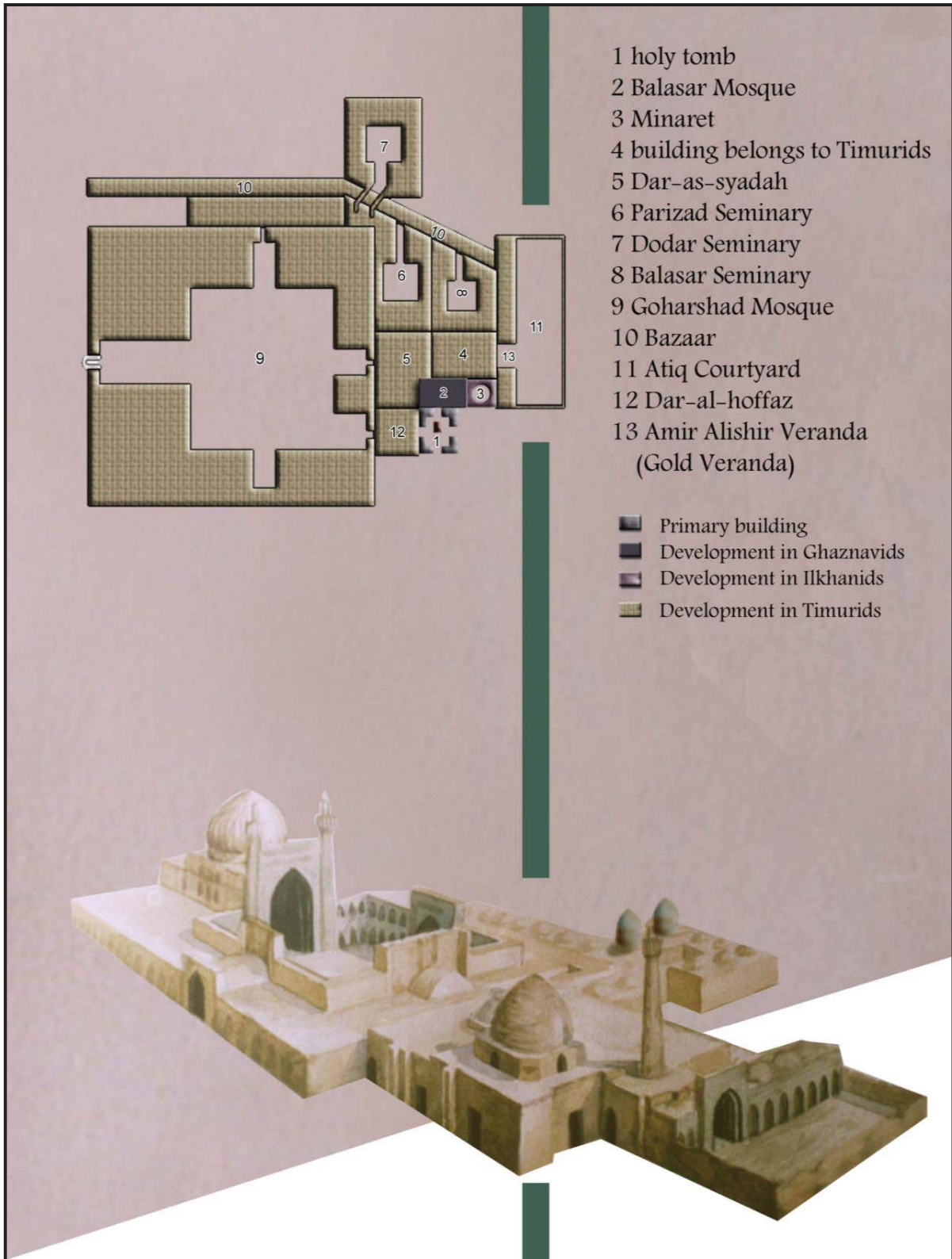
Figure 3-38 The development of the holy shrine until the end of Timurids age
Ref: writer

quarters to six (the districts of Sarab, Noghan, Eadgah, Sarshoor, as well as Balakhiaban and Painkhiaban). Mashad's street (Khiaban) was the third street in Iran and became the most important physical element in Mashad after the Holy Shrine complex. (Turkaman, 1335 AHS/1956 AD, v. 2, p. 854)

Summing up the physical changes in Mashad during the Safavid period, at the beginning of their governance, the Uzbeks assaulted and looted Mashad several times, though the establishment of a rampart in 942 AH and Mashad's street (Balakhiaban-painkhiaban) at the same time period affected many incoming physical changes in the city such as the structure and arrangement of quarters and prominent

Figure 3-39 Balakhiaban in 1315-1320 AHS/ 1936-1941 AD
Ref: Musa al-Reza Sayyah's archive

constructions. The complex of Mashad village-town along with the previous prominent elements like the religious citadel (the holy shrine and its fence), the government citadel (Chaharbagh) and the bazaar thus transformed the settlement to one of the largest cities of that time including interior and exterior quarters.

The special attention that the Safavid kings paid to Mashad in a political rivalry with the religious cities of the neighboring Ottoman Empire caused an increase in its population and the number of pilgrims. Moreover, in that period, many seminaries and universities of religious and Islamic sciences were established.

After the Afghans' capture of Esfahan and the overthrow of the Safavids, Khorasan was captured by Malek Mahmood Sistani. The most important event in the city at that time was the establishment of the governmental citadel by Malek Mahmood Sistani, who held the governance of Mashad from 1135 to 1139 AH. The citadel was established in the southwest of city so that a new gate (named Arg) added to the six previous gates of Mashad.

The founding of Arg (citadel) increased the importance of southwest lands and villages such as Alandasht, Zargaran, Taghiabad

and Koohsangi and changed these areas into a military quarter, which they remain until today. (Kabiri, 1336 AHS/1957 AD; Allahverdian Toosi, 1371 AHS/1992 AD, p. 18) This citadel was then renovated and reconstructed by Qajarids and was standing and usable until the Pahlavids period; it thus became another special physical element in Mashad.

In order to defend the city against invading Abdaly Afghans, the rampart of the city was renovated and probably extended in some directions during the early years of Nader's (of Afsharids) reign.

The political and military centrality of Mashad and the related migration of different tribes to this city led to a quick occupation of almost the entire residential area within the rampart. Another population increase drove a water shortage that incited Nader to route water from the Golestan dam to Mashad, Chaharbagh and the Shrine from approximately 12 to 18 km west of the city. He also built two mausoleums for himself (old and new) at the south and north sides of the street near Chaharbagh, though both were destroyed after his death. The current mausoleum of Nader Shah at the Naderi Crossroad of Mashad was built during the years 1336-1342 AHS/1957-1963 AD by the National Construction Association. (Marvi, 1369 AHS/1990 AD, p. 202; Seyyedi, 1378 AHS/1999 AD, p. 234,235; Labaf Khaniki, 1378 AHS/1999AD, p. 12)

Mashad declined after Nader's reign but during the Qajarids dynasty again became the center of Khorasan. The dominance of the Uzbeks over Marv paved the way for the Turkmen to incite riots and create unsafe conditions in Khorasan cities, especially in the area of Mashad. This also caused compulsorily migration of thousand Marvi households to Mashad in 1223 AH.

Figure 3-40 Resting place of Nader, the old and new buildings
Ref: Rezvani; In search of urban identity: Mashad, 1384 AHS/2005 AD

1 holy tomb
2 Balasar Mosque
3 Minaret
4 building belongs to Timurids
5 Dar-as-syadah
6 Parizad Seminary
7 Dodar Seminary
8 Balasar Seminary
9 Goharshad Mosque
10 Bazaar
11 Atiq Courtyard
12 Dar-al-hoffaz
13 Amir Alishir Veranda
  (Gold Veranda)
14 Allahvardikhan Dome
15 Dar-al-ziafeh
16 Hatamkhani Dome
17 Tohidkhaneh
18 Mirza Jafar Seminary
19 Royal washroom
20 Kheyratkhan Seminary
21 Ismeal Talaie public drinking
22 Naderi top of Minaret

primary building

development in Ghaznavids

development in Ilkhanids

development in Timurids

development in Safavids

development in Naderids

Figure 3-41 The development of the holy shrine until the end of Afsharids
Ref: writer

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Owing to the weakness of the central government, the local rulers of Khorasan cities rebelled during 1223 to 1247 AH and attacked Mashad every so often until Abbas Mirza, the crown prince, was commissioned to capture Khorasan and eventually suppressed the tribal chiefs and the local rulers (1247 AH). These conditions had structural consequences for Mashad's identity in that through the continuous conflict between Khorasan's governor and the rebel rulers, the Harat"government and the insurgent Turkmen, Mashad was converted into a military city. The continued threat of the Uzbeks and Turkmen confined Mashad within its rampart, increasing the accumulation of buildings. Turkmen attacks were the major danger for Mashad's people and the neighboring villages until the capture of the Khavaran plain by the Russian government and the signing of the Akhal Contract between the Iranian and Russian governments (1299 AH /1881 AD), Mashad's people experienced relative peace, allowing them to extend the city beyond its 400 year-old rampart. (Hedayat, 1349 AHS/1970 AD, p. 200 to 261; Etemadolsaltaneh, 1364-7 AHS/1985-8 AD, v. 3, p. 1398)

Mohammad Vali Mirza of Qajarid (the first governor of Khorasan) and his follower Abbas Mirza rebuilt and expanded Mashad's citadel because of the presence of large foreign military forces. Thirty barracks were also established during the premiership of Amir Kabir. (Seyyedi, 1378 AHS/1999 AD, p. 329)

Vazir Nezam undertook the establishment of Saraye Vazir Nezam, which contained commercial caravanserai, an arcade and shops. He ordered the withdrawl of all shops that exceeded the confines of the Khiaban and prepared the expansion of the axis to a width of 28-meters. (Mahvan, 1383 AHS/2004 AD, p. 297)

In this period, Balakhiaban Bast and Painkhiaban Bast (places for taking shelter) and their related elements were built. They had great importance from the viewpoint of connecting with the main points of entry to the old core of the city and in relation to the surrounding fabric.

Figure 3-42 Rampart of Mashad in Qajar period
Ref: Seyyedi; The historical-cultural vision of Mashad city, 1382 AHS/2003 AD

Figure 3-43 Balakhiaban and Baste-e Balakhiaban
Ref: Musa al-Reza Sayyah's archive

Figure 3-44 Bast-e Painkhiaban, 1327 AHS/ 1948 AD
Ref: Musa al-Reza Sayyah's archive

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The facade of Bast, which was at first made of bricks, was tiled in the late part of the treaty of Ahmad Shah of Qajarid. The interesting point is that entrance to these areas was not granted to governor agents with their official dress and weapons and also to non-Moslems. These two enclosures were places for taking refuge. (Seyyedi, 1378 AHS/1999 AD, p. 340)

Although Mashad did not experience remarkable development or expansion during the Qajarid period, there is comprehensive information about the social-physical situation at that time. This information was derived from the written records of high-ranking government officials, Iranian travelers or tourists, agents and English and Russian advisors who traveled to parts of Iran and Mashad.

The Englishman Fraser likened Mashad in his book of travels to a sleeping leopard. He wrote that the city did not exceed a length of more than two miles, which extended from northeast to southwest, and that the city contained 32 quarters, for each of which existed a headman. (Fraser, quoted by Seyyedi, 1378 AHS/1999 AD, p. 297, 299)

The Russian traveler Khanikov drew the first map of Mashad city in 1274 AH/1858 AD. McGregor, from England, drew the second map of the city in 1293 AH/1875 AD. He estimated the area of city to be about 700 Hectares and its population to be about 40,000. He stated that the clay wall of the rampart had been kept in a good condition. The thickness of the upper part of the wall was around four feet and at the lowest part about nine feet. Above the rampart was a defending wall with a thickness of one foot. Every gate had two towers with a height of 30 feet, in which some holes had been arranged for shooting. (McGregor, quoted by Etemadolsaltaneh, 1362 AHS/1983 AD, v. 2, p. 14 to 37)

The Irish reporter Edmund O'Donovan was very impressed when he overlooked Mashad for the first time during his travel to the city in 1297 AH/ 1880 AD. He mentions in his book that he had not seen such a beautiful view of any city in the East except Istanbul. He calls Mashad's bazaar the most attractive bazaar in Iran owing to its colorful

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clothes and various languages and faces. (O'Donovan, quoted by Mahvan, 1383 AHS/2004 AD, p. 301)

In his book "Matlaoshshams", Sanioddoleh (Etemadossaltaneh) mentioned the names of Mashad's quarters as follows: The larger

Map 3-5 McGregor 's map of Mashad city in 1875 AD
Ref: Ghasabian; "History of Mashad", 1377 AHS/1998 AD

districts encompass Olia Street (Balakhiaban), Sofla Street (Painkhiaban), Sarab, Chaharbagh, Eadgah and Noghan; the smaller quarters contain Pachenar, Arg, Sarsogh, Sarhozan, Jadidha, Heraviha, Tapolmahalleh, Gheyreshomarha, Keshmiriha and Chaheno. He continues: "*The Arg quarter is located between the west and south of Mashad and the government citadel is connected to the city's rampart.*" (Etemadossaltaneh, 1362 AHS/1983 AD, p. 526)

Concerning Mashad's street, it is mentioned in Burnes's book of travels (1248 AH/1832 AD) that the Street he had walked into was

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wide and beautiful, a stream was passing by in the middle, and two sides of street were under the shades of trees. The glorious dome and the gold covered minarets of Imam Reza Shrine were the end view of that street. (Burnes, 1834 AD, Persian translation in 1366 AHS/1987 AD)

Fraser wrote: The main street of Mashad is the one which passed through the entire width of the city from the northwest to southeast and in the middle of, a dirty stream is flowing, once beside of which grew trees but now only a few of them have remained, obviously someday was this place a pleasant spot. In the street, somewhere, a house or a shop has encroached over the limits of the street and even obstructed the passageway.

About the general context and public houses, Fraser continues that: The doors of the houses aren't good and they have no facade but, often by entering through these doors, you reach neat yards with pleasant gardens. (Fraser, quoted by Seyyedi, 1378 AHS/1999 AD, p. 298)

In this case, McGregor said that: "Mashad is full of monotonous clay-made houses over some of which wind turrets are seen. Although I visited important people in this city, one cannot see a remarkable house." (McGregor, quoted by Etemadolsaltaneh, 1362 AHS/1983 AD)

O'Donovan wrote that: "Narrow roofed passageways named Sabat and Koocheh separate these mass of mud huts. Their roof is covered with mixture of mud and straw and no light passes through them. These alleys are ugly with no door or window and full of litter and dirt." (O'Donovan, quoted by Mahvan, 1383 AHS/2004 AD, p. 301)

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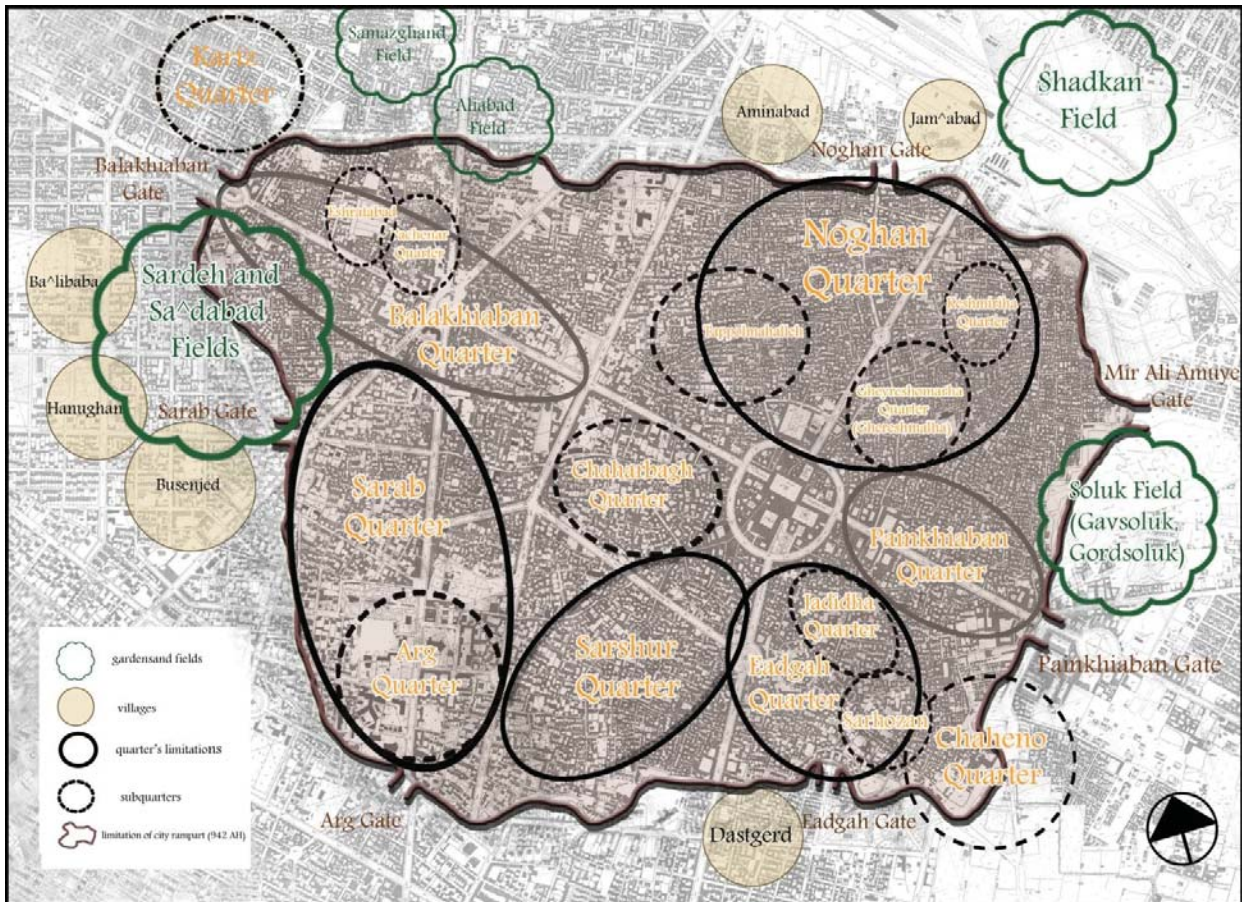
Map 3-6 Map of Mashad in Qajarids period
Ref: writer

1 Holy Tomb
2 Balasar Mosque
3 top of minaret besides Gold Dome
4 a building belongs to Ilkhanids
5 Dar as–Syadah
6 Parizad Seminary
7 Dodar Seminary
8 Balasar Seminary
9 Goharshad Mosque
10 Bazaar
11 Atiq Courtyard
12 Dar al–Hoffaz
13 Amir Alishir Veranda
  (Gold Veranda)
14 Allahvardikhan Dome
15 Dar al–Ziafeh
16 Hatamkhani Dome
17 Tohidkhaneh
18 Mirza Jafar Seminary
19 Royal washroom
20 Kheyratkhan Seminary

21 Ismeal Talaie public drinking
22 Naderi top of minaret
23 Street's Stream
24 Dar as–Salam
25 New (Nov) Courtyard
26 Alinaghimirza Seminary
27 Dar as–Saadat
28 Bala Bast
29 Pain Bast
30 Vazirnezam Caravanserai
31 Naseri Caravanserai

primary building

development in Ghaznavids

development in Ilkhanids

development in Timurids

development in Safavids

development in Naderids

development in Qajarids

Figure 3-45 The development of the holy shrine until the end of Qajarids
Ref: writer

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3.4.2 Contemporary Mashad
(Changes in interaction with Modernity)

- **Mashad in Pahlavids period**

Although noticeable changes in Mashad had begun in the late Qajarid period, including the formation of the official quarter of the town, containing a wide square, a park and several beautiful consular buildings, these changes accelerated during the Reza Shah (the first Pahlavid) government. The city expanded within the ramparts and gradually outward towards the west and southwest. (Ellis, 1963 AD, translation into Persian by Kaveh Bayat, 1372 AHS/1993 AD, p. 118) The rampart as the main urban element gradually lost its reason for existing and fell into ruins. Reza Shah made a special effort to modernize his cities.

In this period, three specific urban elements, the street, square and governmental buildings steered the city's development. Within the described structure, the development of city was conducted towards the west and southwest. A wide round street around the shrine, Shah (Shohada) Square, Ab Square and important streets such as Tabarsi, Tehran Street, Fusieh (Daneshgah) Street and Koohsangi Street were constructed. Specific buildings, mainly at the edge of Arg Street and including the Melli Bank Building, the Office of Finance, the Red Crescent Building, Shahreza (Imam Reza) Hospital and the establishment of the Abkooh Lump Sugar Factory, the spinning factory and a medical faculty also occurred at that time.

The two quarters of Arg and Pachenar, which were considred as small in Matlaoshsham's book, grew into larger districts and the number of large quarters increased to eight. People whose houses were destroyed during the laying out of streets and who had immigrated to Mashad all needed accommodation; the city thus extended from the center toward the ramparts so that most fields and gardens within the ramparts, which allocated about half of the urban area until the end of Qajarid, were converted to built-districts. The city expanded towards

Figure 3-46 Hazrat Square in 1331 AHS/ 1952 AD
Ref: Musa al-Reza Sayyah's archive

Figure 3-47 Tehran Street
Ref: Musa al-Reza Sayyah's archive

west and southwest pastures, which featured better weather conditions and plentiful water. Creating new streets gradually provided the opportunity to extend the city not only in a connected but also in a separated form. Important official uses were located in the center and other functions such as barracks, railway lands, factories and workshops were located on the fringes. (Modarres Razavi and others, 1386 AHS/2007 AD)

At this time, changes occurred in the housing patterns and social context of the region due to the reduction of ethnic dependences and based on standard income, the importance use of modern industrial products and western architectural styles. The irregular but radial structure of the city transformed itself to a linear and regular context. However, the old urban fabric continued to live on behind the main axes and the modern facades (street architecture) and the only change was eliminating the roofs of passageways (sabats). Prior to the Second World War, the old center, bazaar, and quarters maintained their commercial, economic and cultural importance. Following the war and with the city's expansion into the west, the importance of this center decreased. At most new hubs like the Arg Street, buildings with a tendency to modern European architecture were built.

Eventually, no connection between new buildings and the former historic and industrial architecture remained. The coherent and harmonious architecture along the city streets gave way to separated constructions at the open spaces in streetwalls that were to have an iconic presence. Little by little, the decoration of buildings decreased. Bricked and tiled facades were replaced by modern building materials, lights were replaced by pavilion and cupolas, and mud brick ceilings with gable roofs.

The city developed towards the southwest and west during the years 1325 to 1335 AHS/ 1946 to 1956 AD, though the main direction
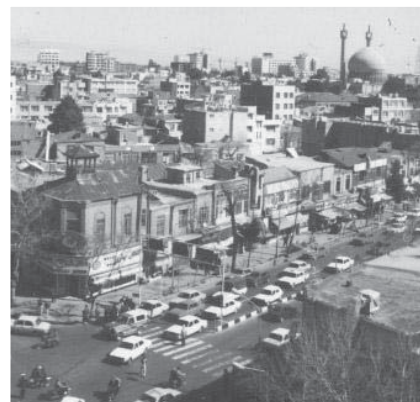
Figure 3-48 Arg Street
Ref: Musa al-reza Sayyah's archive
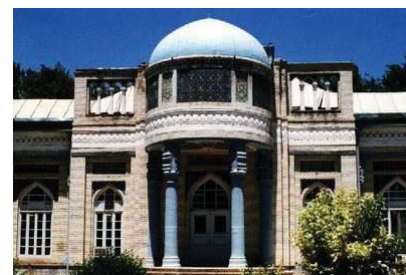
Figure 3-49 Imam Reza Hospital
Ref: writer's archive

Figure 3-50 The office of finance
Ref: Musa al-Reza Sayyah's archive

of the expansion was the continuation of the formed structure in the first quarter of the century.

The railway station and the airport of Mashad had a great influence on the direction of urban development. After Reza Shah and Iran's occupation by the Allies (1320 AHS/ 1941 AD), changes in population and society continued softly.

Figure 3-51 Mashad railway station
Ref: "Khorasan, the land of sun" Multimedia CD

Mashad's security in comparison to the surrounding countryside and small towns attracted more people to the city. Because of its unique commercial situation and the presence of service centers at different levels as well as having the special capability for tourism, Mashad was always a target for immigrants. The city's urban uses along with its religious aspects made it continually accept immigrants.

The main reasons for immigration to Mashad in these years (especially 1335 to 1345 AHS/ 1956 to 1966 AD) were the city's flourishing commerce, the search for a job, education, droughts in south Khorasan and especially the presence of endowed lands in Mashad. Most lands in Mashad are the lands endowed for the holy Shrine of Imam Reza and Goharshad Mosque and other endowments. These lands were rented at very low prices and at first there was no demand for them; the construction of invaluable buildings was customary and this presented great opportunities for immigrants. With the fast increase in population and expansion of city, new quarters like Ahmadabad (1343 AHS/ 1964 AD), Sa´d´abad (1345 AHS/ 1966 AD), Samazghand (1345-47 AHS/ 1966-68 AD) and Zed (1350 AHS/ 1971 AD) were added. (Rahnama, 1376 AHS/1997 AD, p. 42, 43, 44)

The first Comprehensive Plan of Mashad was completed in 1346 AHS/ 1967 AD. Before that, Mashad's expansion and development was not based on a designated scientific program, but upon approval of the consultant's final plan by the high council of urban development, the city possessed a plan for a 25-year period.

Figure 3-52 Mashad Aerial view 1335 AHS/ 1956 AD
Ref: The surveying organization of Iran

According to the estimates in this plan, Mashad will have a population of 1.5 million persons in 1370 AHS. This means it has to accommodate about four times as much of the population as in 1346 AHS. Based on this plan, between 1335 and 1345 AHS, the growth of the service section in contrast to agriculture is evident. This is planned to continue, in line with the city's overall tendency towards becoming industrialized and urban.

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According to the ratified Plan, the direction of expansion was determined. This was based upon the geographic position (in the Hezarmasjid and Binalood mountains), climatic conditions (especially the wind and the direction of air pollutants in industrial centers), the land use and the economic relation between surrounding villages and the city as well as urban elements like the airport, railway and important military lands. The main direction of expansion was thus proposed as towards the west and southwest.

After 1347 AHS/ 1968 AD the physical growth of city therefore followed the Mashad Comprehensive Plan. The main axis of development in these years was the Sento Road, which determined the southern and western limits of Mashad until 1357 AHS/1978 AD. The establishment of Ferdowsi University and Mellat Park at the west of the Sento Road intensified the western expansion of city, so that many adjacent villages were amalgamated into the urban fabric.

Figure 3-53 Hazrat Square in 1353 AHS/ 1974 AD
Ref: Rezvani; In search of urban identity: Mashad, 1384 AHS/2005 AD

Although the most important physical event in the city before the Islamic Revolution was the planning of the holy shrine's expansion, in the years 1353-54 AHS/1974-75 AD during the deputy custodian of Abdolazim Valian, all of the houses and buildings within a 320-meter radius of the holy dome were destructed and leveled. This resulted in the demolition the antique part of the old bazaar as well as of many mosques and seminaries. For the purposes of relocating the shopkeepers and proprietors whose lands were located within the plan area, the construction of a bazaar began in the Sheikh Toosi Street axis by the order of the then Governor General in 1355 AHS/1976 AD. The Reza Bazaar was not welcomed at the beginning but afterwards became one of the important commercial centers around the holy shrine. (Mahvan, 1383 AHS/2004 AD, 416, 452; Rahnama, 1376 AHS/1997 AD, p. 45, 46)

Figure 3-54 Reza Bazaar
Ref: Musa al-Reza Sayyah's archive
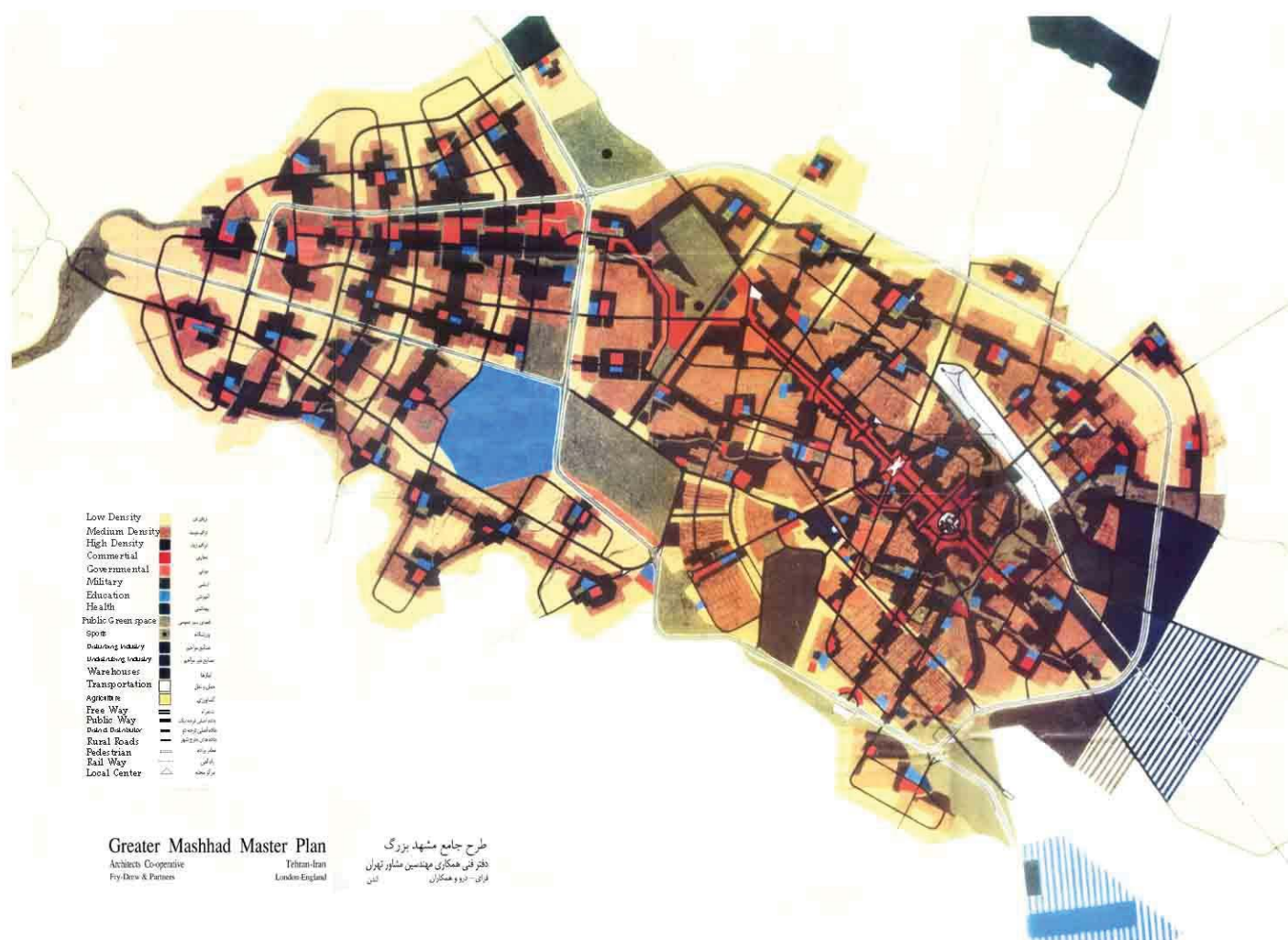
Low Density
Medium Density
High Density
Commercial
Governmental
Military
Education
Health
Public Green space
Sport
Disturbing Industry
Undisturbing Industry
Warehouses
Transportation
Agriculture
Free Way
Public Way
Disband Distributor
Rural Roads
Pedestrian
Rail Way
Local Center

Greater Mashhad Master Plan
Architects Co-operative   Tehran-Iran
Fry-Drew & Partners   London-England

With the beginning of the rapid urbanization (1340 AHS/1961 AD) in Iran, Mashad also experienced a fast growth. According to the statistics from undertaken censuses, in each ten-year period during the past 25 years, the population of Mashad increased twofold, while the population of the city during the years 1270 AHS/1891 AD to 1340 AHS/1961 AD doubled only after 35 to 40 years. Another very important topic, which can be seen as an important feature of this rapid city growth, is the lack of equilibrium between the growth in population and the increase in land area. During the years 1270 to 1310

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AHS/1891 to 1931 AD, the rate of increase in land area was less than the rate of population growth. Thus, with a doubling of the population of the city, the urban area increased 1.5-fold. However, in the each ten-year-period between 1355 and 1365 AHS/1976 and 1996 AD, a doubling of the population led to an increase in surface area by threefold. (Ardam Consultant, 1369 AHS/1990 AD, v. 1-18, p. 1)

The census and statistics for population and housing during the years 1335-1375 AHS/1956-1996 AD show that after the rapid urbanization in Iran, the rate of population growth in Mashad was always more than the average rate in the country.

1 Holy Tomb
2 Balasar Mosque
3 Minaret Besides Gold Dome
4 Building Belongs to Ilkhanids
5 Dar as-syadeh
6 Parizad Seminar
7 Dodar Seminary
8 Balasar Seminary
9 Goharshad Mosque
10 Bazaar
11 Atiq Courtyard
12 Dar al-hoffaz
13 Amir Alishir Veranda
14 Allahvardikhan Dome
15 Dar al-Ziafeh
16 Hatam Khani Dome
17 Tohidkhaneh

18 Mirza Jafar Seminary
19 Royal washroom
20 Kheyratkhan Seminary
21 Ismeal Talaie public drinking
22 Naderi top of minaret
24 Dar as-Salam
25 New (Nov) Courtyard
26 Alinaghi Mirza Seminary
27 Dar as-Saadat
32 Pahlavi Courtyard
   (current Imam Khomeyni)

primary building

development in Ghaznavids

development in Ilkhanids

development in Timurids

development in Safavids

development in Naderids

development in Qajarids

development in Pahlavids

Figure 3-55 The development of the holy Shrine until the end of Pahlavids
Ref: writer

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- **Mashad after the Islamic Revolution**

The elaborate master plan of Mashad was approved and notified in the first years following the Islamic revolution (1358 to 1360 AHS/1979 to 1991 AD). Providing a reliable document to enable policymaking, planning and implementing urban strategies was a great help for managing the physical structure of a developing city with the features of Mashad. However, the absence of a united executive organization and a responsible technical agent in this case prevented a quick progression of these plans.

The physical development of the city was then too fast and the Organization of Housing and Urban Development, at least in the first decade after the Islamic revolution, had the main task of preparing and cession of lands for housing in regions like Nohdarreh, Najafi, Chaharcheshmeh and Ghasemabad. This policy continued over the next decades until now in order to answer the numerous residence applications; residential estates were thus built in different regions and in the outskirts of the city by private, cooperative and governmental bodies.

In practice, the hasty expansion of Mashad and the growth of slum-dwellings, which are the result of illegal settlement within the city limits, called the old Comprehensive Plan of Mashad in question. The opposition between the objective reality and the predictions made in the master plan finally forced the administrators of the city to order the preparation of a new master plan considering the particularities of the existent conditions and the special qualities resulting from the irregular growth of the city during previous periods.

Afterwards, in 1367 AHS/1988 AD, the Organization of Housing and Urban Development informed the Mehrazan Consultant for performing the services and studies of development and construction within the Mashad city area before the end of ratified plan period in

Figure 3-56 Ghasemabad, Andisheh Boulevard in 1380 AHS/ 2001 AD
Ref: Musa al-Reza Sayyah's archive
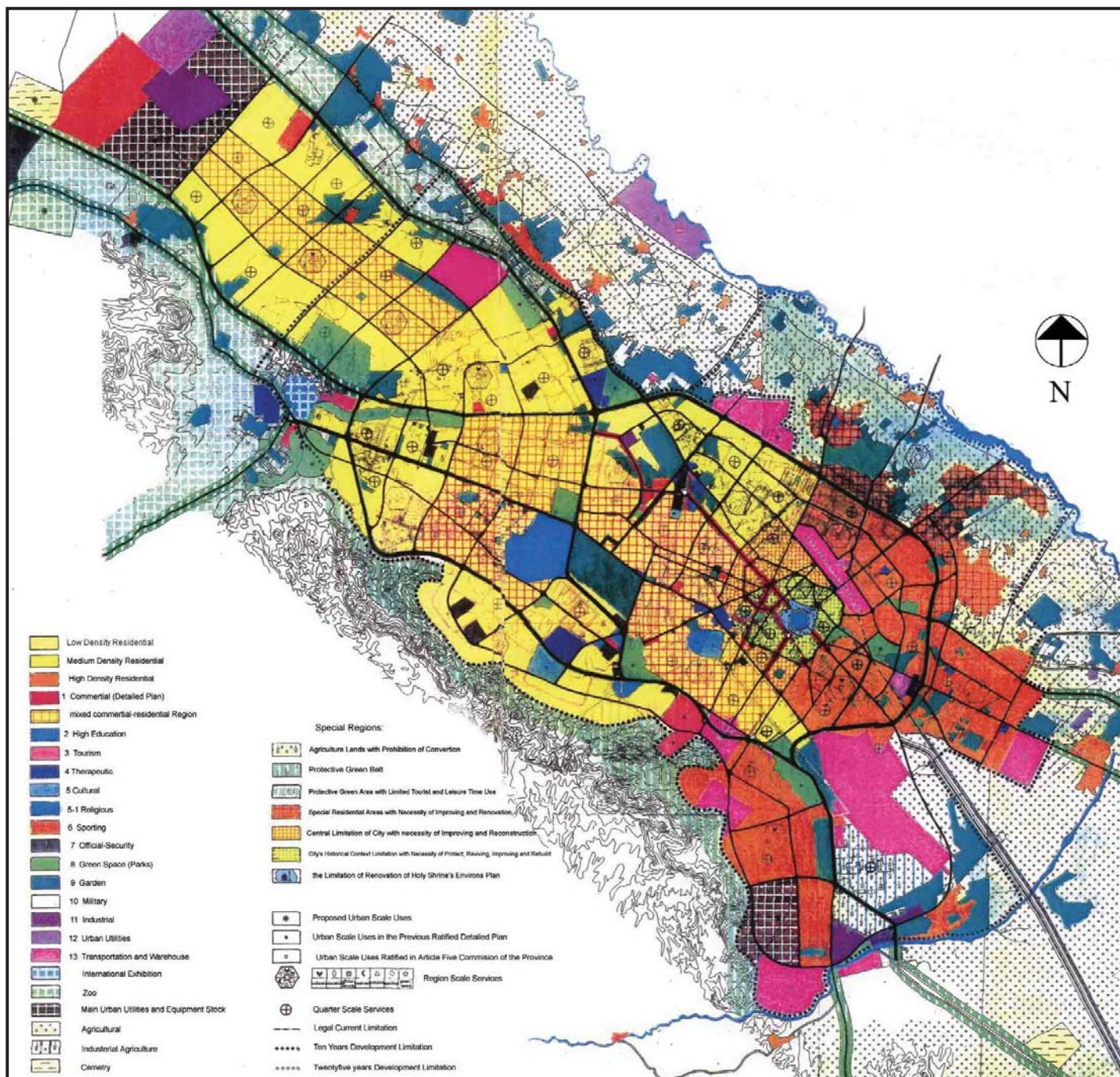
Map 3-8 Mashad Master Plan, Proposed land use map, 1370 – 1395 AHS/ 1991 – 2016 AD
Ref: Mashad Comprehensive Plan, Mehrazan Consultant

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1370 AHS/1991 AD. Finally, the new Comprehensive Plan of Mashad was ratified in 1371 AHS/1992 AD after several revision sessions. In this plan, in addition to information about the existing (1370-71 AHS) social and economic conditions as well as the structure of city in particular, there are predictions and policies for urban development in a program continuing until 1395 AHS/2016 AD.

According to studies and predictions in this comprehensive plan, Mashad's population of 1.9 million population in 1370 AHS would increase to around 3 million in 1380 AHS/2001 AD and to 5.4 million people in 1395 AHS. There are three different plots for housing the new population of Mashad: the current boundaries, continuous lands and outskirt lands in the form of satellite towns were considered. The area within the legal limits of Mashad in 1370 AHS/1991 AD was 185 square kilometers. According to studies in the master plan that predicted the necessity of a minimum acceptable urban service provision on the condition of using high-capacity public transportation, the maximum population capacity in 1370 AHS was estimated at around 2.8 million.

With continuous expansion, it is not possible to accommodate all 2.6 million extra population of the city (in comparison to the maximum capacity in 1370) in the lands adjoining the limitations. This was because the presence of the Binalood heights in south, the necessity to protect the high-quality agricultural lands in east and north and also the presence of underground water supplies in west.

Under the conditions of a reasonable and optimal exploitation of existing possibilities, a maximum of 1.2 million people (of the mentioned population) can be settled in the adjoining land until 1395 AHS. The connected expansion of city would be mostly towards the northwest and it would increase the surface area of city from 185 to approximately 245 square kilometers.

A discontinuous expansion of the city for settling 1.3 million extra persons was laid out in the master plan in the form of the establishment of three new towns; two of them have actually been established and are now developing. One is Golbahar in the north of Mashad; the other is Binalood in the southwest of the city. With the suggested expansion in the master plan, the surface area of city would change from around 214 square kilometers with an average gross population density of 140 persons per Hectare and an average net residential density of 335 persons per Hectare to an area of 245 square kilometers, an average gross population density of 163 persons per Hectare and a net residential population density of 515 persons per Hectare in 1395 AHS. In the master plan, depending on the economic conditions of residents, the intensity of buildings was differentially assumed and was changed from 100% in the form of two-storey buildings to 135% in three-storey buildings. On this basis, the average residential building intensity, which was around 79% of the area of residential land in 1376, reached 126% and the average number of storeys in residential buildings from 1.2 storeys to 2.5 storey buildings in the time horizon of plan. (Mehrazan consultant, 1372 AHS/1993 AD, p. 23, 24)

Considering governmental tendencies and policies for the maximum exploitation of the existing urban capacities, avoiding urban sprawl, the per capita residential land area and the net of thoroughfares in the master plan, compared to the existed situation, has been noticeably decreased. Service uses, according to their performance area, were divided into the three groups of neighborhood, district-zone and urban. For the groups one and two (neighborhood, district-zone), guide tables have been compiled with a separation of uses (educational, hygienic, therapeutic, athletic, etc.) in which the required amount of each use and the distribution method are specified.

	Existing State Use in 1376 AHS (1997 AD) Per capita (m2)	Master plan horizon of 1395 AHS (2016 AD) Per capita (m2)
Residential	30	22
Thoroughfare	22	18
Services	13	20
Total	65	60

Table 3-5 Comparing the existing and the suggested per capita urban land area in square meters
Ref: Mehrazan consultant, Comprehensive Plan, summary report, 1377 AHS/1998 AD

Regarding the importance of the service sector in the economic structure of Mashad and its millions of pilgrims, one of the most important subjects is the organizing of commercial uses as the holy shrine of Imam Reza intensifies the tendency of centralization of types of commercial activities. Therefore, the preparation and implementation of an urban revival plan for the center of the city with the aim of keeping it active and flourishing was part of the plan's program. This is presently being implemented. (Mehrazan Consultant, 1372 AHS/1993 AD, p. 21)
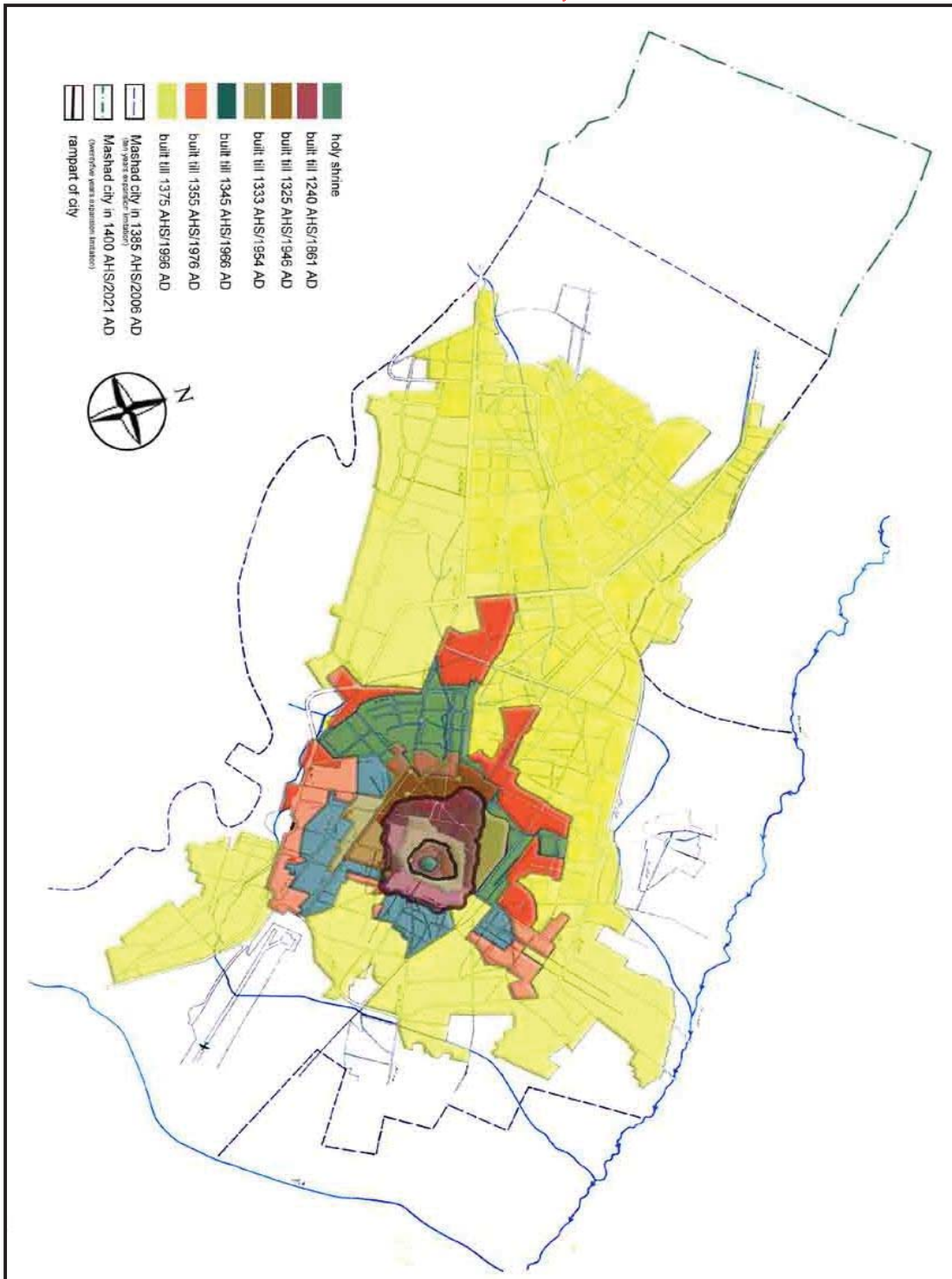
Map **3-9 Development and expansion map of Mashad city**
Ref: writer

Legend:
- rampart of city
- Mashad city in 1400 AHS/2021 AD (overflow years expansion limitation)
- Mashad city in 1385 AHS/2006 AD (ten years expansion limitation)
- built till 1375 AHS/1996 AD
- built till 1355 AHS/1976 AD
- built till 1345 AHS/1966 AD
- built till 1333 AHS/1954 AD
- built till 1325 AHS/1946 AD
- built till 1240 AHS/1861 AD
- holy shrine

3.4.3 Mashad and Future

The increasing growth of the city's land area as well as its pilgrim and visitor population creates an ever-increasing need for the construction and establishment of services and urban utilities. This has driven city managers to study, program and implement many projects in the city limits that realize particular performance objectives, including measures in different areas of transportation, traffic congestion, utilities and infrastructure, dwelling and urban development, which have an effect on the physical-spatial structure of Mashad, as well as the improvement of public services. Some of the urban plans during these few years, which are directed under the supervision of implementing bodies (most commonly the Ministry of Housing and Urban Design, Municipality and Technical Office of the Governor General) include "The detailed plan of the central region of Mashad", "Gentrification and reconstruction plan of the decrepit area around the holy shrine", "Detailed plans of the Mashad region", "The plan of Shohada Square" and the new Comprehensive Plan of Mashad. In the urban development zone, many executive projects have been designed and/or are being implemented. The most important of these are:

 "The urban train plan", "The comprehensive green space plan" and plans for beautification, cleaning, recycling and material conversion, several plans for leisure space such as Koohsangi Park, Vakilabad Park and Torogh Park as well as projects for the redesign of city facades.

Use	Existing state per capita (m²) 1367 AHS/1998 AD	Suggested per capita (m²) 1395 AHS/2016 AD
Educational	3.87	4.66
Hygienic	0.53	1.57
Urban utilities and facilities	1.93	2.91
Commercial	1.27	1.87
Athletic	0.19	1.69
Green area	1.99	1.87
Official – military	1.32	1.97
Religious	0.28	0.33
Cultural	0.02	0.84
Tourism and services	0.28	0.87
Industrial (industries and inner city workshops)	1.28	1.30
Total	13.16	20.63

Table 3-6 Service use per capita
Ref: Mehrazan Consultant, summary report, 1372 AHS/1993 AD

Figure 3-57 The Urban train project
Ref: Mashad Municipality

Each of these had an appropriate role in ordering the ever-increasing needs for urban services in the expanse of Mashad city.

In sum, as in many other cities in Iran, changes in Mashad's structure after the Pahlavids period not only destructed many invaluable historic contexts but also resulted in a kind of alienation and cultural misleading whose effects have remained in the city until now.

Figure 3-58 Vakilabad Park
 Ref: Parks and green spaces organization of Mashad Municipality

Part II
A̲n̲a̲l̲y̲s̲i̲s̲
Physical evolution course of **cities**

Part **II**
A̲n̲a̲l̲y̲s̲i̲s̲

4 Chapter

Estimation and Comparative Studies (Pattern of Research)

4.1 **The effective factors on the development of European cities**

4.2 **The effective factors on the development of Iranian cities**

4.3 **The influencing factors and causes of physical evolution in Mashad**

This part of research produces and presents a pattern to measure the influence and determine the main effective factors on urban changes in each historical period of a city's life. As was previously expressed in detail, several commonly used factors (economic, cultural, political and geographical) during the course of a city's physical evolution can lead to the birth of a city and can similarly trigger its development over the course of time.

It is here necessary to indicate three points:

First, a precise and clear border between these factors is difficult to draw, although the categories are frequently distinguishable. In order to recognize each factor and whether it is economic, cultural, political or geographical, one must gain insight into the common backgrounds of effective factors in a city and accept that some factors may have two or three or all four features and identities. One of the features often determines the main character of that factor. For example, a political factor can also have characteristics of economy, culture and geography.

In every case, it is necessary to pay close attention in order to distinguish which factor belongs to each of the four categories. Additionally, one needs to have precise information about that factor and events as well as of related themes in order to increase the possibility that the correct categorization is made. Chapters 2.1, 2.3 and 3.4 have functionally and concisely given the necessary explanations of the course of evolution in European cities, Iranian cities and finally in Mashad as the master case. These descriptions provide the foundation for the comparative studies of this chapter.

The second point is that there are generally not similar and precise definitions of the four mentioned factors. Different opinions about each of their conceptualizations abound. For example, some authors believe that cultural factors in a society consist of tradition, folklore, literature, and famous people, while others place different social factors such as

population, race and gender in the subset of cultural factors. Others still attribute all identical indices of a society to the culture category and align all economic and political features with it.

The following depicts the utilized keywords and indicates the definition for each factor:

Political: governmental, military …

Economic: commercial, bazaar …

Geographic: climate, location, topography …

Social: population, council, communication …

Cultural: science, art, philosophy, religion …

Urban management: municipality, planning and urban

                    design, administration ….

The third point hints at a basic subject and, due to its importance, was already briefly mentioned in the research necessity—the first chapter of this thesis. This is namely the position of urban management, planning and policymaking between the four (five) effective factors and urban development. Some of the factors during the evolution of a city directly affect the physical structure of the city while other factors affect the city through urban management, planning and its related control mechanisms. This second group of impressionability and change of city's structure, especially since the birth and establishment of structures for urban management has taken on a more serious and leading role. Prior to that, however, most effective factors directly influenced cities and determined their physical structures. Along with expressing and distinguishing urban management as the fifth effective factor on the form of cities, we thus have to recognize the basic difference between this and the four (five) previous factors and assume it as a separate category. In other words, although urban management and planning may play a basic role in determining the structure of cities

(as it did experimentally), it has an organizing role regarding the four factors of economics, politics, culture and geography. (See figure 1-1)

A final note is that, although the contents in the tables of Iranian and European cities are based on previous chapters, the Mashad table cites external sources due to the additional contents outside of the case study (in which there was no possibility to bring).

4.1 The effective factors on the development of European cities (in view of estimating and comparative schedule)

Western (European) cities were chosen as the general sample for comparative investigation. There is an overall review of the historical evolution of European cities from primitive cities to today's modern and postmodern cities in the second chapter. These explanations, although general, determine the grounds for recognition the reasons for the emergence of these cities and the main effective factors on their development in a historic summary. The following table separately presents this for all mentioned city types. In this way, some important events that resulted in changes in the physical structure of the city over time or the prominent factors of that period are identified and classified at the left side of the table. The event and change to the city are specified and expressed at the right side. In the vertical middle rows is specified to which type of each factor this event belongs and whether or not urban management played a role in it. The degree of influence and the priority of the event are shown using darker tonalities for a high impression and for lower impression using lighter tonalities. Because of the mentioned distinctions and the substantial difference of urban management from the other four factors, this is differentiated from the other four groups. It is necessary to mention that all mentioned city types in the table follow both historical course and the performance of cities in order to provide the grounds for a comparison in this field.

Locating the three civilizations of Mesopotamia, Egypt and Harappa in this table has no direct relation to European cities, though European cities have been affected by the overall development of these three points of emergence of human civilization.

Reign and Time		Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	Physical changes and evolution
4000 to 2000 B C	Mesopotamia	Geographical and climatic conditions in the valleys of Tigris-Euphrates (fertility of land and good weather) and technical development in irrigation resulted in the emergence of cities and their development in this area.					Religious		City-religion in Mesopotamia, which was a temporary place for holding religious ceremonies and gradually turned into permanent residential centers like "Ur", "Babylon" and "Uruk", contained three main parts: old city with surrounding walls, "Temenos" or religious precinct and the outer town.
	Egyptian	The duration of permanent residence in Egyptian cities was short and depended on the length of a Pharaoh's residence and the construction of his tomb at that place.	Autocratic government				Religious		Public and religious buildings are not located in a definite place. There is not any definite separation of land. On the east side of city is located a village of workers with a grid layout. (Tell el-Amarna and Kahun)
	India (Harappan cities)	Because of its climatic position, the Indus River basin was another location for the birth of cities and development of human civilization and extended to the Ganges River.							The grid structure is a main feature of the Harappan city. Each city had a citadel in the west, which was separated from the dwelling area. The main streets were in a north-south direction. (Mohenjo-daro, Kalibangan and Lothal). The rampart was 43 feet high and made from brick. Some believe these cities to be the first pre-designed towns.

Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	Physical changes and evolution
Ancient cities (Ancient Greece) 5th BC century	A set of political and autonomous cities with single-city and independent governments. The location and conditions of these cities are highly dependent on the geographical situation of the area. A mild climate and the use of open spaces was a suitable ground for developing social activities and democracy.			Social relations	Climatic and geographic position	Art and science		Special attention to public and open spaces to the detriment of the quality of residential spaces. City consists of two main cores: Acropolis, the religious center and Agora, the heart of the city. A Scientific use of a grid layout. There are two patterns of organic growth and planned urban form for cities. The main elements of cities are the Acropolis, the enclosing city wall, the Agora, residential districts and probably an industrial area. The best examples of these cities are Priene and Athens.
Historical cities (ancient Rome) 2nd BC century	Cities with beyond-urban governments. The city was practically used as a central store for the production of villages and acted as an exchange for aspects of culture and art. This role was organized by the beyond-urban governmental system and was in the service of that governmental system. Rome as an example had a nonhierarchical structure and poor and rich lived next to each other.	Centralized government				Science and technology		All permanent urban settlements, whether developed from the castra or other special origins, had similarly standard and simple plans. The shape of the city was usually square or rectangular and two main streets crossed within it: the Decumanus, passing through the center of city, and the Cardo, bisecting the Decumanus at right angles. Secondary streets completed the grid layout, forming blocks named "Insulae". The Forum, like the Greek Agora, was located at the intersection of the two main streets. The main temple, theater and public bath were also located near the Forum in the center of town. During periods of revolt, the cities had walls. The existence of Castras over history always caused trading in the bazaar and resulted in its final transformation into a permanent urban settlement.

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Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	Physical changes and evolution
The Medieval city 10th -14th AD century	In the 10th and 11th centuries AD, the revival of commercial relations and political stability led to the regeneration of many Roman cities. Beginning of the era of urban development Feudalism, the revival of trading and the effective role of church were definite features of this period. The medieval city was really a commercial center and a large bazaar.		Bazaar and commerce			Religious		The urban context of medieval cities followed both methods of grid layouts and organic growth processes. The main components were the wall with its towers and gates, the streets and related circulation spaces, the marketplace, likely included a market hall and commercial buildings, the church, which usually had a central and special location and town buildings and related private garden spaces. The extension of cities resulted in vertical growth and in many cases the establishment of double and triple walls in cities The parvise or the open space near the church and the bazaar space was a feature in most Medieval cities. Medieval cities: Roman-oriented cities, primitive barracks or military bases, village-origin dwellings Lands at the margins of streets, especially close to the city gates and the bazaar were considered a commercial capital.

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Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	Physical changes and evolution
Renaissance cities 15th to 17th AD	The wealth and power of Italian merchants (especially from Venice) and ensuing commercial development brought wealth to the cities of Italy and prepared the chance of development and renovation. Urban design of the Renaissance manifested itself in three methods: first, the expansion of existing urban regions; second, the rebuilding of some parts of the city; and third, in the form of limited numbers of new towns.		Wealth and commerce			Scientific and artistic		The creation of new public spaces, establishment of new streets and joining new residential areas to towns are the main urban planning activities in this period. The birth of urban idealistic structures in designed cities and new towns of Renaissance period. Three main elements of Renaissance urban planning were: a primary direct street, quarters with grid layouts and walled and enclosed spaces. The main features of Renaissance urban design are: symmetry and equilibrium around one or some main axes, visual closing of vistas by careful placing of monumental elements, integration of individual buildings through repetition of a basic elevational design into the form of single, coherent architectural ensembles and using perspective theory in urban landscape.
Industrial and beyond industrial city 18th to half of 19th century	The expansion of industrial centers in cities, vast migration to towns and the spread of poverty are the features of this period. The establishment of new cities in other parts of the world such as America, Australia and South Africa because of emigration. The first special efforts in creating urban management laws about slum-dwelling. Formation of the beyond-industrial city at the beginning of the 19th century (1830-1850 AD) for resolving the problems of industrial cities		Industrial development			Science development, logical thinking		During this period, the industrial city was a disordered gathering of factories, workshops and the residential complexes of workers. The beyond-industrial city displayed order, symmetry, repetition, straight lines and intellectual divisions. Through the industrial development of some cities in countries such as England and France, colonial cities were formed. The uncontrolled growth of cities, especially those cities with increasing industrial expansion. The wide extension of transportation networks, especially the railway system.

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Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	Physical changes and evolution
Modern city Second half of 19th - first half of 20th century	Napoleon III's assignment of Haussmann to the governorship of the Saint area and the latter's support of urban renewal measures. Haussmann's efforts from 1853 until 1869 in Paris were a beginning for the development of modernism in European urban design and an action because of industrial city's deficiency and the problems resulting from the industrialization of European cities The spread of similar actions to other European cities The beginning of an organized urban management with planning and supervision In 1933 AD, the international congress on Architecture (CIAM) compiled the Charter of Athens as a guide for urban design. Urban planning and design in the form of compiling comprehensive, detailed and guiding plans					Scientific, artistic, philosophical	Planning and supervising	Haussmann's efforts in Paris, which were similarly repeated in many other cities: The construction of new quarters, laying out new streets in old quarters, rebuilding of the structures situated at the margins of new streets. The establishment of public gardens and parks, renovation of infrastructure utilities (e.g., water and sewage). The beginning of organized and planned urban management with actions like regionalization of cities and allocating each scope to a specific role and use such as residential, industrial, commercial and leisure, using a grid layout and a tendency to simplicity and hierarchy, monotony and distancing from tradition and history. Micro-scale engineering and exploitation of developed technologies. Creation of new transportation uses (railway stations, subway) Other features of the modern city include an attitude to logic and science, secularism, criticism and reflection, which had deep effects on all areas of science, arts and also urban design. The birth of the urban design field, of international styles in urban planning, formation of cities with special and new uses like satellite cities, military cities and industrial cities.

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Physical evolution course of **cities**

Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	Physical changes and evolution
Beyond Modern (Postmodern) city Second half of 20th century	The features of criticism, rethinking and revising modern thought resulted in varied theories in arts, philosophy and science. Also, in urban design, several theories were developed for solving the problems of modern urban growth. The destruction of many European cities during the Second World War and the need for new rebuilding and renovating plans Two very important characteristics of beyond modern period are the attention to the citizens' role (participation) in managing the society in various social, economic and political aspects, and the second, a flexible planning for the coordination with the new needs of society at every time. Each of these two features left their impression on urban design. The main features of postmodern urban design are: attention to the needs of each citizen, to the quality of urban spaces, for identity and tradition, democracy and public participation.			Participation and people's role		Scientific and artistic		New theories of urban design arising from the efforts of thinkers such as le Corbusier and patterns such as the Radiant City" and the skyscraper city resulted in the foundation of the City Beautiful Theory, which is the prominent pattern of postmodern urban design. The structure of City Beautiful has the following features: modified and mixed regionalization, historical sequence and reference to past, focus on compatibility with nature (sustainable city), attention to ecology and regionalism, non-Euclidean and logical cities, public participation in urban planning and the enlivenment of public spaces with people. The last phase of postmodern urban planning was the transportation of large factories to other countries and development of services such as IT. The crystallization of new urban planning theories in cities such as virtual city and idealistic cities of the third millennium

Table 4-1 Estimating and comparative schedule for European cities' evolution course
Ref: Writer

4.2 The effective factors on development of Iranian cities (in view of estimating and comparative schedule)

In the second chapter of this research, I described Iranian cities, their course of evolution and their development in different periods, since the birth of the first cities in the west of Iran until now. I also outlined the structural typology of these cities within the time and place constraints of this dissertation.

This information is helpful for distinguishing the main factors in the physical evolution of each period or each type of Iranian cities. It is obvious that this investigation and recognition is a general view of the nature of cities. For example, Elamite city-religions, which were the first cities in Iran and possibly the world, arose from religion. In other words, religion had a much greater role in their birth and development than any other factor, although factors like governmental or economic aspects also had an influence on them.

A similar table for determining the physical identity of cities derived from the mentioned factors was prepared. This separately specifies the different types of Iranian cities based on their time period as well as the historical course of Iranian cities and the main factors in their birth and development. Although this table only has a general view to the identity of each city in this relationship, it provides a suitable opportunity for comparison.

It is necessary to emphasize that the different classifications of cities assume both the same timing for Iranian cities' development and the same performance for each city.

Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	Physical changes and evolution
Elamite city 4th to 2nd millennium BC	In Iran, city-dwelling began simultaneously with the *Elamites* and the *Sumerids*. The first cities in Mesopotamia were born from about 4000 to 2000 BC. These cities had religious structures; for example, *Chogha Zambil* was built around 1250 BC by the king of Elam, *Untash-Napirisha*, mainly to honor the great god *Inshushinak* (which means gods *of Susa*). Its original name was *Dur Untash*.					Religious-governmental		In the fourth millennium BC, *Chogha mish* had turned into a big city. This city had an urban structure that separated official, production and governmental sectors. There was a great temple or *Ziggurat* at its center. *Dur Untash* also featured a great temple (*Chogha Zambil*) in its center, in which religious ceremonies took place. The city didn't have defending ramparts and the permanent residents were clergymen. The city was only allocated to religious and ritual ceremonies at times of year when king, courtiers and people were present. In other words, in these city-religions, cities expanded around temples.
Medes city 728-550 BC	Around 800 BC, people who lived in the cities with towers and ramparts with separated villages united to confront the common enemies of *Babel* and *Assyria* and the *Medes* arose as the dominant force among these different tribes. A prominent example of a Medes city is the city-power of *Hekmataneh*. This center, in addition to featuring Mesopotamia's city-religion characteristics, was also a city-power and was in a way considered a military-agricultural urban area.	Governmental-military						Medes cities in this period consisted of solid and firm castles on top of hills or a strategic area where small and large living points were scattered around it. In this period, living areas and the bazaar were situated outside the castle.

Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	Physical changes and evolution
Persian city 550-330 BC	The Persian style reached its peak during the *Achaemenid* period. The Persian city changed the good-for-good commercial relations to money-for-good. In fact, the Medes military-agricultural urban area changed to the Persian military-commercial urban area at the frontiers and a commercial-agricultural area in the middle lands. During this period, the bazaar was introduced to the city and urban society received its real meaning.	Government	Flourish of Bazaar and commerce			Religious, developing of art and sciences	Order and law	The spatial-physical organization of the Persian city consisted of the governmental castle, central shar and outer shar. The governmental castle was a set of palaces, temples, military and official buildings and food supplies store that was built upon a natural or man-made elevation and protected with heavy walls. The central shar was the place of residence of the upper social class and also consisted of a bazaar too and was protected with walls. The outer shar consisted of quarters and houses, bazaars, gardens and scattered fields in an extended area and was usually separated from its outer surroundings with a natural fence like a mountain, hill, river or jungle.
Persian-Hellenic city Third century BC	The *Persian-Hellenic* method formed after Seleucid's dominance over Iran and the merger of the Iranian (the government rose from divine and celestial power) and Greek (power and government rose from social contract) cultures. Cities in this period had both the Greek (city-government) and Iranian (city-power) urban design foundation. Around 400 new cities were established in this period near military castles. *Sad Darvaze* (*Damghan*) was the most important of them.							The Persian-Hellenic new cities, like classical-age designs, featured grid thoroughfares at a human scale. The *Agora* was the center of cultural, commercial and official exchanges and was the physical symbol of the Greek and Iranian philosophies. The main part of the city was the place of residence of the upper social class and other people lived at other points of living surrounding the city.

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Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	Physical changes and evolution
Parthian city 248 BC – 226 AD	After defeating the Seleucids, the *Ashkanid*s could form a centralized, powerful government over 500 years by allying different clans. This resulted in a commercial flourishing and also city-dwelling. The elimination of social, cultural and economic inequalities between city and village. The city was not only the center of exchange and industry but also produced agriculture. Villages also had an important role in commerce and industry. The Parthian city came into existence in order to emphasize the supremacy of environmental concepts. The examples are Nesa and Firuzabad.	Democratic government	Bazaar development	Social justice	Environmental		Self-directing cities – city design	The city was integrated with its surrounding area and imposed spontaneous order to logical and planned (ordered) regulation in its surrounding environment. The circular city was the symbol of the Parthian city. The shar of the Parthian city, like the Persian shar, was divided into the governmental castle, central shar and outer shar using similar concepts as the Persian city's elements.
Sasanid city 226 – 642 AD	The sovereignty and strength of urban over rural society. The city was the home of higher social classes and a great range of people lived outside the walls of the shar. Like the Persian shar, the Sasanid shar in the Achaemenid government was established upon the basis of religious beliefs. Squares in cities had a more political role and were used for announcing decrees rather than for social and cultural purposes (as with the Agora and Forum).	Governmental	Bazaar's role				Urban design	The city usually ended at a wall, which had four gates that pointed to the four cardinal points and the four elements. The Sasanid shar was established in a gridiron form and sometimes in the shape of animals (Susa had the outline of a falcon and Sushtar of a horse). The spatial-physical structure consisted of the governmental castle and the central and outer shars (as in the Persian style). The role of the bazaar and square gained prominence in this period. The bazaar was the focal point of quarters and the spine of city.

Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographica	Cultural	Urban management	Physical changes and evolution
Khorasani style (Samanids) 7th to 11th AD	The growth of various scientific, literary, educational, religious and … movements. The elimination of the caste system and merger of different civilizations and tribes. The freedom of free expression of opinions and thoughts. Agriculture, commerce and industry were combined in nomadic tribes and the rural and urban continuum. The city included both the main urban area and nearby villages.					Scientific, artistic, religious and philosophical		Because of its relative security, the city became noticeably vaster than its predecessor and the walls of the urban area were eliminated. City had a main transit axis from the cardinal points, which met in a square that oriented the congregational mosque in addition to offices. The gate of the main row of bazaars was opened to this axis. The bazaar extended towards the gates of the city, creating different quarters. Spatial-physical organic cohesion and order in accessible networks and irrigation systems.
Renaissance of Urban design (Buians) 11th century AD	The pinnacle of scientific and literary life and emergence of the thought of political-religious independence from the Baghdad central government. The return and re-innovation of older Iranian ceremonies in the frame of Shiite religious theories made this period Iran's Renaissance age.			Public groups (NGO)		Scientific, artistic, philosophical		The 11th century AD is considered as a source of urban design and urban thinking and large cities such as Esfahan, Neyshabour, Toos and Shiraz were the famous cities of this period which competed with Baghdad and other Mesopotamian cities from an urban lifestyle perspective. Urban design basics were the same as those defined in Samanid period and conformed to Buian government beliefs. Quarters were defined without any tribal-racial hierarchy.
Razi Style Saljuqids and Kharazmshahids 12th and 13th AD	The ascent to power of the Saljuqid Turks and the formation of a centralized and powerful government system. The elimination of all cultural and ideological freedoms. The exertion of power through bureaus and the government's supreme ownership of all wealth-producing and distributing resources. The announcement of the Shafeie religion and the elimination of every kind of religious freedom. A vast and extended trading bazaar.	Government, bureaucracy and dictatorship	Commerce and bazaar			Religious		Quarters were the stages of racial and tribal-religious conflicts. The main square was the place for demonstrating the power of the governor and for establishing palaces, offices and congregation mosques. The bazaar had a basic and official role in the city.

Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	Physical changes and evolution
Azari Style (Ilkhanids and Timurids) 13th to 17th AD	The raid of the Mongols in the 13th century The endpoint for scientific, cultural, literary and artistic movements and urban dwelling. The tent-dwelling and nomadic life of the Mongols and their non-acquaintance with city dwelling rules and principles. The presence of two Iranian ministers, Khaje Nasiroddin Toosi and Khaje Rashidoddin Fazlollah, resulted in the Mongols' familiarization with governmental structures and city dwelling.	Dictatorship						Urban organization Collapsed and city dwelling became meaningless. Only the position of the Mongol tribal chief was given topicality; Tabriz in the Ilkhanids and Samarqand in the Timurids period. During the Timurid period, special attention was paid to cities like Harat, Bokhara, Samarqand and Mashad and urbanism began its second revival. Cities like Rob-e Rashidi, Soltanieh and the city of Ghazan (Shanbe Ghazan) are among the cities established during this time.
Esfahani Style (Safavids) 17th to 19th century AD	The formation of the first national-religious government in Iran. The creation of an independent military force and under the surveillance of the government. A great governmental investment in commercial roads and supplying water, the establishment of caravanserais and etc. A political-ideological blending of Iranian and religious concepts.	Government and bureaucracy	Commerce and bazaar			Religious, scientific, artistic and philosophical	Urban planning	Double flourish of Urbanism and urban dwelling. The reformation of quarters with tribal and religious separation. The square as the element of authority of government and its public use. "Esfahan" as a prototype for utopia. Naghsh-e Jahan square and the axis of Chaharbagh as a symbol of Safavid urban design and the appearance of the street element in urban design. The merger of organic and rationalist designing methods.

Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	Physical changes and evolution
Tehran style (Qajarids) 1876 – 1921 AD	The Tehran style in Iranian urban design was developed beginning with the Qajar government. With the reformist actions of *Mirza Taghi Khan Amir Kabir* and the presence of European engineers and instructors this style found a real meaning. Bazaars experienced a new serious rival and new facilities like theaters, cinemas and hotels changed the image of the city towards a European style. In this style, the confrontation of the concepts of new and old, new and traditional, western and native was observable in the structures of streets and squares in comparison to the texture of bazaar and quarters centers.	Governmental				Scientific and artistic		The Tehran style, like the Esfahani style, rejected many interferes with the old context. In Tehran, the city center changed from *Sabze Meydan* and *Arg Square* to Tupkhaneh Square. In the square, as opposed to squares in the Esfahani style, instead of mosques and seminaries, governmental palaces and bazaars, elements such as telegraph buildings, post offices, banks, municipal buildings and police headquarters were established. The street was not a promenade (as in the Esfahani style) and not just responsiblet for traffic (as in following periods) but was a living, dynamic and multifunctional space.
Pahlavid style (First and second Pahlavids) 1925-1941 AD, 1941-1979 AD	The Pahlavid government was formed on the basis of an organization consisting of bureaucracy and independent military forces. The beginning of villagers' migration to cities. The import of industrial and agricultural goods was a serious shock to domestic production and changed the city into a consumer-driven phenomenon. In the second Pahlavid period, owing to the problems and expansion of cities, the creation of urban master plans was ordered. The formation of the Ministry of development and Housing.	Governmental	Consumer-driven city			Science and Art	Preparing urban master plan	The widening of streets and establishment of governmental places The conversion of old streets to new boulevards with regular geometric forms influenced by the European modernism movement and *Haussmann*'s efforts in Paris (especially in the second Pahlavid period). The grid-based expansion of the city outside the old context. Following master plans resulted in the destruction of older contexts and slum-dwelling.

Reign and Time		Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	Physical changes and evolution
Islamic Revolution period 1357 AHS/1979 AD until now	The period of war between Iran and Iraq 1980-1988 AD	The Islamic revolution in 1979 AD coincided with the war between Iran and Iraq, which lasted for about eight years. The situation during the wartime, in addition to delaying most construction activities, resulted in a vast immigration both from war regions and rural areas to cities as well as the emergence of slum dwelling and extension of informal settlements at the margins of cities. The war in Afghanistan also triggered the migration of many Afghans to Iranian cities and especially to Mashad.	War and political crisis	Economic stagnancy					The increase in slum-dwelling and irregular expansion of cities due to the migration of villagers, or of war region inhabitants as well as Afghan immigrants to cities led to an informal urban structure at the margins of most Iranian cities. The lack of supervision of urban buildings allowed the emergence of abnormal urban spaces in the cities of Iran. Most older districts in the centers of cities became the residence place of low-income strata and became afflicted with obsolescence.
	Constructional Period 1367 AHS/1988 AD until now	In 1367 AHS/1988 AD (the cession of war), the period of planning and policy making in different economic, cultural and political areas began and since then many cities in Iran have developed comprehensive and detailed urban plans. Engineering regulatory organizations were established in urban design, architecture and relevant fields, by which standards for construction were compiled.	Authoritarian government	Governmental economy				Centralization in management	Compiling urban development plans (comprehensive and detailed plans) and review and also supervision on constructions under the instructions of engineering regulation organization, gave order to constructions, whether inside or in the margins of cities and resulted in reduction of damages in cities. Compile of improvement and renovating plans in the old contexts of city centers in most of Iranian cities caused amazing changes in the center of cities. In 80's (AHS) decade, the first structural-strategic plan was planned in Tehran city. Urban developing plans and investment in different sections changed the image of cities and resulted in increasing the urban public and green spaces.

Table 4-2 Estimation and comparative schedule for Iranian cities' evolution course
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4.3 The influencing factors and causes of physical evolution in Mashad (Political, economic, geographical cultural and social effects in estimate and comparative schedule)

In the following, it is necessary to explain the presented pattern, which is adjusted as a table. The investigation and analysis is of *Mashad*, one of the religious-touristic and the second-largest metropolis in Iran. For diagnosing and receiving the needed knowledge about political, social, cultural, economic … events that have resulted in changes in the form of Mashad, I presented the summary of the performed investigation of Mashad in the previous chapter and separated geographical, historical, social, economic and physical records. Surely my comprehensive studies and investigations on Mashad's historical records during the last decade were helpful for distinguishing the effective factors in the physical evolutions in the city. Similar to the two previous schedules, all the events that resulted in changes in the physical structure of the city over time are identified and classified with their date and time period at the left side of table and the event and change to the city are specified and expressed at the right side. Like before, the degree of influence and the priority of the event are shown using darker tonalities for a high impression and for lower impression using lighter tonalities. This action has been performed for all main events over the history of the city from its birth until the present time and for each historical period, including the date in AH/AHS and AD, in order to specify which factor at what period had the most important role in determining the physical structure of the city. By excluding this result, distinguishing the influencing factors and prioritizing and measuring their degree of influence, the writer believes that such an examination and analysis of the city's historical records can provide the grounds for further research and offers a unique opportunity for the methodology of urban development especially in developing countries. This topic is explained in the first and the final chapters of this thesis.

Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	physical changes and evolution
Sasanids 226-621 AD	At the end of the Sasanid dynasty, the Toos province included the four main cities of Noghan, Radkan, Tarughabaz and Tabaran, with Noghan as the main center. Because of the proximity to the Silk Road and its geographical position between two chains of mountains (Binalood and Hezarmasjed), Noghan was on the route of caravans from west to east and from north to south.				Position			The geographical position of Noghan was a great chance for its growth and the presence of caravanserais around it showed the strategic and commercial importance of this city as a midway city. Noghan also had a special validity because of its Bazaar.
	Noghan, the center of Toos Province, a midway city for commercial caravans							
Omavids 41-132 AH/662-750 AD	Rabie ebn-e Khosaym, known as "Khaje Rabie" (one of Imam Ali's commanders), passed away in 61 AH/680 AD and was buried near Noghan of Toos (which was then part of the Arabic territory, like other cities and villages of Khorasan) in a place now renown as Khaje Rabie (Seyyedi, 1378 AHS/1999 AD)					Religious		This place of pilgrimage later became a reason for the extension of Mashad to the north.
	He was a military man and because of religious reasons, his tomb later got the attention of Shiites and became a place of pilgrimage.							
Abbasids (132-656 AH/750-1258 AD) (Mansour Abbasi 754-775 AD)	In 151 AH, Hamid ebn-e Qahtabe Taie, one of the Arab governors, became the ruler of Toos following the victory of the counter-Omavid movement by commanding Abu Moslem Khorasani (Qazvini, 1332 AHS/1953 AD, p. 89)	Governmental			Position and climate			The establishment of a garden with a palace inside of it in Sanabad, a mile away from Noghan, during the order of Hamid ebn-e Qahtabe Taie
	A governmental and residential place because of proximity to Noghan and fine climate of Sanabad							

Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	physical changes and evolution
Abbasids (Harun -al-Rashid 787-809 AD)	The travel of Harun-al-Rashid the Caliph to Khorasan in 193 AH/ 808 AD. His ailment and death took place in Toos and he was buried in Hamid ebn-e Qahtabe's palace (Ibn-e Asir Jezri, 1351 AHS/1972 AD, v. 10, p. 149)	Governmental				Religious-traditional		Building of a tomb (10ᵐ×10ᵐ) for Harun by his son Ma'mun in Hamid ebn-e Qahtabe's garden, known as Haruni Tomb (193 AH/809 AD)
	Burial of Abbasid Caliph in Hamid ebn-e Qaahtabeh's garden							
Abbasids (Ma'mun 814-833 AD)	The travel of Imam Reza by invitation of Ma'mun to Khorasan in 200 AH/816 AD and the Imam's stay in Hamid ebn-e Qahtabe's palace in 200 AH on his way to Marv. The Imam was martyred by Ma'mun in 203 AH/819 AD and his holy body was buried at the site of Haruni tomb, which was later known as Mashhad-al-Reza, meaning the place of Imam Reza's martyrdom. This gradually changed to Mashhad (Mashad) (Ibn-e Asir Jezri, 1351 AHS/1972 AD, v. 10, p. 264-302; Seyyedi, 1378 AHS/1999 AD, p. 98-99)	Governmental and military				Religious		Formation of the central core of Mashad. Until a few centuries later, Mashad was only known as an important and sacred place of pilgrimage near Noghan city.
	Because of the Shiites' devotion to Imam Reza, after his martyrdom this place turned into an important pilgrimage site.							
Taherids (on behalf of Abbasids), 3ʳᵈ AH/ 9ᵗʰ AD century		Military and protection				Religious		The formation of the first physical element of Mashad: construction of a fence around the tomb of Imam Reza and Harun. It had the role of a citadel or the last point of defense of the city. (Ebn-e Hughal, 1366 AHS/1987 AD, p. 169)

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Samanids (on behalf of Abbasids) 4th AH/ 10th AD century	At the time of Amir Abu Mansour Mohammad ebn-e Abdorrazzagh Toosi, Tabaran city (now known as Toos) was superior to Noghan and became the central city of the Toos Province, turning into a scientific and cultural center. (Moqaddasi, 1362 AHS/1982 AD, v. 2, p. 236, 467, 468)				Shifting the center of Toos from Noghan to Tabaran, Water shortage in Noghan			The shift of Toos Province's centrality from Noghan to Tabaran (Toos) city probably because of water shortage.
Ghaznavids (on behalf of Abbasids), Mahmud Ghaznavi) end of 4th and beginning of 5th AH (Masood Ghaznavi) 421-430 AH	As a Sunnite, Ghaznavids' prejudice for Sunni Moslem prevented Mashad and Noghan from their earlier flourishing.	Governmental				Religious		The construction of Mil-e Ayaz in Mashad (a four-arched tomb of Arsalan Jazeb (the ruler of Toos) and a minaret belonged to its nearby caravanserai in the place of Sangbast (30 kilometers from east of Mashad). The development of the shrine: construction of a minaret in the shrine by Suri ebn-e Mo'taz (Khorasan's minister) (Beyhaghi, 1356 AHS/1977 AD, p. 531; Seyyedi, 1378 AHS/1999 AD, p. 18) The construction of a mosque near the holy tomb (Balasar Mosque) by Bolhasan-e Araghi 429 AH/ 1037 AD and redirecting the main qanat of Mashad (probably Sanabad), which was dry; the establishment of a caravanserai in Mashad. (Beyhaghi, 1356 AHS/1977 AD, p. 712)
Saljuqids (429-590 AH/1037-1193 AD) (Sultan Sanjar 490-552 AH)	A quarrel between one of Mashad's Alavids and one of Toos's religious scholars in 510 AH/ 1116 AD impelled the Toos people to attack Mashad, destroying the city and killing many people. Rebellions of the Ghoz Turkmen and their conquering of Sultan Sanjar in 548 AH/ 1153 AD. Their attacks on Khorasan continued and brought the demolition and looting of the cities and a massacre of their people.	Military			Physical evolutions are limited to the construction of a few buildings and improving efforts.	Religious		Many houses ruined in the Toosian attack. The order of constructing a rampart around Mashad by Azad-oddin Faramarz Ali; construction ended in 515 AH During the attacks of Ghoz Turkmen, Toos city was ruined several times but Mashad al-Reza and a few other places with ramparts remained safe. (Ibn-e Asir Jezri, 1351 AHS/1972 AD, v. 20, p. 249 & v. 21, p. 99-100)

Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	physical changes and evolution
	Incidence of famine and drought in Khorasan (548, 552 , 554 and 556 AH)			Insecurity in the area and pause in city's growth				Although safe from the offensive, owing to insecurity in the area in this period, Mashad's growth and development stopped.
Kharazmshahids (491-616 AH/1098-1219 AD) (Ghotboddin Mohammad Kharazmshah), end of 6th AH/12th AD and first half of 7 AH/ 13 AD century	Attacks of the Afghan Ghurids in 596 AH/ 1199 AD and the capture of Toos and Neyshabur. After the death of one of the Ghurid brothers, the Afgahn Ghurids left Mashad and Khorasan and Sultan Mohammad Kharazmshah re-captured it again. (Joveyni, 1362 AHS/ 1983 AD, v. 2, p. 51) The Mongolian attack on Iran began in 616 AH/1219 AD. Noghan and its nearby villages remained safe as their rulers collaborated with the invaders. Toos did not comply and was demolished, though it was chosen as the government center of Mongols thanks to its strategic position. The second attack of the Mongols by the commanding Tuli (son of Changiz Khan) in 618 AH/ 1221 AD and the looting of Toos and Noghan.	Military and governmental		Two decades insecurity and destruction of many cities and villages in Toos Province and the relative security of Mashad		Religious		The restoration and improvement of the holy tomb and Balasar Mosque (612 AH/1215 AD) The construction of a prayer niche at the southern side of the holy tomb (612 AH) Precious tile-work with porcelain tiles around the main entrance door of the holy tomb. (612 AH) (Etemadossaltaneh, 1362 AHS/1983 AD, v. 2, p. 61) The destruction of Toos and Neyshabour changed Mashad from a third-degree city into a second and first-degree center. (Joveyni, 1362 AHS/ 1983 AD, v. 1, p. 114 & v. 2, p. 238) Although Mongolians chose Toos as the center of their governance, conditions were provided for Mashad's further development.
Illkhanids, 653-750 AH/1256-1335 AD	With the mission of Holaku, the son of Tuli, to conquer the rest of Khorasan and Iran and the establishment of the Illkhanids government in 653 AH/ 1255 AD, the center of governance moved to the west of Iran and Abbasids' dominance over Iran ended after 500; Mashad and Toos thus lost their previous esteem. However, with Sultan Mohammad Khodabandeh (703-716 AH) embracing of the Shiite, Mashad again won political and religious prominence.	Governmental and military		Increase in population		Religious		The construction of a mosque and a seminary near the holy shrine with tiled walls (the place of mosque is now known as Dar-al-Ekhlas portico). (Ebn-e Batute, 1361 AHS/ 1982 AD, v. 1, p. 441) Historians called Mashad a small and populous city (Mostofi, 1362 AHS/1983 AD, p. 151; Ebn-e Batute, 1361 AHS/ 1982 AD, v. 1, p. 441). The construction of veranda and minaret and buildings in the holy shrine by the order of Alaoddin Mohammad Hendu. (Samarghandi, 1337 AHS/1958 AD, p. 309)
				Migration of ruined cities' people especially Toos to Mashad Sultan Mohammad Khodabande embrace of the Shiite and special attention to Mashad				

Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	physical changes and evolution
Timurids (771-911 AH/1370-1506 AD) (Timur 783 -807 AH /1381 -1404 AD)	Haji Beyk Janighorbani, who was appointed by Timur as the governor of Toos, rebelled in 791 AH / 1388 AD and took shelter inside the rampart of Toos. Timur sent his son Miran Shah to Toos, who, after a long siege and war, captured the city and ruined it. He made a minaret using the heads of ten thousand killed people at the gates of Toos. (Seyyedi, Yahaghghi & Labbaf Khaniki, 1369-1374 AHS/1990-1995 AD) The transfer of Khorasan governance by Timur to his son Shahrokh in 799 AH/ 1396 AD and his selection of Harat as the center of government. (Fasihi Khafi, 1339-42 AHS/1960-63 AD)	Military		Population		Religious		Because of severe destruction, Toos was left behind Mashad, which had since become the main city of Toos. The population of Mashad at this time is estimated to be around 20-30 thousand persons (considering the number of killed people in Toos and the fact that Mashad was smaller and less populous).
				Destruction of Toos, the rival of Mashad by Miran Shah and the increase in population of Mashad				
Timurids (Shahrokh 807-850 AH /1404 -1446 AD)	After Timur's death in 807 AH/ 1404 AD, because of the rebellion of Sarbedaran of Sabzevar, Shahrokh commissioned Amir Seyed Khajeh to suppress them. He gave the government of Toos, Mashad, Neyshabour and Beyhagh to him in the following year. Clavijo of Spain, who visited Mashad in 807 AH, called Mashad the main pilgrimage city of that area that annually has large number of visitors. (Clavijo, 1366 AHS/1987 AD) In 809 AH/ 1406 AD, Shahrokh assigned the governance of these lands to his son Ologhbeyk. Amir Shah Malek undertook the land's management on behalf of the young Ologhbeyk. (Fasihi Khafi, 1339-42 AHS/1960-63 AD & Mostofi, 1375 AHS/1983 AD, p. 139) Mashad, after Harat and Samarghand was the most important city of this territory. Since 817 AH/ 1433 AD, the governance of Toos Province with	Governmental				Religious - scientific		The establishment of a mausoleum by Amir Shah Malek for himself in Mashad known as Shah Mosque from 809 AH/ 1406 AD to 812 AH /1409 AD. The construction of the Goharshad Mosque (which has the oldest deed of endowment (829 AH) in Khorasan) by Goharshad Agha, the wife of Shahrokh, at the west side of the shrine in 821 AH/ 1418 AD. The establishment of Dar-al-Hoffaz and Dar-al –Syadeh (821 AH/ 1418 AD), Chaharbagh (the government place) in 821 AH/ 1418 AD, Parizad Seminary near Goharshad Mosque in 823 AH/ 1420 AD, Kheshty Dome (832 AH/ 1428 AD) in Noghan quarter, Toroq Mosalla in 837 (the oldest prayer site of the city) 6.24 kilometers from city on the Toroq River, Dodar Seminary in front of Parizad Seminary in 843 AH, Balasary (Shahrokhy or Firuzshahi) Seminary nearby Parizad Seminary .

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	the centrality of Mashad was assigned to the 17 year-old Baysonghoor Mirza, the Shahrokh's other son, and the family of Amir Sheik Ali Bohador on his behalf. (Fasihi Khafi, 1339-42 AHS/1960-63 AD) Baysonghor Mirza died in 837 AH and Shahrokh assigned his territory to his sons Roknoddin Alaoddole, Ghotboddin Mohammad and Abolghasem Baber. Alaoddole was the real governor of Toos and Mashad. The death of Shahrokh in 850 AH/ 1446 AD. Mashad became the hideout and main base for the sons of Baysonghor in the fight for succession.		The construction of several seminaries and mosques and creation of a historic axis like the Shahzendeh in Samarghand so far as Sarsang Square near Mashad Bazaar, the establishment of governmental place and urban management center named Chaharbagh; the construction of Torogh Mosalla are all signs of formation of a great city.					The passage in which the mentioned buildings were established (known as Bazaar-e Bozorg or Bazaar-e Zanjir), turned into something like the Shahzendeh in Samarghand; this passage connected the two big quarters of Noghan in the northeast and Sarshoor in the west of Mashad. The construction of a mysterious castle named Emad on a mountain near Mashad in 837-850 AH, probably by the order of Alaoddoleh. (Seyyedi, 1378 AHS/1999 AD, p. 61, 64-67, 75) Mashad contained the four main quarters of Noghan, Sarshur, Eadgah and Sarab.
Timurids 852 -911 AH/1448-1501 AD	In 852 AH/ 1448 AD, Abolghasem Baber captured Khorasan and became the ruler, with Harat as the center and Mashad as the second city of that time. The death of Baber in 861 AH/ 1456 AD, the fight for succession began in Mashad again, and finally Sultan Abusaeed since 863 AH/1458 AD became the governor of all of Shahrokh's territory. Beginning of the governance of Sultan Hosseyn Bayaghra in 875 AH/1470 AD and the settlement of a relative peace in Mashad. Growth and increase in population caused shortage of water.	Governmental	Flourish of Mashad city, increase of population and lack of water Establishment of the first yard or the central square around the holy shrine		Supplying water		Governmental management	The transfer of water from the Golasb Fountain (the present Cheshmeh Gilas) 48 kilometers northwest of Mashad by Amir AliShir Navaie, the minister of Sultan Hosseyn Bayaghra, in the last years of the 9th AH century. (Samarghandi, 1337 AHS/1958 AD, p. 571) The construction of the first courtyard for the holy Shrine and probably the main entrance to the Shrine (the gold veranda) by Amir Alishir Navaie. (Turkaman, 1335 AHS/1956 AD)

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Safavids (906-1135 AH/1501-1736 AD) Shah Esmaeel I until Shah Mohammad Khodabandeh (906 – 996 AH/1501-1586 AD)	After Shibak Khan Uzbek captured Harat and Khorasan by defeating the Timurid princes (in 913 AH/ 1507 AD and 915 AH/1509 AD) he was killed by Shah Esmaeel Safavi in 916 AH/1510 AD. During Shah Esmaeel's dynasty (916 -930 AH), Khorasan and Mashad were in relative safe from Uzbek attacks. However, after the death of Shah Esmaeel (930 AH/1523 AD) and the succession of 11 year-old Tahmaseb in 933 AH, Obeydollah Khan Uzbek attacked Mashad and captured it. In 935 AH, Shah Tahmaseb defeated the Uzbeks and made them flee to the other side of the Jeyhun River. After that, the Uzbeks again attacked Khorasan and Mashad several times (935, 937, 938, 942, 971 AH). The burial of the corpse of King Tahmaseb in the holy Shrine in 984 AH/ 1576 AD. After Shah Tahmaseb's death at the time of Shah Esmaeel II (984-985 AH) and Shah Mohammad Khodabandeh (985 – 996 AH), Khorasan and Mashad were involved in the wars resulting from feuds and rivalry between the Stajellu and Shamloo clans and Morteza Gholi Khan Torkaman, the governor of Mashad . In 994 or 995 AH/1585 AD, while Sultan Mohammad Khodabandeh and his crown-prince Hamzeh Mirza were involved in war with the Ottoman empire in the west of Iran, Morshedgholi Khan Estajellu in the company of Abbas Mirza (the other king's son) came to Mashad. All Mashad's residents left the city and gathered at Koohsangy. Morshedgholi Khan crowned Abbas Mirza and officially announced him the king of Iran and himself as his tutor and the administrator of the kingdom affairs and Mashad as the center of governance. (Seyyedi, 1378 AHS/1999 AD, p. 137)	Governmental and military		Safavids were Shiite Moslems Except during 24 years governance of Shah Esmaeel the first, Mashad was severely involved several attacks of Uzbeks and local clan's feud		Religious		After Shah Tahmaseb became the king of Iran, because of Uzbek attacks and invasions, he ordered the construction of the Mashad rampart in 935 AH/1528 AD. The end of the Mashad rampart construction in 942 AH/ 1535 AD. This rampart had two inside and outside walls and four gates named Noghan in the north, Sarab in the west, Eadgah in the south and Mirali Amuyeh in north east were provided. The area inside the rampart was 4851 Hectares. The covering of the dome of the holy shrine with gold upon order of King Tahmaseb. The construction of the Pir-e Palandouz building in 985 AH/ 1577 AD at the time of Sultan Mohammad Khodabandeh outside the shrine enclosure, which belonged to the Shiite sheiks of Zahabieh. This is the tomb of Sheik Mohammad Moghtadi Karendehi.

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Safavids Shah Abbas I (996-1038 AH/1587-1628 AD)	In 996 AH/ 1587 AD, Mashad was again attacked by the Uzbeks but because of the resistance of the defendants and the strength of the rampart, the attackers withdrew. At the end of 997 AH/1588 AD, Abdolmo'men Khan, the son of Abdollah of Uzbek, attacked Mashad and surrounded the city. Because of Shah Abbas's illness, his army was delayed in the midway and Mashad was captured and looted. The dead from that event were probably buried in Ghatlgah Cemetery (means the place of killing). Shah Abbas, in 1010 AH, due to his vow, went on foot on pilgrimage to Imam Reza's shrine. His journey began at the government place of Esfahan and he walked the 199 Farsang (1194 kilometers) in 28 days. Shah Abbas banned the pilgrimage to religious places in the Ottoman empire for Iranian citizens unless they paid a large amount of money to the king. Therefore, Iran's religious cities (Mashad and Ghom) received more attention. (Mirahmadi, 1369 AHS/1990 AD, p. 58)	Governmental and revival of religious cities				Religious		The expansion of Amir Alishir's courtyard in the shrine by the order of Shah Abbas and the establishment of a pond and fountain in the middle of it. (Monajjem, 1366 AHS/1987 AD) In 1016 AH/ 1607 AD, Shah Abbas ordered the establishment of Khiaban (i.e. street) in Mashad (the third street in Iran). The length of the street was about 3000 meters and its width was about 30 meters. Two new gates, Balakhiaban in the west and Painkhiaban in the east at the two ends of the street were provided. He also ordered the redirection of the water from Golasb fountain to the middle of street. Establishing two new gates added the two new quarters of Balakhiaban and Painkhiaban to the area of Mashad. Most new seminaries, mosques and caravanserais were built at the margins of Khiaban, especially Painkhiaban. By the establishment of two new gates, Painkhiaban's nearby gates – Eadgah and Mirali Amuyeh- lost their important role and that Mirali Amuyeh was later practically closed. By extending the Old Courtyard from the north and east so that the Amiralishir Courtyard could be placed in the middle of it and establising buildings such as the Hatamkhani Dome and Allahverdikhan Dome in 1021 AH as well as Dar-ol-Feyz and Tohidkhaneh at the southeast side of the courtyard, the old bazaar was for the first time divided into halves, each of which was located at one side of the courtyard. The establishment of the Mehrabkhan Mosque from 1011 to 1018 AH.

Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	Physical changes and evolution
								The construction of the Shah Public Bath in Sarsang Square near the Amir Shah Malek Mausoleum in 1027 AH/ 1617 AD. (Seyyedi, 1377 AHS/ 1998 AD) The establishment of a building at the grave of Khaje Rabie from 1026 to 1031 AH/ 1617 to 1621 AD by Shah Abbas. The construction of the monument of Gonbad-e Sabz in 1036 AH/1626 AD. It seams that a cemetery named Mirhava was since then formed inside of it. The establishment of the Gonbad Kheshti Mosque in 1037 AH/ 1627 AD near Gonbad Kheshti.
Safavids (Shah Safi, Shah Abbas II, Shah Soleyman,Shah Sultan Hossein) (1038-1135 AH/1628-1726 AD)	Mashad turned into one of the important cultural-educational centers in the country. Several seminaries established at that time were used as a university. The main identities of the city at that time were deed and culture.							The construction of a tomb on Koohsangy in 1047 AH by the owner, Mirza Ebrahim. The establishment of the Kheyrat Khan, the Mirza Jafar, Fazelkhan (Fazelieh) and Abbasgholi Khan Seminaries at Painkhiaban, the Molla Mohammad Bagher Seminary, known to Samiieh (Etemadossaltaneh, 1362 AHS/1983 AD, v. 2, p. 247, 250, 252, 259, 260), the Navvab or Salehieh Seminary at the beginning of Balakhiaban, the Painpa or Sa'dieh Seminary in 1086-7 AH/ 1675 AD and the Abdalkhan Seminary at the beginning of Painkhiaban near the Pir-e Palandouz tomb from 1057 AH/ 1647 AD to 1090 AH/ 1678 AD.

Within the table (first row, center cells):

Establishment of Khiaban (street) in Mashad (Balakhiaban and Painkhiaban) by Shah Abbas.
More attention was paid to Mashad in competition with other religious cities in the Ottoman Empire and for economic reasons.
The establishment of several mosques, seminaries and caravanserais in Mashad

Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	Physical changes and evolutions
	In 1083 or 1084 AH/ 1673 AD, a destructive earthquake occurred in Mashad, demolishing and damaging many old buildings, including shrine buildings and the bazaar, and killing about 400 people. (Modarres Razavi, 1378 AHS/1999 AD)			Establishment of several seminaries turned Mashad into a cultural-educational pole in the country				. The buildings repaired after the earthquake were: the Gold Veranda, the shrine's dome, the Goharshad Mosque, Dar-al Siyadat and Dar-al Hoffaz, the Dodar, Parizad and Balasar Seminaries (Etemadossaltaneh, 1362 AHS/1983 AD, v. 2, p. 97, 128, 141, 254, 255) The construction of Painkhiaban Mosalla a few hundred meters from the Painkhiaban Gate in 1086-7 AH/ 1675 AD (the previous Mosalla of Mashad (Toroq Mosalla) probably incurred severe damage during the earthquake). (Seyyedi, 1378 AHS/1999 AD, p. 202)
Safavids (1135 -1148 AH/1726 -1735 AD) Shah Tahmaseb II and the autonomous government of Malek Mahmood Sistani in Khorasan	The rebellion of hooligans of Mashad in 1135 AH, who assigned Ismaeel Khan, Khorasan's commander-in-chief, as governer, although they themselves actually ruled over the city. Ismaeel Khan urged Malek Mahmood Sistani, the governor of Toon, to capture Mashad. He moved with his army toward Mashad and after defeating the rebels obtained the governance of Khorasan with Mashad as its capital. (Seyyedi, 1378 AHS/1999 AD, p. 215) The war between the army of Shah Tahmaseb the second and Malek Mahmood Sistani outside of the city gates in 1136 AH. Mashad's people opened the gates on Shah Tahmaseb's army but Malek Mahmood entered through the same gate and captured Mashad again, then ordering the city's looting. (Mostofi, 1375 AHS/1983 AD, p. 180-181)							In 1135-36 AH, the first citadel of Mashad was built by Malek Mahmood Sistani near the Sarab gate. A new gate named Arg Gate was added to the six previous gates. Construction of citadel gave more importance to the southwest lands and villages of Mashad like Alandasht, Zargaran, Taghiabad and Koohsangi and converted these to a military quarter. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p.230-231)

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	In 1139 AH, Mashad was besieged by Shah Tahmaseb and *Nader Gholi Afshar*. The siege lasted long until one of Malek Mahmood's agents opened Mirali Amuye Gate for the invaders. Nader, with 12,000 warriors, captured the shrine and Malek Mahmood withdrew to Arg and attacked the shrine but was defeated and surrendered. (Estarabadi, 1361 AHS/1982 AD, p. 54-62) In 1145 AH/1732 AD, Nader and a huge army attacked Esfahan and deposed Shah Tahmaseb II, appointing the Shah's 8 month-old son with the title of Shah Abbas III, the king of Iran and himself on king's behalf overtook the reins of power. He announced Mashad as the capital of Iran and ordered the minting of coins. (Seyyedi, 1378 AHS/1999 AD, p. 240-241) In 1147 AH, after capturing Georgia, Nader forced a thousand Armenian households to move from Azerbaijan to Mashad and built houses and a church for this group outside the Painkhiaban gate along the Bazaar. (Mostofi, 1375 AHS/1996 , p. 165)	Establishment of the *Hasht Behesht* edifice and the improvement of the shrine by Nader (the governor of Khorasan)						The construction of a mausoleum in Chaharbagh by Nader (the governor of Khorasan) for himself in 1142 AH, whose construction ended in 1145 AH. (Marvi , 1364 AHS/1985 AD, v. 1, p. 202-204) The development and improvement of Chaharbagh, the main government palace at the time of Nader. The Hasht Behesht edifice was built in Chaharbagh by Nader from 1142 to 1145 AH, although no trace of it remains. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 232) The redirection of the water from the Golestan dam to Chaharbagh, Hasht Behesht, the Shrine and the Painkhiaban quarter upon order of Nader because of a shortage of water. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 214-5) The construction of the Naderi drinking fountain known to Ismaeel Talaie in 1145 AH. A gold-covered pavilion was built over it. The covering of the Amir Alishir Veranda and the top of its nearby minaret in gold upon order of Nader in 1148 AH, giving it the name Tala Veranda or Naderi Veranda. (Marvi , 1364 AHS/1985 AD, v. 1, p. 202-204)

Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	Physical changes and evolutions
Afsharids (1148-1210 AH/1736-1796 AD) Nader Shah , Ali Shah (Adel Shah), Shahrokh Shah	In 1148 AH/1735 AD, Nader was officially coronated in the Moghan Plain and founded the Afsharids dynasty, announcing Mashad as his capital. (Seyyedi, 1378 AHS/1999 AD, p. 242) Nader was killed in Quchan in 1160 AH/ 1747 AD. His corpse was transferred to Mashad and buried in the mausoleum he had built for himself. After Nader's murder, Aligholikhan (his nephew) ascended to the throne. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 218-227) In the first months of Ali Shah's kingdom, Nader's treasures were carried from Kalat to Mashad. A store ware was built for them and a deep ditch was made around it. One of the important efforts of Ali Shah was the return of the assets and the independence of Astan-e Ghods Razavi and the endowment of a few villages to it in a deed named the Alishahi scroll from 1160 AH. In 1161 AH, Khorasan commanders took Shahrokh (Nader's son) out of prison and gave him the throne. The local commanders revolted against Shahrokh and deposed him, choosing the son of the previous custodian of the holy shrine, Seyyed Mohammad, with the title of Shah Soleyman II in 1163 AH. He reigned for only 40 days, during which he blinded Shahrokh and cut his tongue out. (Seyyedi, 1378 AHS/1999 AD, p. 257-260) The beginning of the second period of Shahrokh's reign by his following commanders. Until the end of his kingdom, his sons Nasrollah Mirza and Nader Mirza ruled on his behalf over Khorasan (Seyyedi, 1378 AHS/1999 AD, p. 265) During this period, the Afghans had several attacks to Mashad.				Mashad was chosen as the capital of Iran and Nader's specific attention to Mashad. Because of several wars, Nader could not help improve Mashad.			The establishment of the second gold-covered minaret in the shrine (Naderi top of Minaret) in 1146 AH. Nader intended to build a second minaret for the shrine to give the necessary symmetry, though other buildings had previously been built at the east side of the golden dome in Safavid period. Nader's architects thus chose the back of the Abbasi Veranda for this, which seemingly had no proportion to the location of first minaret to the dome, but after construction, at least from southeast side of the shrine (Tehran Street), it seems that the two old and new top of minaret are perfectly balanced at the two sides of the Golden Dome. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 216) From the years 1156 to 1159 AH, Nader Shah constructed a new mausoleum for himself. Both of Nader's mausoleums were destroyed after his death. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 224) In 1161 AH, Ali Shah constructed a mausoleum for himself near the Ghatlgah cemetery at the north of the shrine. This building was destroyed afterwards and there remains no sign of it. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 233)

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Qajarids (1210-1334 AH/1781-1925 AD) From Agha Mohammad Khan until Mohammad Shah (1210- 1264 AH)	Agha Mohammad Khan Qajar conducted a military campaign to Mashad in 1210 AH/1795 AD. Shahrokh and a group of scholars and seyyeds welcomed him without any resistance. But Agha Mohammad Khan, who knew about Nader's wealth, tortured Shahrokh and finally got Nader's treasure. (Rezvani, 1384 AHS/2005 AD, p. 156) After the killing of Agha Mohammad Shah in 1211 AH, Nader Mirza Afshar came back and captured the city. In 1217 AH, Fath'alishah looted the surroundings of Mashad and besieged the city. Mashad was under siege for one year until the people starved and surrendered, opening the city gates. (Rezvani, 1384 AHS/2005 AD, p. 157) Iran was defeated by Russia's army in 1228 AH/1812 AD and signed the Golestan contract. This defeat caused riot and the temporary liberation of Kurdish, Turkish, Arabic and the Qaraie tribal chiefs of Khorasan from stipulations and commitment to the Qajar government and war, conflict and plunder in this area around Mashad. (Seyyedi, 1378 AHS/1999 AD, p. 287) Turkmen attacks on Khorasan and Mashad's surroundings in most of the 13th AH century. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 371) Conspiracy of Asef-od-doleh (the governor of Khorasan) and his son Hasan Khan Salar against Mohammad Shah for giving the king's brother the crown in 1261 AH. The king summoned Asef-od-doleh to Tehran and ordered Hasan Khan's brother as the governor to make his brother follow the king; when he reached Mashad, he allied with his brother and a revolt openly began.		Establishment of residential and service buildings outside Mashad's rampart resulted in more connection between inside and outside so caused the outer expansion of city. In spite the devotion of Qajarid kings to Mashad, because of conflicts and wars during the first 50 years of this period, not much effective efforts performed for development of this city					The establishment of the Soleyman Khan Seminary by the high-ranking government official Soleyman Khan E'tezadoddoleh in front of the Amir Shah Malek Mausoleum. This building was destroyed during the extension project of the shrine's surroundings. (Motamen, 1355 AHS/1976 AD, p. 158) The compulsory migration of a thousand Marvi households to Mashad in 1223 AH. The reconstruction and expansion of Mashad's citadel by Mohammad Vali Mirza in 1228 AH, the governor of Khorasan, because of the presence of many foreign militaries. (Seyyedi, 1378 AHS/1999 AD, p. 329) An order to establish the new courtyard (the present Azadi Courtyard) by Fathali Shah during his travels to Mashad in 1233 AH. An order to establish the Alinaghi Mirza Seminary at the southeast of the shrine by the Khorasan governor Prince Alinaghi Mirza. It was later demolished and transformed to the Dar-oz-Zekr Portico. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 372) Turkmen attacks caused insecurity in nearby villages and their residents took refuge in Mashad, remaining inside its ramparts. The Englishman Fraser wrote in his book of travels about the ruins of Nader and his son's mausoleums in Balakhiaban, which had turned into dusty ruins (1238 AH/ 1822 AD). (Seyyedi, 1378 AHS/1999 AD, p. 299)

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	In 1263 AH, Hamzeh Mirza was sent with a huge army to Khorasan as the governor and war began between Salar and the governmental army, lasting for several months. (Seyyedi, 1378 AHS/1999 AD, p. 320-323)							The Irishman O'Donovan mentions in his book of travels (1297 AH/1880 AD) roofed lanes covered with mud and straw and without doors and windows, which are dark, ugly and full of litter and dirt. (Tahernia, 1376 AHS/1997 AD)
Qajarids Naseroddin Shah Qajar till Ahmad Shah (1228-1304 AHS/1849-1925 AD)	At the beginning of the Naseroddin Shah's kingdom, Prince Hesamoddole received the assignment of capturing Khorasan. He attacked the city and the siege lasted for about one year, during which time about 200 battles occurred between invaders and defendants. At last, at the beginning of 1266 AH, Salar and the Mashad people surrendered. (Seyyedi, 1378 AHS/1999 AD, p. 326) The travel of Naseroddin Shah to Mashad in 1284 AH resulted in information recording and statistics. (Seyyedi, 1378 AHS/1999 AD, p. 354) An outbreak of cholera occurred in Mashad in 1285 AH. An outbreak of famine and drought took place in Mashad and most of Iran cities in 1288 AH. John Smith, an employee of the frontier determination committee, wrote that famine caused the death of 24,000 persons in Mashad and about 100,000 in Khorasan. (Mahvan, 1383 AHS/2004 AD, p. 300) In 1293 AH, the telegraph line of Khorasan reached Mashad. (Modarres Razavi, 1378 AHS/1999 AD, p. 220) An exceptional door-to-door gathering of statistics of Mashad was carried out in 1295 AH/1878 AD by Roknoddoleh's relative Zeynolabedin Mirza. Based on the statistics, the total population of Mashad was 57,287 and the total number of households was 7666. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 294)	Governmental		Population		Scientific and artistic	Recording statistics and study of Mashad's present state	Because of the army's long stay around Mashad, houses, the bazaar, shops and public baths were built, as if a city had been constructed outside of Mashad. (Seyyedi, 1378 AHS/1999 AD, p. 328) The establishment of about 30 guardhouses in 1267 AH/ 1850 AD after Salar's suppression upon the order of Amir Kabir. In 1270 AH, Mirza Fazlolahkhan Vazir Nezam demolished the Sanabad Caravanserai, which was situated at the south side of the old courtyard, and established a commercial caravanserai, an arcade and shops known as Saraye Vazir Nezam and Bazaar-e Vazir Nezam. He made walls for Nahrkhiaban (the flowing water in Khiaban). He also ordered the shops in Balakhiaban and Painkhiaban, which encroached over the limits of the street, to withdraw to the primary limits and to widen the street to 28 meters. He also built the Dar-ot-Tolieh building on the roof of the courtyard's cistern. (Mahvan, 1383 AHS/2004 AD, p. 297-298) In 1274AH/ 1858 AD, Khanikof of Russia drew the first map of Mashad. (Rezvani, 1384 AHS/2005 AD, p. 242) Mirror-working took place in the shrine starting 1274 AH.

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	The signing of the Akhal contract between Iran and Russia in 1299 AH/1882 AD: Iran officially accepted the dominance of Russia over cities including Nesa, Abivard and Marv and the rebellious Turkmen were suppressed by the Russian government. (Seyyedi, 1378 AHS/1999 AD, p. 378-379) The second and last travel of Naseroddin Shah to Mashad in 1300 AH/ 1883 AD lasted 20 days. Sanioddoleh (Mohammad Hasan Khan Etemadoddoleh), who accompanied Naseroddin Shah, prepared the comprehensive book "Matlaoshshams" during the journey, of which one volume is exclusively devoted to Mashad's history, geography, historical geography, biographies, buildings and the Razavi Shrine. During the travel, the camp's news was written and published each day and was finally published in "Meratossafar". Apart from that, Sanioddoleh and his colleagues read and wrote all inscriptions in the shrine and made a hierarchical list of books in the Astan-e Ghods library. (Seyyedi, 1378 AHS/1999 AD, p. 383) The rebellions of Mashad's people against the governor Asefoddoleh in 1302 AH continued until 1303 AH. (Seyyedi, 1378 AHS/1999 AD, p. 393-394) A breakout of cholera in Mashad in 1309 AH caused the death of about 20,000 persons in the city and its surroundings. (Seyyedi, 1378 AHS/1999 AD, p. 404)	▓		▓		▓	▓	In 1277 AH/ 1860 AD, Mirza Jafar Khan Moshiroddoleh, the custodian of Astane Ghods Razavi, built a new extension to the Dar-ol-Shafa Hospital in Balakhiaban and erected on its site Saraye Naserieh (a commertial-residential complex) in the name of Naseroddin Shah. Saraye Naserieh was located beside the Dodar Seminary and in front of the entrance of Goharshad Mosque in the Bazaar. (Mahvan, 1383 AHS/2004 AD, p. 298) McGregor made the second map of Mashad in 1293 AH/ 1875 AD. (Seyyedi, 1378 AHS/1999 AD, p. 359) Sanioddoleh mentions the quarters of Mashad in 1300 AH/ 1883 AD in his book as the large quarters of Balakhiaban, Painkhiaban, Sarab, Chaharbagh, Eadgah and Noghan and the small quarters of Pachenar, Arg, Sarsogh, Sarhozan, Jadidha, Heraviha, Tappolmahalleh, Gheyreshomarha, Keshmiriha and Chaheno (Seyyedi, 1378 AHS/1999 AD, p. 390) The formation of Bast-e Balakhiaban and Bast-e Painkhiaban with their consisting elements. The entrance of government agents with formal uniforms and arms and the entrance of non-Moslems to these places were forbidden as they were places of refuge. (Rezvani, 1384 AHS/2005 AD, p. 242) The installation of electric lampposts in 50-meter distances on the Street of Mashad in 1307 AH (Seyyedi, 1378 AHS/1999 AD, p. 399)

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Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	Physical changes and evolutions
	The migration of many Iranian residents of Harat and Afghanistan to Mashad and its surroundings because of the torment of Shiites and the killing of Iranians by Amir Abdolrahman Khan in Afghanistan in 1310 AH. (Seyyedi, 1378 AHS/1999 AD, p. 405) The installation of the first electric generator in 1284 AHS/1905 AD at the start of Balakhiaban for lighting the shrine and its buildings. (Seyyedi, 1378 AHS/1999 AD, p. 456) The formation of local associations in Mashad beginning in 1906 AD. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 379) The establishment of schools and offices in western styles in Mashad beginning in 1323 AH (Modarres Razavi, 1378 AHS/1999 AD, p. 223) The Russian artillery attacked the shrine in 1291 AHS/1912 AD and destroyed portals and minarets and looted the treasury. More than 200 persons were killed in this attack. (Modarres Razavi, 1378 AHS/1999 AD, p. 224) The import of the first Automobile to Mashad in 1332 AH. The entrance of a group of the English army in Mashad in 1336 AH. The suppression of Zoshki bandits by Ghavamossaltaneh. He could also organize the province's affairs and brought security to the area with the help of a group of gendarmes that he brought to Mashad. (Modarres Razavi, 1378 AHS/1999 AD, p. 230-235)							In Russia's attack, the holy dome and some of the buildings in shrine complex were damaged. In 1337 AH, shops and buildings on the site of the ruined Nader mausoleum were demolished upon the order of Ghavamossaltaneh and a garden and a new mausoleum for Nader Shah were built in the place of the previous tomb. (Modarres Razavi, 1378 AHS/1999 AD, p. 236) The establishment of a second-class airport in 1300 AHS/ 1921 AD, which was put into operation in 1302 AHS. (Rezvani, 1384 AHS/2005 AD, p. 259)

The widening and commercial development of Balakhiaban and Painkhiaban as important elements for the city's future expansion and the formation of Bast-e Balakhiaban and Bast-e Painkhiaban (asylums)

An outbreak of cholera (1285 & 1309 AH) and famine (1288 AH) caused a reduction in population.

The gathering of statistics of Mashad's population (1295 AH/1916 AD)

The introduction of electricity, the automobile and the establishment of an airport and some other industrial facilities in Mashad

Russia's repeated intervening and invasion of northern cities of Iran including Mashad

The slaughter of Shiites in Afghanistan and their immigration to Mashad

Naseroddin Shah's commissioning of an edition of the Matlaoshshams book about the history and geography of Mashad

The first constitutional and anti-dictatorship actions in Mashad

The expansion of the city outside the ramparts and the decrease of its importance as an element for city protection because of the artillery's ability to destroy

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Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	physical changes and evolution
Pahlavids I (Reza Shah) 1304 -1320 AHS/1925 -1941 AD	Establishment of the public transportation (bus) system with two intercity buses in 1318 AHS/1939 AD. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 444) Beginning of the Second World War: bombardment of Mashad's bomber airplanes and barracks by Russian airplanes, entrance of Russia military forces into Mashad and disarmament of Mashad Police in 1320 AHS/ 1941 AD. (Jalali, 1377 AHS/1998 AD, p. 83, 84)	Governmental and dictatorship		Increase in population		Modernism, architecture and urban designing		Establishment of Shahreza Street in 1307 AHS, the Arg Street axis in the years 1307 to 1309 AHS, a round, broad street around the shrine's buildings (Falakeh Street) in 1308-9 AHS/ 1929-1930 AD and Tabarsi Street in 1309 AHS, Khosravi Street, which connected the axis of Shahreza Street to Arg (Pahlavi) Street in 1309 AHS, the axis of Tehran Street in 1311 AHS/ 1932 AD and connecting it to Falakeh Street. (Jalali, 1377 AHS/1998 AD, p. 48-69; Mehrazan consultant engineers, 1368 AHS/1989 AD, v. 15, p. 128) The establishment of Melli Bank, the office of Finance, the Red Cresent Sociey, the Municipality, General Staff, Post and Telegram Office, the General Registration Office, Chahartabagheh building, Melli Garden and Arg Square (Arg Garden) all on the axis of Arg Street. (Rezvani, 1384 AHS/2005 AD, p. 253-254) The establishment of Pahlavi courtyard in the shrine and establishment of a library and museum in its courtyard. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 435) Beginning of the leasing of the city's southern lands by Astane Ghods beginning in 1311 AHS and then of the endowed lands of Sardeh and Saadabad beginning in 1316 AHS for residential development. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 435-436) End of the construction of the Ferdowsi Mausoleum in Toos in 1313 AHS/ 1934 AD. (Mahvan, 1383 AHS/2004 AD, p. 650) The establishment of Shah Square, Daneshgah Street and Koohsangi Street. The establishment of Technical School, Imam Reza Hospital, Spinning Factory, Abkooh Sugar lump Factory, Medical Faculty between 1313 to 1318 AHS. The construction of the Tehran-Mashad Railway from 1318 AHS/1939 AD, halted in 1320 AHS by arrival of the Allies in Iran. (Rezvani, 1384 AHS/2005 AD, p. 258-259)

Planned preparation of the city's expansion by several street layouts in Haussmannian style

The establishment of Falake Street around the holy shrine and the preparation of a new structure for the shrine's future development

The construction of buildings with new uses like the Post, Bank, and Registration Office

The establishment of schools and educational centers in a western style

The establishment of a railway, sugar lump and spinning factories

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Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	physical changes and evolution
Pahlavid II (Mohammadreza Shah) (1320-1357 AHS/1941-1979 AD)	The Second World War, despite causing trouble, provided new economic activities and brought life to trade and business. Plutocrats emerged and immigration grew to some cities like Mashad. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 445-446) The opening of Mashad University in 1328 AHS. (Ferdowsi University of Mashad, 1382 AHS/2003 AD) The first scientific survey of Mashad by two Iranian military officers in 1325 AHS/1946 AD. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 442) A formidable flood engulfed the area from Koosangi and Abkooh Streets to Khaje Rabi in 1329 AHS/1950 AD. It ruined the Police Prison, Red Crescent and the electricity office as well as about one thousand houses. (Jalali, 1377 AHS/1998 AD, p. 112) The introduction of taxis as a fast transport service in 1333AHS/ 1954 AD. Using taxis encouraged people to live in the farther reaches of the city. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 449) Iran's first nation-wide census in 1335 AHS. Mashad's population was 241,989 (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 443) The opening of the Tehran-Mashhad railway in 1336 AHS/1957 AD, which facilitated pilgrimage and added to the population of travelers. This resulted in advances in trading and cultivation, and people from other cities who were looking for work came to Mashad. The number of inns and hotels in different parts of the city, especially around the shrine, expanded. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 451)	Governmental and dictatorship				Science and Art	Beginning of urban designing and planning	The emergence of plutocrats was effective for Mashad's development and the immigration of people caused an increase in the speed of Mashad's development. The building of Khosravino Street in 1333 AHS/ 1954 AD split Mashad's bazaar onto the two sides of the street. (Mahvan, 1383 AHS/2004 AD, p. 417) The opening of the Mashad Municipal Building in 1333 AHS/1954 AD. The first year of establishing a water pipeline in Mashad in 1335 AHS. Along with the opening of the railway and its station in 1335 AHS/1956 AD, Azadi Street was extended from Naderi Garden to Raah Ahan (Railway) Square and Balakhiaban Street was transformed at the Naderi Garden into a crossroads. (Mahvan, 1383 AHS/2004 AD, p. 464, 491) The opening of Vakilabad Boulevard and handing over of about 200 hectares of northern lands to employees of the Education Ministry of Mashad by Haj Hossein Agha Malek in 1338 AHS/ 1959 AD. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 494) The first drinking water distribution network became operational in 1342 AHS.

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Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	Physical changes and evolution
	The implementation of land reforms in 1342 AHS by the order of Mohammad Reza Shah and an influx of rural people who stayed out of villages and moved to cities including Mashad. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 443) The creation of the first map of Mashad by the Iran Survey Organization in 1345 AHS/ 1966 AD. (Rezvani, 1384 AHS/2005 AD, p. 264) The first comprehensive plan of Mashad was commissioned to the Technical Office of Associate Consultant Engineers in 1346 AHS/ 1967 AD. (Rezvani, 1384 AHS/2005 AD, p. 264) The Soviet invasion of Afghanistan led to some 296,500 Afghans taking refuge in Mashad, especially at the margins of Ghale Sakhteman and Golshahr. The escape of Mohammad Reza Shah from Iran and the victory of the Islamic revolution in 1357 AHS/1979 AD.							Land reform resulted in a twofold increase in the area of city and the creation of new quarters like Ahmadabad, Sa'dabad, Samazghand and Zed. The city expanded without any plan and irregularly and took on a form that was unmatched in its physical history. (Yahaghi and Seyyedi, 1387 AHS/2008 AD, p. 443) The opening of the new Mashad railway station in 1345 AHS. The repair and restoration of the shrine's golden dome by the order of Shah in 1345 AHS. (Jalali, 1377 AHS/1998 AD, p. 209) The laying of a gas pipeline to Mashad in 1347 AHS/1968 AD. (Jalali, 1377 AHS/1998 AD, p. 209) The layout of the Sheykh Toosi Street from Ab Square to Park Square, connecting the two main sides of the city, in 1350 AHS/1971 AD. In the years 1353-54 AHS/ 1974-75 AD during the deputy custodianship of Abdolazim Valian, all of the houses and buildings within 320 meters of the Holy Dome were leveled. (Jalali, 1377 AHS/1998 AD, p. 209) This resulted in the demolition of "Falake", the antique part of the old bazaar, as well as of many mosques and seminaries, which were changed to green space. (Rezvani, 1384 AHS/2005 AD, p. 270) The construction of a bazaar on the Sheikh Toosi Street axis (Reza Bazar) upon order of Valian in 1355 AHS/1976 AD, which replaced the demolished stores in old bazaar. (Mahvan, 1383 AHS/2004 AD, p. 426) The beginning of the construction of the high-rise apartments in Mashad in 1355 AHS/1976 AD, ending in 1357 AHS and handed over to bidders in 1361.

Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	Physical changes and evolutions
Islamic Revolution 1357 AHS/1979 AD till present time	The Islamic revolution resulted in the closing of many consultant engineers and the emigration of many well-known architects (Afshar Naderi, 1384 AHS/2005 AD, p. 3), a return to the historical pattern of Islamic period and the closure of universities for three years. Mashad City Council began its activity in 1358 AHS/1980 AD. The Housing Foundation began its work in 1358 AHS. The beginning of the imposed war with Iraq, which caused the migration of many people from the war region to other cities, especially Mashad, and resulted in an accelerating population growth in Mashad: the city grew from 667,770 persons in 1355 AHS to 1,462,500 persons in 1365 AHS/1986 AD. This also caused economic sanctions, which led to improper economic conditions in Iran. The ratification of the formation of Islamic councils in 1361 AHS/1982 AD. The foundation of the Azad Islamic University, Mashad branch, in December 1982 and the beginning of its educational activities in October 1983 AD.	Political revolution				Religious	Urban designing and planning	The Islamic revolution also resulted in decreasing private investments in the construction sector. The composition of the detailed comprehensive plan of Mashad in 1358-60 AHS/ 1980-82 AD. The increase in population caused provided many preparatory plans and extended residential development that did not follow any suitable pattern. (Hossainzadeh, 1386 AHS/2007 AD, p. 321) People took control of a great part of the construction business according to their tastes and without any consultations with experts. Since they needed to build houses as quickly as possible, they made impulsive changes in the architectural style, which eventually led to a new kind of public architecture. (Foroutan, 1383 AHS/2004 AD, p. 21) Economic sanctions blocked the continuance of architectural streams and caused intense stagnation in building business. The executive operation of establishing the first industrial estate began in 1363 AHS/1984 AD. The opening of the Vahdat Square network project by the Municipality of Mashad in 1364 AHS/1985 AD.

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Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban managemen	Physical changes and evolution
	The ending of the imposed war in 1367 AHS/ 1988 AD: The start of operation of various construction material factories and also an increase in their imports. The governmental policy for giving loans for housing and the mass construction of buildings. The return of certain graduates and engineers from foreign countries. The ratification of regulations and laws for urban facades by the Supreme Council of Urban Design and Architecture in the country in 1368 AHS/ 1989 AD. Because of low income from oil, high level of inflation and the post-war conditions, the private investment growth was mostly negative. This was noticeable especially in the construction and industrial machinery sector from 1368 to 1373 AHS/1989 to 1994 AD. The foundation of the first core of Khorasan's organization of construction engineering system based on the policies of the Housing and Urban Design Ministry in 1369 AHS/ 1990 AD. The period of rebuilding following the war and allocating much investment to the reconstruction of buildings. The government's investment in this sector grew between 1369-72 AHS.							512 apartment units were established by the Headquarters of Residential and Civic Constructions of the Khorasan province in 1365 AHS/ 1986 AD and given to office employees and cooperatives. The remainder of the Mashad bazaar in 1367 AHS/1988 AD destroyed in order to execute the plan for developing the Holy Shrine's surroundings. The beginning of a redevelopment period. The great variety of construction materials resulted in a lack of cohesion and unity in streets and quarters. The ratification of the new comprehensive plan in 1367 AHS/1988 AD before the expiry of the old plan and its commissioning to the Mahrazan Consultants. The establishment of the Mashad transportation terminal in 1369 AHS (according to the rule of having transportation terminals in cities with more than 100,000 people) relied upon the evacuation and of bulldozing slums in the Seyyedi area. The foundation of the Khorasan Housing Builders Company in 1371 AHS/1992 AD with the following shareholders: 1: Astane Ghods-e Razavi 35% 2: The National Organization of Land and Dwelling of Ministry of Housing and Urban Design: 40% 3: Mashhad Municipality 10% 4: Environmental Provider Company 15% (Hossainzadeh, 1386 AHS/2007 AD, p. 321)

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Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	Physical changes and evolutions
	The registration and foundation of the Mashad Urban Rail Company in 1374 AHS/1995 AD. The ratification of the Engineering System rule in the Islamic council parliament in 1374 AHS. The formation of the Regional Construction and Development Organization in 1375 AHS/1996 AD.	■	■			■	■	A prevalence of Roman facades and also a second prevalence of using stone in high-rise buildings from 1370 AHS/1991 AD (Janipour, 1385 AHS/2006 AD, p. 40) The ratification of Mashad's new comprehensive plan in 1992 AD after several expert sessions. The opening of the Astane Ghods-e Razavi underpass in 1372 AHS/1993 AD. This structure was unique in Iran and is recognized as a national plan that had been started in 1363 AHS/1984 AD. In 1373 AHS/1994 AD, the authorities of Astan-e Ghods Razavi and governmental agents decided to make changes to the project of the Khaneh Sazi company and extend the surrounding area of the shrine's square. For this purpose, houses and shops were bought from the owners and demolished. This clearing continues today. The Khorasan Housing Builders have executed this project. The ratification of the detailed plan of the Emamieh region in 1374 AHS/1995 AD. The prevalence of reflective glass facades under the influence of western architecture from 1375 AHS/1996 AD. An increase in slum-dwelling to up to 9 kilometers from Mashad in 1378 AHS/1999 AD.

Reign and Time	Important historical events or Prominent factors	Political	Economic	Social	Geographical	Cultural	Urban management	physical changes and evolutions
	Land brokering and the auction of marginal cultivating lands multiplied the land price in surrounding regions in the north and west of Mashad in 1383 AHS/ 2004 AD.

An increase in the housing loan by the Housing Ministry resulted in the sudden growth of housing prices in 1384 AHS/2006 AD.

The monetary expansion policy of the government, increasing by the price of houses and land by at least 50%, and the growth in inflation and spending oil revenues. The oil price was rose in 1384-5 AHS/2005-6

An increase in iron and round bar prices triggered a shock in the construction business in 1385 AHS, causing the bankruptcy and closing of many contractors and entrepreneurs.

Land and housing prices surged and the public focused on buying and selling land and housing in Mashad in 1386 AHS/2007 AD.

An increase in the prices of most construction items including cement and a delay in the on-time delivery of factories. The price of brick, gravel and sand grew and caused losses for those who were active in construction, although a 100% higher benefit came to producers of these items. This caused inflation and cash flow in 1386 AHS/2007 AD. | ▓ | ░ | | | ▓ | ▓ | The opening of Mashad Urban Rail operations in 1378 AHS/1999 AD.

The opening of the Moallem boulevard in 1380 AHS/2001 AD.

The prevalence of Aluminum facades in 1380 AHS.

The opening of Tarbiyat-Sayyad and Daneshjoo-Haft-e-tir junction bridges in 1381 AHS/2002 AD.

The bulldozing of the Azadi square monument in 1381 AHS.

The growth in land prices resulted in a tendency to high-rise constructions from 1383 AHS/2004 AD.

The opening of an urban rail underpass station in the area of Vakilabad Boulevard in 1383 AHS.

The growth in iron prices resulted in low-quality constructions and increase in the housing price.

The increase in the prices of land and housing and the public focus on buying and selling land and housing resulted in the acceleration in construction work.

The construction of the Jomhuri Bridge in 1386 AHS/2008 AD and its opening in 1388 AHS/2009 AD after 18 months. |

Table 4-3 Estimating and comparative schedule for Mashad city evolution course
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............Summing up and Conclusion

(Estimate and comparative diagrams for research pattern)

5.1   Estimate and comparative diagrams for Mashad

5.2   Estimate diagrams for Iranian and European cities

5.3   Comparative tables for cities

If one accepts that the shape and form of cities is affected by the identity, culture and civilization of their citizens and founders, it can certainly be led to this result that the current prevailing economic, social, cultural and political specifications of a society are factors that have established the physical shape of cities throughout history in human spaces and through human interaction with the environment. The beauty and ugliness of this physical form and structure is thus surely a demonstration of the ugliness and beauty of the culture and civilization of a society as well as of the interactions of these people with the environment and each other. In the mentioned study factors (culture, economy, politics, etc.), these flow into the current social space.

This explanation follows discussions about the necessity of the present research in first chapter; it is necessary to add that urban management and planning is a medium and a mediating factor between the main effective factors of economy, culture and policy and takes on an organizing and leading role concerning these factors in order to influence urban structure (though even in the modern world certain factors affect the shape of cities without the use of urban management control). Thus, as I previously stated, urban management and planning is a determining factor in all of this study's analytic schedules, tables and diagrams (i.e., its research pattern).

It is necessary to mention that urban management has sometimes resulted in disharmony between the city's structure and physic and the main effective factors; in other words, the city has evolved with a lack of identity and lack of homogeneity in "form and content". In fact, one of the main reasons for this is the interference of another factor, usually urban management, which can be effective in changing cities and developing its form as well as urban trends. This shows more than

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anything else the importance of urban management as an effective factor.

This project has no intention to evaluate this kind of management, the method of qualitative control or the effect of these factors on cities. This can surly be performed after basic research similar to this study and integrated in academic programs. Tracing and inquiring about the trend of influence and the main effective factors of each physical change and development are basic fields in future planning and policy-making, especially in developing cities, to which this research has devoted itself.

In the previous chapter, the ground for this investigation was provided using estimate and evaluation tables in research pattern and this chapter of the dissertation sum ups each case and subject. [1]

The information from different resources about the physical changes dependent on different economic, political, social and cultural factors can pave the way for the production of similar comparative tables for other cities. The scale for such an investigation can be a city, a region or a continent (European cities, Iranian cities and Mashad are three different scales of research in this dissertation). Below is another example from the book "Urban Geography", which shows how scientific basic information was produced for producing such tables in relation to Asian cities as underlying factors for urban change in Asia:

"Urban change in Asia demonstrates how the growth or decline of cities must be understood in terms of the effects of the globalization of the world economy on the one hand, and economic, social or political changes that are specific to that city or region on the other hand. For example, the size and rapid growth of Delhi owe more to its role as capital of India than to a position within the global economy. Similarly, Karachi's population growth over recent decades to become one of the world's largest cities has been increased by immigration of refugees … by contrast; urban dynamics in Singapore are shaped more by the city-

[1]- As pointed out before, in the case of Iranian cities and Mashad, various resources have provided the grounds for producing these tables. For European cities (as briefly mentioned in chapter 2.1), the following references have been used:
- Leonardo Benevolo; The history of the city, 1980 AD
- Leonardo Benevolo; The Story of Modern Architecture, 1971 AD
- Will Durant; Our oriental heritage (part I of The story of Civilization), 1935 AD
- Naser Fakuhi; Urban anthropology, 1383 AHS/2004 AD
- Siegfrid Giedion; Space, Time and Architecture, 1941 AD
- Spiro Kostof; The City Shaped: Urban patterns and meanings through history, 1991 AD
- Sibyl Moholy-Nagy; Matrix of Man: An Illustrated History of Urban Environment, 1969 AD
- James Morris; History of urban form: before the Industrial Revolution, 1994 AD
- Lewis Mumford; The culture of cities, 1990 AD
- Lord Rogers of Riverside; Towards an Urban Renaissance, Final report of the Urban Task Force chaired by Lord Rogers, 2002 AD
Michael Pacione; Urban Geography: A global perspective, 2005 AD
- Hosseyn Shokuhi; Urban environment, 1358 AHS/1979 AD
- Francis Tibbalds; Making People-Friendly Towns, Improving the public environment in towns and cities, 1992
Producing this pattern (analytic and evaluation table) can be performed at different scales and for different cities (one city, one region including a few cities, one continent, etc.) In this case, providing basic useful information for producing this pattern in Asian and European cities, the following references are suggested:
-S. Brunn, J. Williams and D.Zeigler; Cities of the world, 2003 AD, Lanham, MD: Rowman & Littlefield
-J. Ksarda and A. Parnell; Third world cities, 1993 AD, London sage
T. McGee; the Southeast Asian city, 1967 AD, NewYork, praeger
Yusef and W.Wu; The Dynamics of urban growth in three Chinese cities, 1997 AD, Oxford university Press
G. Sjoberg; The pre-industrial city; Past and present, 1960 AD, NewYork: Froe Press

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state's role within the global economic system than by its acting as a political or administrative center. Most of the other large cities in Asia come between these two extremes…

"Urban trends in all Asian nations are also influenced strongly by government actions. A significant policy change during the 1980s was the relaxation of government controls on urban growth in various countries and the downscaling of programs directing new investment into peripheral regions.

"…The post-Maoist urbanization process (in China), transformed a pre-reform situation of underurbanisation, marked by achievement of high industrial growth without a parallel growth of urban population." (Michael Pacione, 2005 AD, p.116)

Here it is necessary to explain that, because of the priority for exploiting the results and suggestions for Mashad, I have first presented the comparative and analytic diagrams for Mashad and then for Iranian and European cities.

5.1 Estimate and comparative diagrams for Mashad

The measurement and comparison patterns in the case of Mashad, Iranian cities and also in general for western (European) cities, which were mentioned in previous chapter, are the grounds for presenting the following summary tables and diagrams. Each of the following diagrams shows the degree of influence of each factor in time and over distinct periods of physical evolution in Mashad. The degree and intensity of influence of each factor is measured separately according to the three levels of low, medium and high. In other words, the degree of a factor's effect on physical change in each time period is specified. This evaluation relies upon the previous studies in this research and upon detailed discussions about the history of physical evolution in Mashad city in the third chapter.
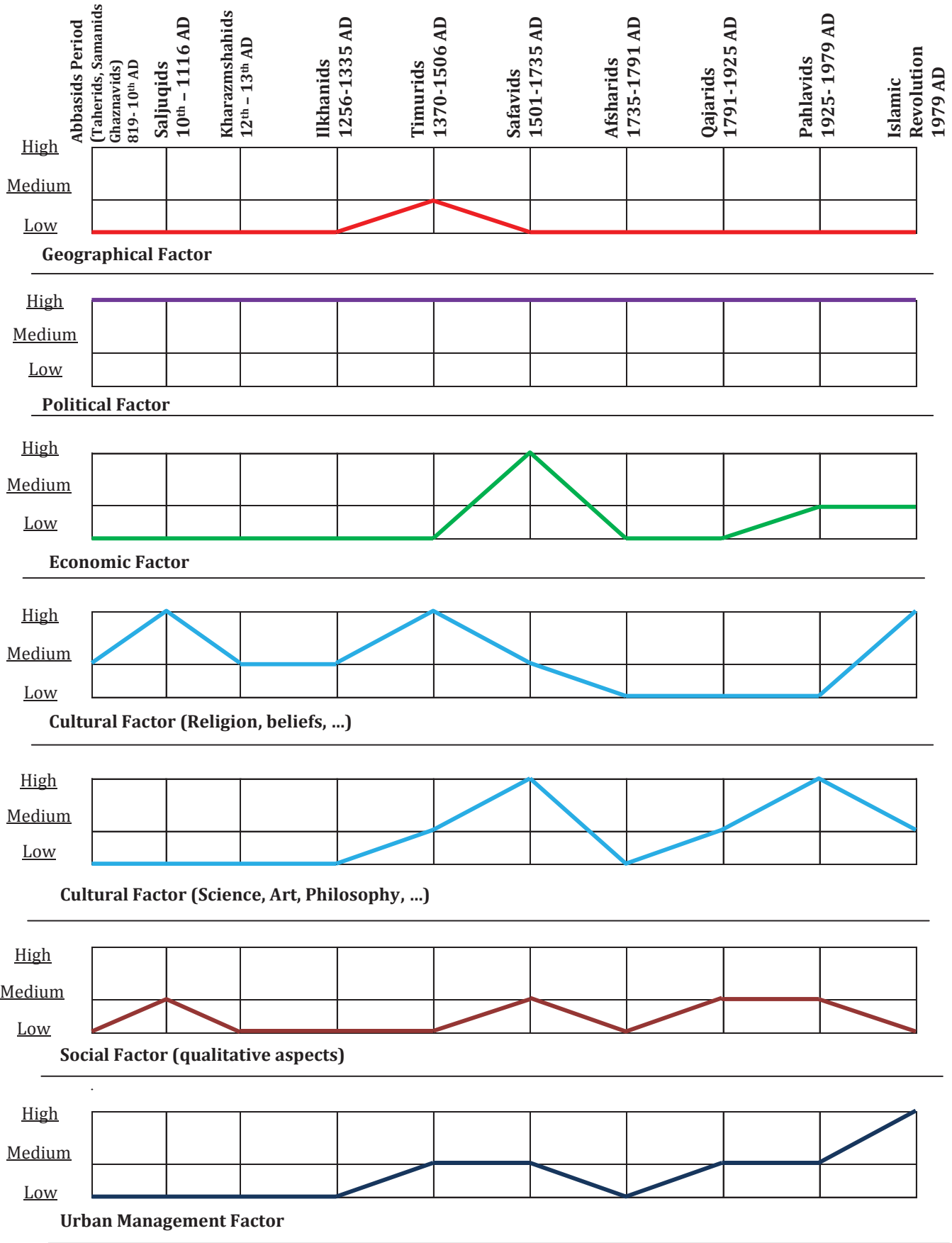
Figure 5-1 Estimate and comparative diagram for Mashad (research pattern)
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As previously mentioned, these tables and diagrams can provide the grounds for investigation and discussion and eventually produce several valuable and exclusive implications for urban management and planning problems and especially the physical evolution of Mashad. Even the qualitative evaluation of each effect (meaning that when and at which time with which combination of effective factors is the best quality of change and development) but here, only the effective amount of each factor (the quantity of the effect) and the rate of change of this effect over the life history of the city was born in mind.

The results from the table in relation to the research subject and aims are:

- Geographical factors such as climate, location and ecological position have always played a lesser role in determining and changing Mashad's structure.

- The political factor (government, wars) has always had a surprisingly deep impression on determining and changing urban structures and physics over the course of Mashad's history.

- Although economic factors have generally played an essential role in the physical evolution of the tourist-religious city, this role, apart from the historic period of Safavids, was moderate.

- Although Mashad is a religious city, the religion factor and its effect on urban structure shows a pattern full of ups and downs. The reduction of this role after the Timurid period and its increase during the Islamic revolution is considerable.

- Cultural factors (science, art, etc.) have generally grown commonly and gradually in their influence on urban change.

- The effect of society and people's role in the physical evolution process of Mashad over the course of history were impressively low.

- The effect of urban management and policy-making factors, as in most other cities in the world, grew during the history of Mashad from its origins to the present day. However, its reduction during the Afsharid period was considerable.

5.2 Estimate diagram for Iranian and European cities

It is here necessary to explain that European cities were selected for investigation primarily out of personal interest, though every city or set of cities can be examined. Although I studied these cities during the course of my thesis, the conclusions that I have come to may contain certain shortcomings.

The following figures show similar diagrams adjusted to the previous chapters' studies on Iranian cities and also western (European) cities. Looking at these diagrams, similar results can be obtained:

5.2.1 Iranian Cities

By examining the diagram prepared for Iranian cities, the following primary results could be achieved:

- The diagram shows a rather variable effect of geographical factors on the development of Iranian cities. A point to emphasize is that this influence has been low during the contemporary period.

- Political factors have mostly played a major role in Iranian cities and have generally shown a considerable growth; nevertheless, the decrease of this effect during the Samanid Period is noticeable.
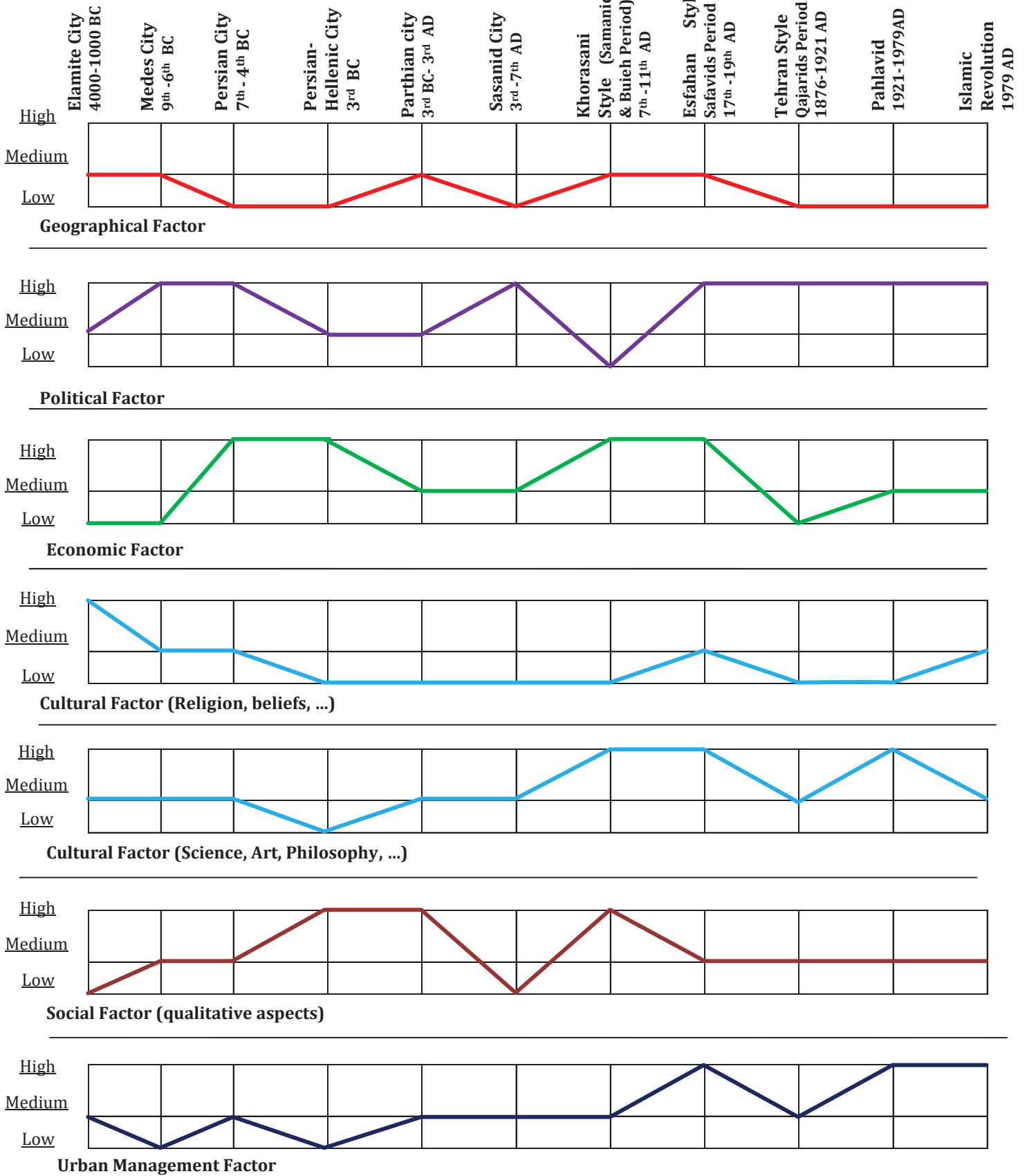
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Figure 5-2 Estimate and comparative diagram for Iranian Cities (research pattern)
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- Economy has mostly had an effective and serious role in Iranian urban development, though this role has decreased over the course of history of Iranian cities. An increase of this effect is noticeable for the Samanids and Safavids periods.

- The role of religion in the structuring of Iranian cities was first high and then declined before taking again a serious increase. Its growth, especially from Pahlavid period to the Islamic revolution, was considerable.

- The effect of cultural factors observed a general growth but reduced at the transition from the Safavids to the Qajarids period and again from the Pahlavid period to the Islamic revolution period.

- The effect of social factors (qualitative aspects) has also experienced ups and downs, but its relative decrease especially over the past 200 years is surprising.

- The diagram shows that the effective amount of urban management since the beginning of the formation of Iranian cities had steadily grown, albeit with fluctuations.

5.2.2 Western cities (European cities)

By examining the diagram prepared for European cities, the following primary results could be achieved:

- Since the emergence of the first European cities, the role of geography in urban development has generally decreased, except from the Modern to the Post-Modern period, in which this role shows a little growth.

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- The role of political factors is evidently significant and its impression has considerably decreased over time. The points of peak and decline during ancient Rome and in Greek cities are considerable.

- The diagram shows that economic factors began with a considerable growth, decreased and display a medium influence at the present time.

- The role of religion, after fluctuating, became rather small following the medieval period. The diagram emphasizes the peak of this effect during medieval period and the settlement of the first cities.

- The role of cultural factors has noticeably increased in opposition to the religious factor, though its reduction during the Middle Ages should be mentioned.

- The effect of society (public participation) on urban structures during the history of city-dwelling has varied, though it has generally grown. The growth of this factor's effect during the three historic periods of ancient Greece, the Renaissance of Europe and Post-Modern (contemporary) is considerable.

- Urban management and its effect show a general growth, though the diagram emphasizes the ups and downs of this effect and its reduction after the Modern period, which appears significant. The peaks of this effect were during ancient Rome and the Modern period of city-dwelling.
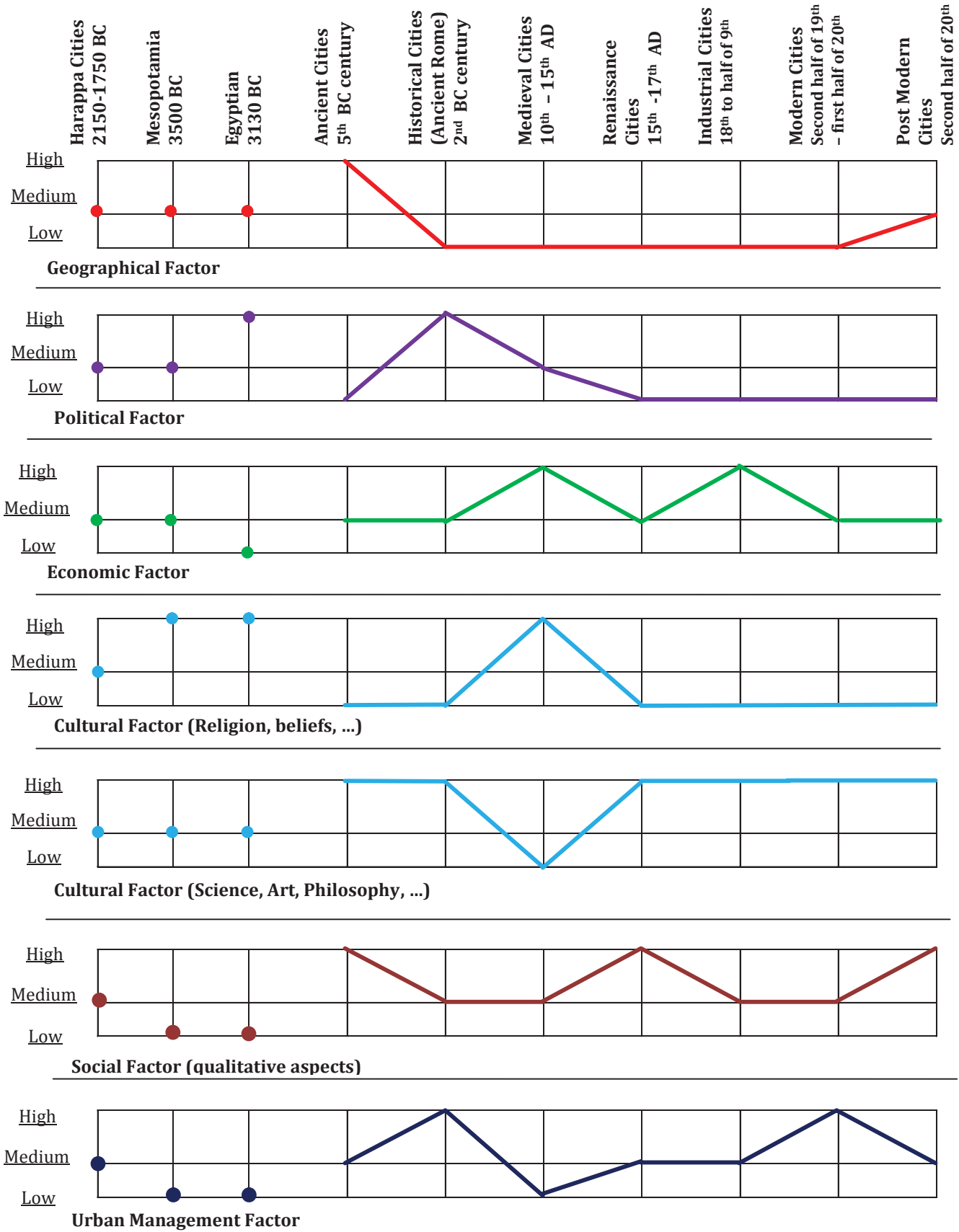
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Figure 5-3 Estimate and comparative diagram for European Cities (research pattern)
Ref: Writer

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5.3 Comparative tables for cities

(Mashad, Iranian cities, European cities)

If we choose to compare Mashad with the two other groups of cities, the following table is useful in visualizing this match-up:

Factors / Cities	Geographical Factor	Political Factor	Economic Factor	Cultural Factor (Religion, beliefs, ...)	Cultural Factor (Science, Art & Philosophy, ...)	Social Factor (qualitative aspects)	Urban Management Factor
European Cities	first increase then decrease	decrease	increase	first increase then decrease	first decrease then increase	increase	increase
Iranian Cities	decrease	increase	decrease	first decrease then increase	increase	first increase then decrease	increase
Mashad City	always (constant)	always (constant)	first increase then decrease	first decrease then increase	first decrease then increase	always (constant)	increase

Legend:

- ↘ Generally and in average, decrease during the time
- ↗ Generally and in average, increase during the time
- ∧↘ Generally, first increase then decrease
- ∨↗ Generally, first decrease then increase
- → General effect of always high, medium or low

Table 5-1 Comparative Table (research pattern)
This table shows the increase or decrease in the amount of influence for factors (in average) on physical evolution course of cities over the history.
Ref: Writer

The above summary table shows the directional tendencies of effects and mentioned factors in Mashad and in Iranian cities 217 European cities. By means of this comparison, we can point to some prominent cases:

-   Despite the reduction of the political factor's effectual significance during the history of European cities and its increase in Iranian cities, this was always very important in Mashad.

-   The religious factor has generally grown in Iranian cities and in Mashad despite its gradual decrease in European cities.

-   The effect of social factors grew in European cities in spite of a decrease in Iranian cities, though this always had a minimal importance in Mashad.

-   In spite of the decrease in the effect of the economic factor on the physical evolution of Iranian cities and also of Mashad, the effect of this factor has increased in European cities.

-   Geographical, cultural and urban management factors show the same tendencies in all groups of cities.

Another comparative schedule could be prepared to enable a comparison between specific periods during the studied timeframe. For example, in order to focus the analysis of the contemporary period (the past 30 years following the Islamic revolution and simultaneously with considerable urban changes in European cities), the following table presents the amount of influence of each factor in general and specifically for each mentioned city or group of cities. Examining the table's contents, the following results can be obtained:

Factors / Cities	Geographical Factor	Political Factor	Economic Factor	Cultural Factor (Religion, beliefs, …)	Cultural Factor (Science, Art & Philosophy, …)	Social Factor (qualitative aspects)	Urban Management Factor
European Cities							
Iranian Cities							
Mashad City							

Table 5-2 Comparative table for each period (research pattern), here; focus on contemporary period
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- The degree of influence of geographical, political, economic, cultural and urban management factors in Mashad with other Iranian cities (in general) shows the same situation over the past 30 years (or little difference), though there is a considerable comparative difference between religious and social factors. The religious factor therefore has more influence and the social factor plays less of a role in Mashad.

- Comparing Iranian and European cities, it can be inferred that the differences are fundamental. The most important one is the growth of society's role (public participation) in physical evolution of European cities, which is visibly smaller in Iranian cities. European cities are at the top for the decrease in centralized management structures, while in Iranian cities, centralized management is still very important.

The religious factor has an unimportant role in the physical development of western cities, but this role is still perceptible and effective in Iranian cities. The role of the political factor in European cities is quite low, while it remains marked in Iranian cities.

- For Mashad, in addition to these basic differences, the effective amount of studied factors between Iranian and European cities has two special emphases: an impressive reduction of the social role in relation to the two other groups of cities and a great increase in the role of religion.

At the end of this discussion and for summing up, it can be seen that there is a noticeable difference not only between Mashad and European cities but also between Mashad and Iranian cities, which is focusable and might be used in order to point out a need for studies similar to this thesis that might specify the reasons for these discrepancies. Investigating various aspects of these differences and reviewing the different aspects of the effect of each of the studied

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factors over the course of history can provide a scientific basis for improved urban development programming and planning, which uses the potentials in the best way possible and decreases the impact of obstacles and limitations.

According to my own experience and performed research, I can express the main specialties and reasons for these observed differences as follows:

- The reason for the existence of Mashad is the presence of the Imam Reza shrine; this factor is religious as much as it is political (the martyrdom of eighth Imam of the Shiites by the Moslem Caliph in 203 AH) and is a unique historical circumstance that is different from of the formation stories of many cities in the world.

- The reasons for expansion and development in Mashad are primarily religious; if Imam Reza's Shrine were not to exist as well as the economic and politically dependent factors, the geographical position of the Mashad area and especially the deficiency of water in this region would have made the development of Mashad, with a population growth of up to 3,000,000 and an area of up to 185 km^2, impossible.

- The various tribes and races and the numerous motives for settlement, whose reasons can be found in the historic precedent of Mashad, have resulted in a variety of demands on the city in which in many cases confront one another (ethnic and tribal quarters have perhaps not appeared as intensely in other Iranian cities as they have in Mashad).

- Dual urban management has been a reason for rising obstacles in the way of development. The effect of governmental organizations such as the municipality and the Ministry of Housing and Urban

Development on the one hand and Astan-e Ghods-e Razavi, which owns a great amount of Mashad's Land (scattered throughout the city) on the other hand, surely affects the harmony and comprehensiveness of the urban management process.

- The presence of 20,000,000 pilgrims per year and the expectation of an increasing to 40,000,000 in the next ten years is a suitable chance for urban development, not only from an economic and investment perspective but also for the creation of public and social spaces. While these chances have never optimally exploited and Mashad has not only had not a remarkable quality of urban development, its urban public space is not in the least up to standard.

- The presence of political security is one of the important reasons for this city's development; even during eight years of war with Iraq, this city was safe from enemy aggression for religious reasons. This is also a factor in its ever-increasing population and emigration.

Finally, the second-most important religious metropolis in the world was assigned in 1388 AHS (2009 AD) as the spiritual capital of Iran and the world's city for the unity of Shiites. This spiritual situation surely deserves unique and prominent physical conditions. This is not only a chance for development but also provides serious anticipation for the creation of a high-quality urban pattern as a response to Mashad's naming as a "city of heaven" and "desire city".

Through similar research, I hope that the aforementioned investigations and studies can be extended and continued so that their results can be used in the process of urban design and planning in order to improve the physical situation of Mashad's future.

6 | Chapter

.........Towards future research

6.1 A valid document in the field of Mashad's physical evolution

6.2 Producing and creating a pattern for all cities

6.3 Suggesting some articles and their abstracts

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At the beginning of this research in the first chapter, the necessity of performing this study and its aims were highlighted. In addition to this, the results of this research in distinguishing the basic differences between Mashad and other cities confirm the greater need for emphasizing Mashad's situation and performing further research. A third aim can be considered for this research—that of preparing a suitable ground for future investigations.

6.1   A valid document in the field of Mashad's physical evolution (in interaction with political, economic and cultural events)

As was mentioned, my compilation of the book "In search of urban identity; Mashad" in 2005 AD was in fact the official start to my professional studies into Mashad in the field of architecture and urbanism. The lack of specialized resources about Mashad's features and its urban design framework, whether from a historical or contemporary perspective, persuaded me to extend this research and in this way continued as part of the research activity for my PhD thesis. I thus chose Mashad as the sample case study for my PhD dissertation.

The first mentioned aim of this research was discovering and explaining physical structures over time, which could provide the grounds for continuing complementary researches in the form of a valid and trustable document. This was accomplished over more than three years of continual work and has in parts been transferred into the third chapter of this dissertation.

This basic research, which prepares the framework for a comprehensive urban design analysis and critique, be it related to the past or the present, is certainly not enough and must be continued and completed. The writer hopes to extend this in the process of

complementary research works and with the support of the urban
management centers and organizations of Mashad. I rely upon my 20
years of professional, academic and investigative studies as a faculty
member of the Mashad University for this time period as well as of a
Mashad consulting society for the past 12 years and of the Khorasan
province's engineering system organization for the past 18 years. I
mention this in my resume at the end of this dissertation (Appendix).
Also as a citizen who was born in Mashad, I believe this research to be
a framework for three groups of complementary research in the field of
urban design:

Figure 6-1 Arg Street
Ref: Rezvani; In search of urban identity:
Mashad, 1384 AHS/2005 AD

a) Studies about special historic spaces in Mashad like the old
bazaar of Mashad, the old square of Sarsang, Arg Street, Chahar Bagh,
Balakhiaban and Painkhiaban.

This group of research will be effective not only as an indicator of
cultural heritage but also for use in renovation and improvement
projects in old neighborhoods and in the center of Mashad in order to
provide identity and maintain and revive historical works and values.

b) Urban structural research, into topics such as the evolution of
the urban access network, the city center and its role in physical
evolution, the evolution and development of urban open and public
spaces in Mashad, and the creation of quarters and the variety in race,
tribe and economy.

Figure 6-2 Balakhiaban Street
Ref: Archive of Musa-al-Reza Sayyah

These fields are a focal point for studies into urban development
projects, whether inclined to the past or concentrating upon Mashad's
contemporary structures, as well as for analyses and critiques of the
present situation. They will surely provide good suggestions for future
management activities.

c) Research into present urban problems and obstacles: slum
dwelling, the transportation network and traffic, urban comprehensive

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projects and the reasons why they have not been realized, the pathology of the extension of the city limits, renovation and improvement projects for the city center and the results of its execution, satellite townships and development problems.
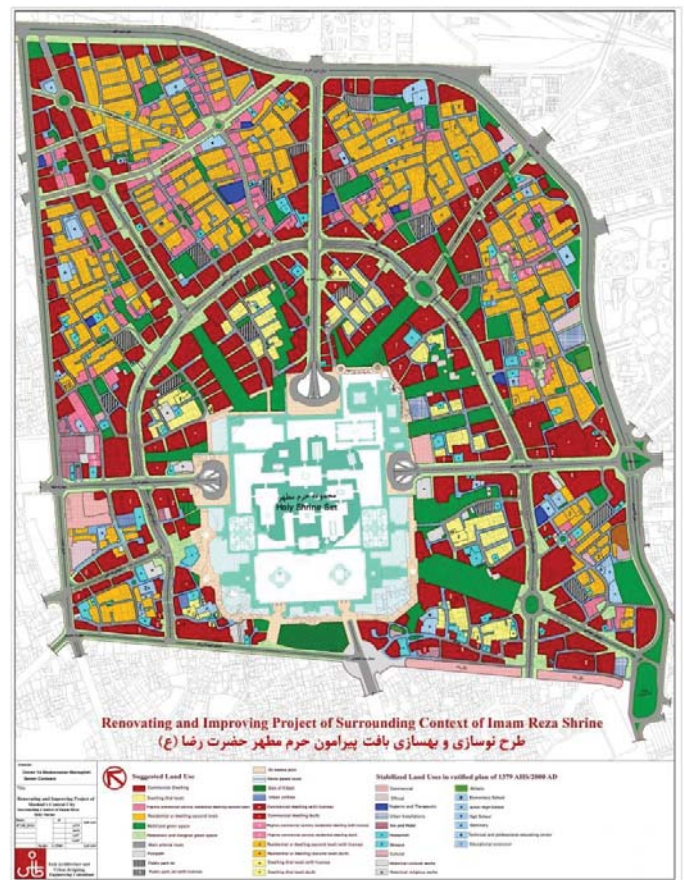
Solving urban problems and difficulties, of which not only specialists in architecture and urban designing sciences are aware, but that are also felt by citizens, is one of the main efforts in urban design's

Map 6-1 Access network in Mashad
Ref: www.mhud.gov.ir (09.2010)

professional domains. Such an effort certainly needs basic information in relation with history and the present situation and in comparison to other cities. It can result in practical solutions for solving and removing difficulties using fair analysis and critique.

6.2 Producing and creating a pattern for all cities (for the evaluation and specification of the relationship between physical evolution and the effective factors on physical change throughout every period and in comparing cities together):

Each evolution and change in the form of a city is affected by one or many political, social, cultural, economic, geographical and urban management factors, which were explained in details in second chapter. Chapters four and five of this dissertation present a transferable and repeatable method and procedure for this topic. This effort was performed in detail for Mashad during different historical periods and in a general form for the groundwork of a comparison between Iranian and European cities. The presented tables specify how each principal physical evolution was influenced by each phenomenon or historical

Map 6-2 Renovation and improving project of city center
Ref: Tash Consulting Engineers, 1379 AHS/2000 AD

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event and then clarify the influence of social, political, and cultural or economic factors on this historical event. In the case of several main effective factors, the tables also indicate which has had greater importance in each historical event or physical change. In other words, they estimate the degree of the effect of each main evolution.

The results of this investigation into the mentioned cities are shown in Chapter 5, although this pattern is able to be expanded upon in future studies, the scope of which could not be matched considering the time and energy limitations of this research. The following discussion points to some of them:

a) The performed comparative analysis of one historical period of Mashad (the contemporary period) and Iranian and European cities can be performed for each historical period of this city and the results can be compared with one another. (See page 218)

b) Analytic diagrams and tables of this pattern can be prepared for cities elsewhere in the world, especially for tourist-religious cities and also for developing countries in South America, Africa and Southeast Asia, but also for developed countries in North America and Europe, thus providing the chance for several case-study comparisons.

c) If in these studies the "quality" of each physical evolution increases (in this case, we must specify the criteria for measurement), this pattern would be able to show the reciprocal relation of factors and the degree of influence during physical evolution with physical quality. In other words, one can specify which states and conditions of effective factors have resulted in the best physical changes in the city.

Comparing historical periods in the course of evolution of each city as well as cities with one another can certainly provide valuable lessons and experiments and be useful for urban development plans and effective and efficient decision-making.

Figure 6-3 Traffic problem in Mashad
Ref: writer's archive

Figure 6-4 Non-standard residential houses in a suburb of the city
Ref: writer's archive

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d) This pattern and its results could be helpful and effective in projects and research along the following lines:

Describing the "image" of the city, compiling urban comprehensive and detailed plans, correcting and reviewing projects in urban management and control, reviewing the project of improving and renovating the city center, and projects for developing the access network and urban connections

In other words, it is possible to allocate the tables, diagrams and schedules of this pattern to particular specialized subjects and to put other topics under investigation. For example, research into the course of evolution of urban networks in interaction with the effective factors of geography, economy and so on or the evolution of the urban image in interaction with the effective factors of urban management and planning could be examined.

6.3 Suggesting some articles and their abstracts

Every research project at the scale of this dissertation could be rewritten and submitted as articles, especially if the author and researcher's educational and professional experiments support such a decision. Considering the variety of researching subjects in this thesis, from European and Iranian cities to the case study Mashad, and according to effective factors in the evolution of cities, from political and economic influences to urban management, I suggest the following titles and abstracts and have prepared them for presentation:

- The spirit of the city; the city is not a tree (the position of social interactions in the city)

- The city, an alive and dynamic element; Mashad is not a city (a redefinition of city, space and urban space)

- The identity of cities

- Mashad through the ages

- **6.3.1 The spirit of the city; the city is not a tree** (the position of social interactions in the city)

Cities obviously change and grow, and their economic, social, political, cultural as well as environmental and geographic factors likely give way to plural effects of evolutions and changes through management and control. Commercial activities, increasing population, urban expansion, traffic and the dynamic presence of transportation, climate and environmental changes are all recognizable effects of these changes, which are proof of the dynamism and activeness of cities over the course of their history. Thus, the likening of cities to organisms like trees is an acceptable metaphor. These similarities and features have been pointed to in many books and papers especially during the last century. The culmination of this view can be seen in the opinion of "metabolist" urban designers and architects. This paper engages with and critiques their thoughts and opinions as an advanced pattern of this point of view and analyzes the term "space" in general and "urban space" in particular as the focal point of the essay subject and the explanation of the spirit of a city.

6.3.2 The city, an alive and dynamic element; **Mashad is not a city** (a redefinition of city, space and urban space)

Although Mashad is known not only as a city but also as a metropolis, based on the definitions of city and its specifications presented in the second chapter, especially of modern and postmodern cities, and also examining the situation of Mashad in the tables presented in the previous chapter, which showed the low effect of social factors on the formation of the city's physical organization, and confronting the increasing effect of the political factor, we can certainly suspect that Mashad is not a "city" based on the expectations of cities at the beginning of the third millennium. The city has serious shortages in available urban open spaces not only for citizens but also for tourists, whose population is large and growing. Based upon current information, Mashad has more than 20,000,000 pilgrims each year and if we count the average residence time of pilgrims to be about six days, this means more than 120,000,000 person-day for pilgrims in a year. Statistics show that during the peak days for traveling to Mashad, more than 400,000 travelers per day are present in Mashad; this population's needs in terms of urban open spaces has not been answered.

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6.3.3 The identity of cities

Cities are the representatives of a nation's culture and civilization and their physical identity (their physical elements, which form a city) shoulders the semantic and conceptual load of millennia. This means that all of a nation's economic, social, political and cultural features appear in physical spaces of cities. The question of the identity of cities has been under discussion and argument in recent decades. Identity crises are a phenomenon that takes place not only in third world cities but also in many developed and modern cities. Difficulties such as ecological problems, traffic congestion, a lack of public participation in urban development processes, the destruction of old and decrepit neighborhoods in cities, and unfamiliar and alien visions in cities are factors that add fuel to this crisis.

The presented essay reviews existing challenges and difficulties in third world cities in general and in Iran in particular during the historic changes that led to structural crises in architecture and urban design.

At the beginning of the essay, there is a short review of the concept and meaning of identity. The necessity for research into a city's identity and the importance of examining historic physical records as an introduction to hierarchical programming for correcting the current state of affairs are emphasized. Finally, the possible methods for confronting the existing identity crises in the cities of Iran are presented.

6.3.4 Mashad through the ages

Mashad, the second most important religious metropolis in the world, the largest urban center in east of Iran with about 2.5 million people and a floating population of about 15 million pilgrims and tourists, is the center of one of the largest provinces in Iran, Khorasan-e Razavi. Khorasan, with its unique historic past, has a special place in the cultural and political history of Iran. Many movements against expatriates were formed in Khorasan. This land is a cradle for scientists and cultured people who have played an important role in the cultural history of this country. It is no exaggeration to claim that Mashad is the symbol for and the cultural consensus and unity point of Shiites and Moslems in Iran and the world. These conditions draw the attention of urban planners and policy makers to this city in terms of various cultural, political, economical and physical areas. It can be postulated that many current problems and challenges in plans and detailed urban implementation programs such as the Comprehensive Plan, the renovation and reconstruction plan for the holy shrine's surrounding area, urban visage, facades and public urban spaces can be due to Mashad's lack of knowledge about its identity, structures and the components of its different areas.

This work has tried to give a compact and brief introduction to the physical history of this city in interaction with its political and social changes and events. Though the writer touched upon the contemporary period as well, the emphasis on the past history of Mashad considering the main capability of forming physical-spatial structures of city was observed. If we consider the Qajarid period "the passing period", the beginning of renewal and the entry of Modernism and its bold and effective impressions on urbanism and architecture came following that period and during first and second Pahlavids periods.

Although Mashad—like many cities in Iran and the world—has possessed the structural elements of a city throughout the ages, its formation and its story of development is somehow different. Perhaps if the holy shrine of Imam Reza would not exist, a city with these conditions not only with the same name, but also at the same place, would never have taken form.

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