

POLITECNICO DI MILANO

FACULTY OF ARCHITECTURE AND SOCIETY
MASTER OF SCIENCE IN ARCHITECTURE



PRESERVING THE VOID: URBANIZATION AND FARM IN TEHRAN

RELATORE:

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ABSTRACT

Tehran, the capital and the most populated city of Iran has been always in challenge with metropolis issues such as pollution, traffic, safety, lack of green and etc.

In order to find long term solutions and improvement strategies, Master plan of Tehran has been published with the vision of Iranian origin and Islamic identity, diverse public spaces and safe and stable city which should be driven in all programs and activities of Tehran.

Expo of Tehran constructed on 1965 to place internal and international fairs and events. Its permanent site was located in the northern part of city in area of 850,000 square meters and during fast expansion of the city, It is now located in intersection of two important and over-crowded highways of Tehran. This considerable area has 120,000 sq. Meter indoor exhibitions, 35000 sq. Meter Outdoor exhibitions, 22 hectare of green areas and lots of expo facilities.

Now around fifty years after its construction with no fundamental and serious renovation and also enlargement of the city in its surrounding, it has started to cause lots of problem not only in its functions but also for the city which finally its location became a place just to host a few international exhibitions.

Heavy traffic and blocked highways by lots of visitor cars during exhibitions, not enough parking areas, air and sound pollution in its neighborhood and old and out of date indoor exhibitions were some of the most important problems that forced municipality of Tehran and urban planners to consider another options for holding expos in other sites and investigate new functions for this area.

In the master plan of Tehran, this area has been considered as a new commercial administrative and services zone with overcoming green and open to first of all, transfer it to an active and useful hotspot for its neighborhood and then for the city and state scale. Also with extension in its green areas, it will be able to reduce pollution and improve urban landscape entity.

Our all options to cover the changing strategies and re activation programs in this site categorized in three different hypotheses: first of all, have a radical approach and destroying and rebuilding In order to create "a new". Another option was preserving and renovation of the old texture and rehabilitation by adding new functions and the last one, changing the existing and adding new functions in terms of keeping the same quality and spatial sense of previous space. These approaches according to abilities, facilities or limitations of each part of the site has been chosen even had the possibility of being mix together to find the best solution.

For rehabilitation and according to its physical programming which was the output of the series of analysis on the city of Tehran and its master plan, sort of new functions was found necessary and inevitable therefore inserted in design programming. Related to the first approach which mentioned, after analyzing the quality of the former buildings and open spaces, those which were damaged and abandoned removed from site plan and large area of the former site changed to a new courtyard for farming and gardening. According to second one and also to cover up all the required functions building with acceptable quality of space, material and facilities got new functions and for the last one but not the least some exhibitions transferred to the new playgrounds for children.

Finally similar to all large scale urban strategies, these area needed economic support as well to achieve all aspects of its numerous changing strategy which will be provided by involvement of individuals therefore by adding a new residential complex to the part of its site it was achieved and on the other hand, this new residential complex will bring about high quality and safe urban space for the area.

DESIGNING PROCESS

Designing process for the Expo site has three different phases.

- First phase starts from the latest master plan of Tehran. In this phase the focus is on the green network of the master plan.

By passing this step, the analysis switch to the existing greenery and after that it leads to the general idea for the Expo site in the metropolitan scale.

- Second phase focuses on local scale. It starts from the general analysis of the form of neighborhoods, their networks and the connections between them.

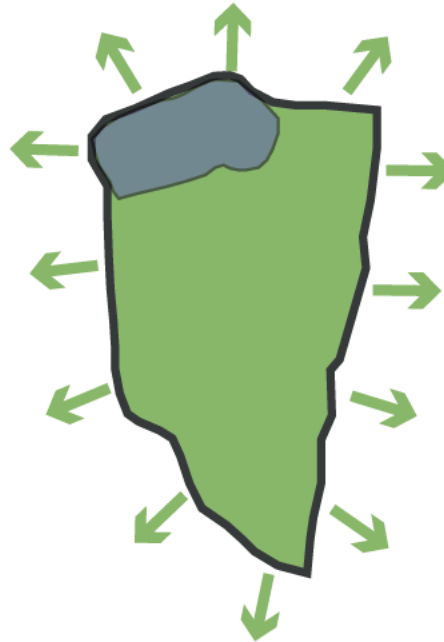
A brief view on the formation of Tehran in two different periods shows the main pattern of the fabric creation in the neighborhoods and city in general. These analyses direct the designing process to connect the site with surroundings as much as possible.

- Last phase is the sum up of the above phases in the site scale. Major attempt is to give a unique identity to the site with the attitude of open space. This procedure is inspired by the look to historical and traditional way of urban planning in Iranian cities especially in Tehran.

FIRST PHASE: THE IDEA OF PRESERVING THE VOID

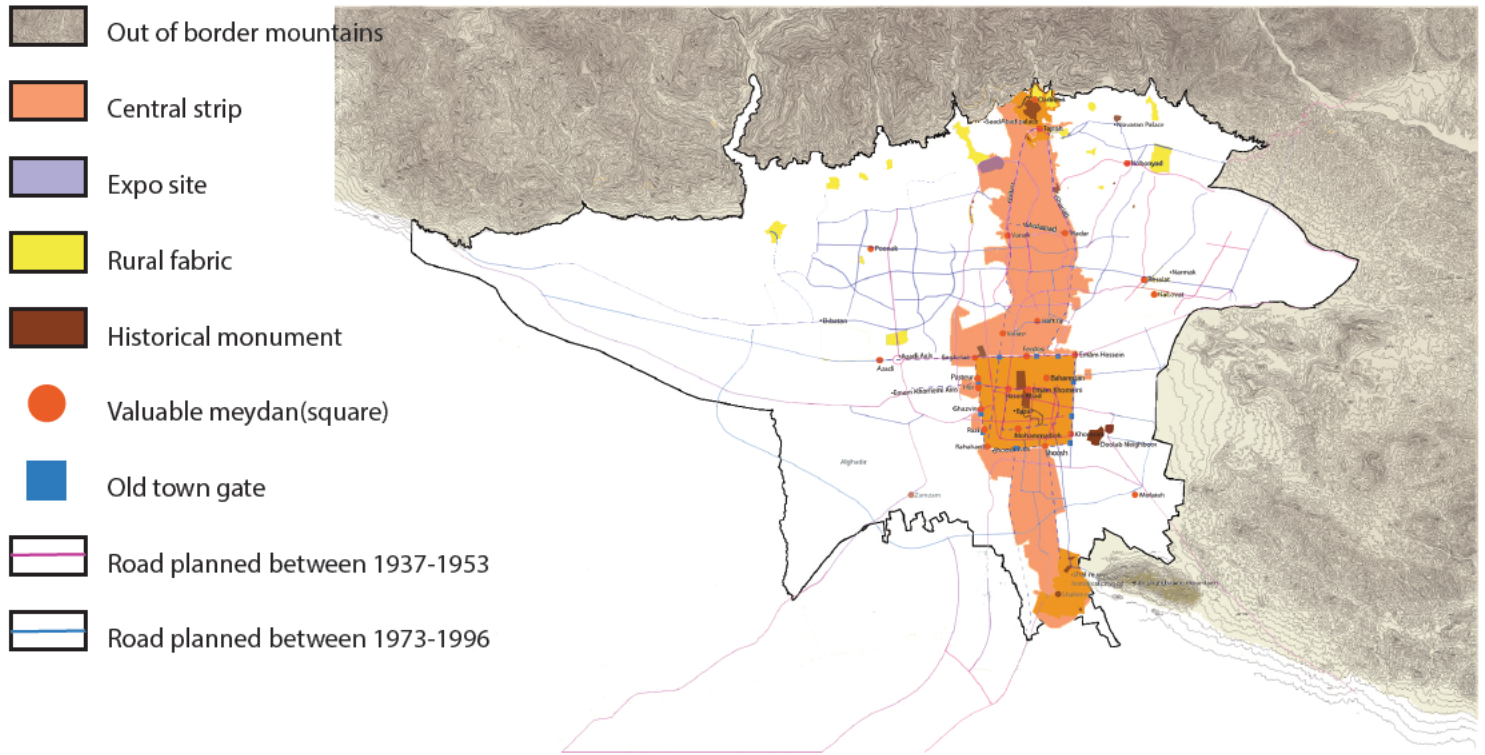
FROM TERRITORIAL MAPS TO THE IDEA

- Territorial maps related to greenery system in Tehran designed in 2005
- Existing situation of greenery
- Idea of preserving the void



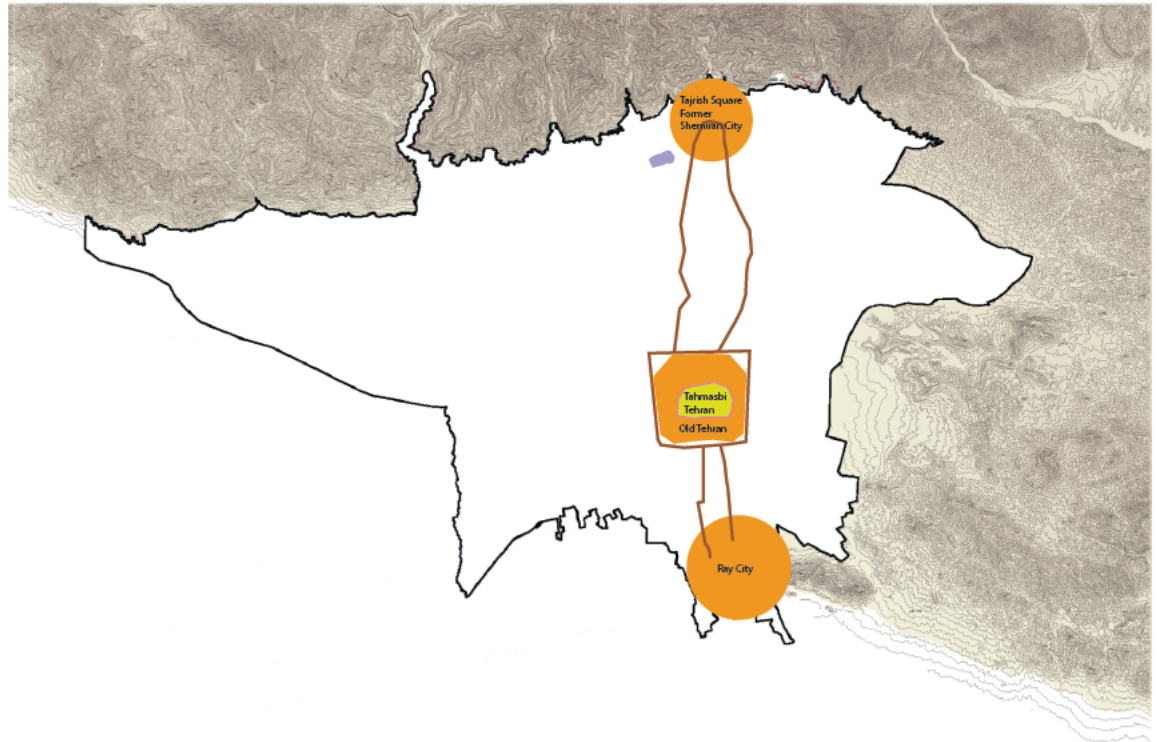
TERRITORIAL MAPS RELATED TO GREENERY SYSTEM IN TEHRAN
DESIGNED IN 2005

VARIOUS GENERATIONS OF MAIN ROADS



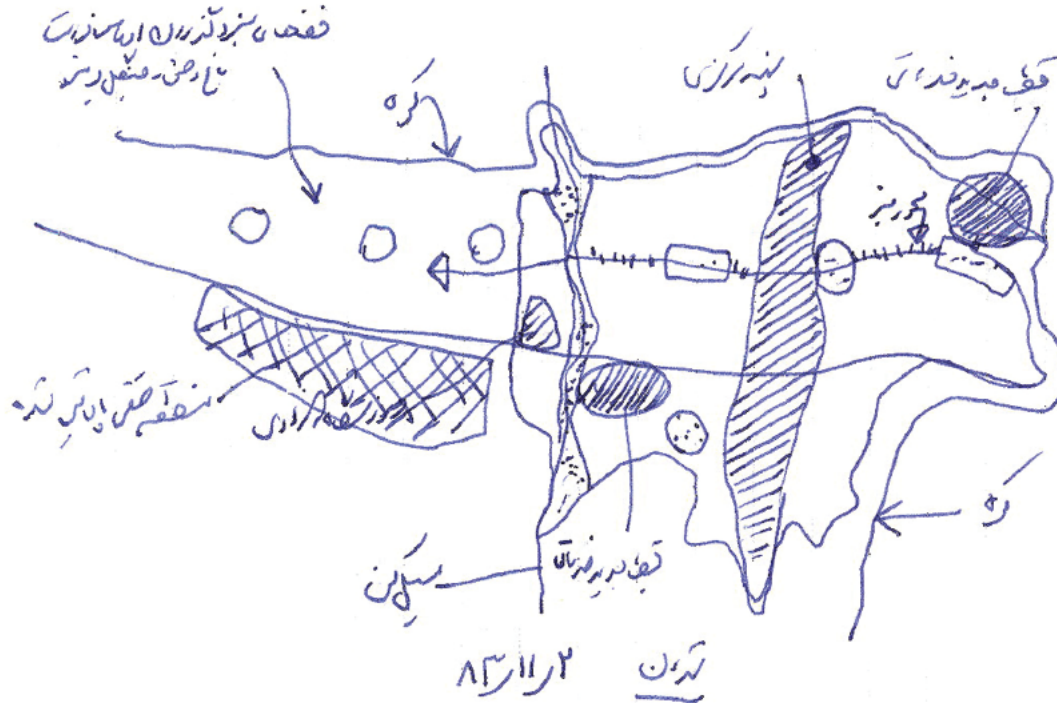
In the 1930s Tehran started the transformation to a modern city. At this period the evolution was mostly affected by city of Paris. The administration wanted to change the city similar to Paris with straight streets. Second transformation was mostly reflecting American ideas in planning. These two types of planning have been created different forms in main roads which are mainly in North-South and West-East direction. The network which is formed by these roads is nowadays assumed as the main transporting network of the city.

MAIN SPATIAL FORMATION NUCLEI



First master plan of Tehran is designed by American firm Gruen Associates with collaboration of the Iranian master architect Abdul-Aziz Farmanfarmaian in 1966. They draw up the master plan expansion in West-East direction. Unlike the first master plan, Tehran has been grown mostly in North-South orientation. Major reason for this development is invisible magnets. These nuclei are two old towns which have been connected to Tehran since it was a walled city. Nowadays they are assumed as parts of the city.

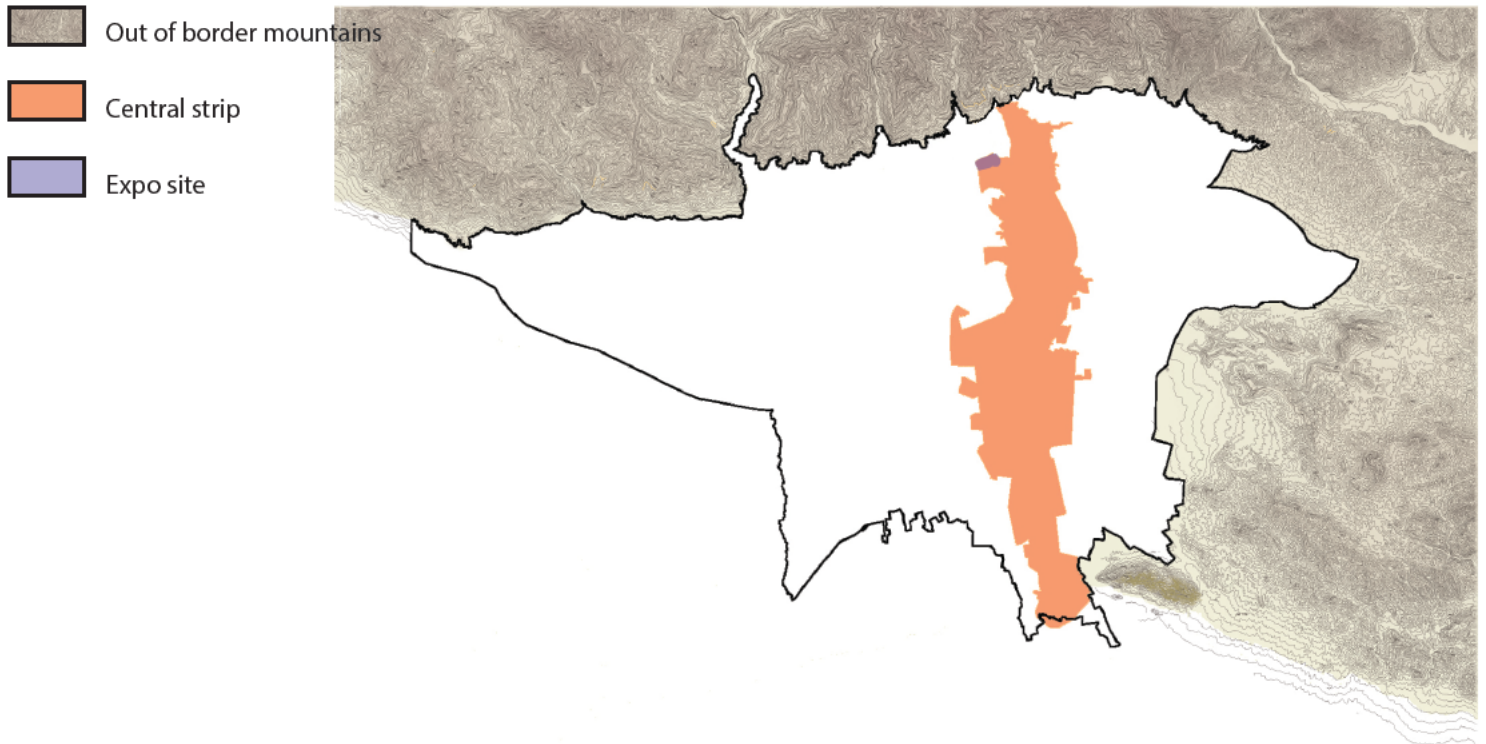
DESIGNING CONCEPT



In 2005 the latest master plan of Tehran was released by Boom Saazgan Consulting Urban Planners. The master plan contains central strip as major working zone of the city like a spine.

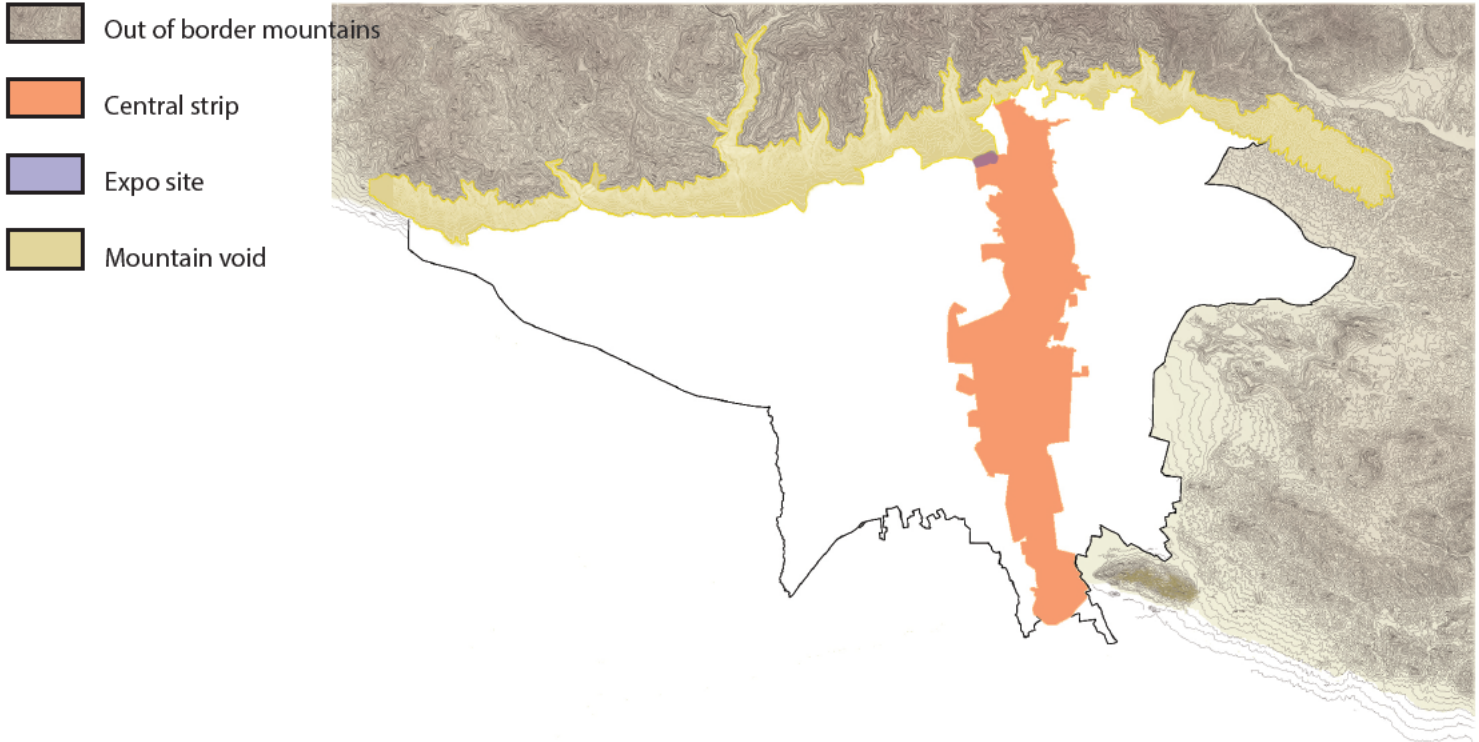
To rescue the city from mass sprawls and unplanned expansions the Planner decided to provide a green system. This system is a composition of some strips which are expanse in two directions, North-South and West-East.

CENTRAL STRIP OF TEHRAN



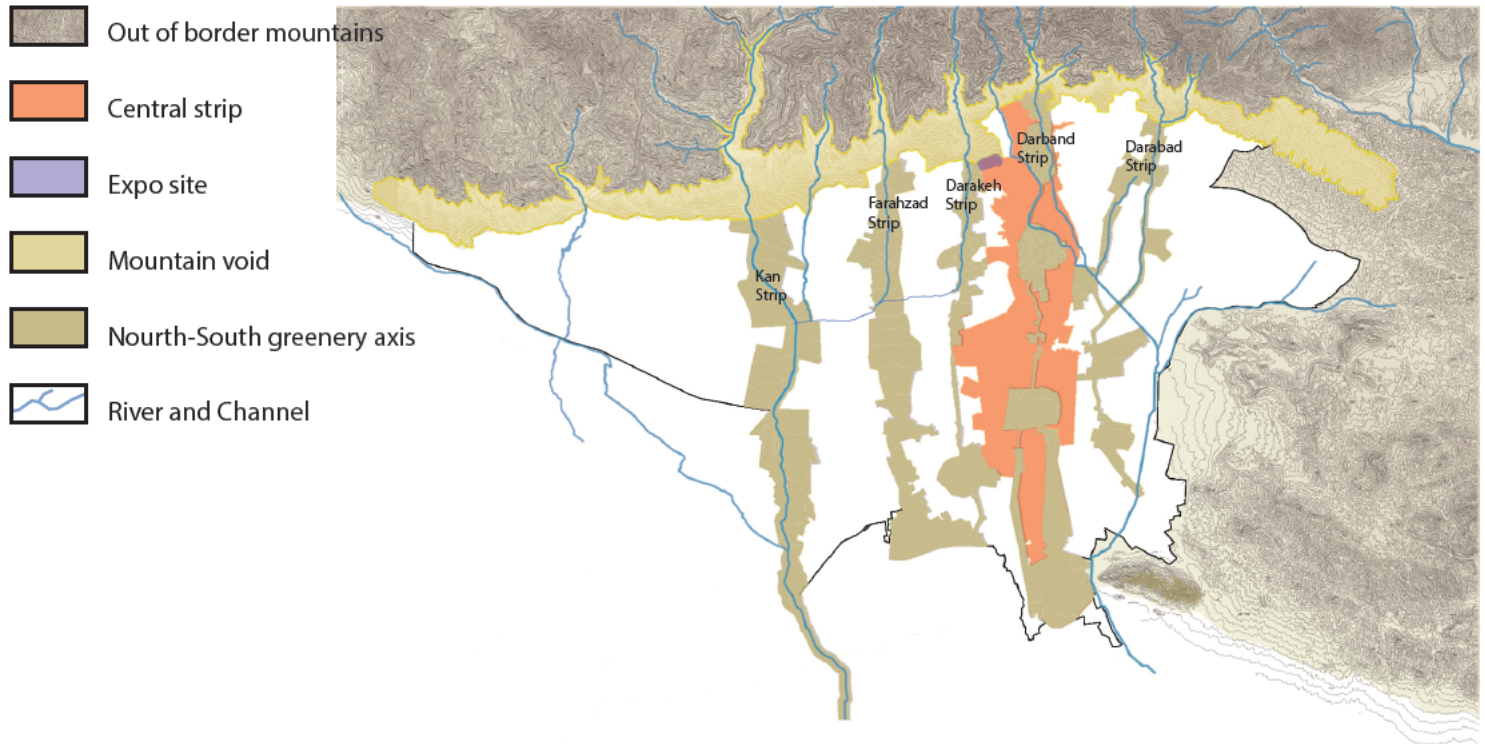
Designing strategy starts from the main working zone of the city. The strip also contains major cultural and historical hubs. For the planner this area is the backbone of the city that may transform the city and gives new identity with respect to the traditional Iranian architecture.

MOUNTAIN HEIGHT STRIP



One of the green strips that must be preserved from mass development in Tehran is the mountain void. This void locates in the northern part of the city and it is in the height of Alborz Chain Mountains. The mountain void will rigid the northern part of the city from the future expansion.

NORTH-SOUTH ORIENTED STRIPS



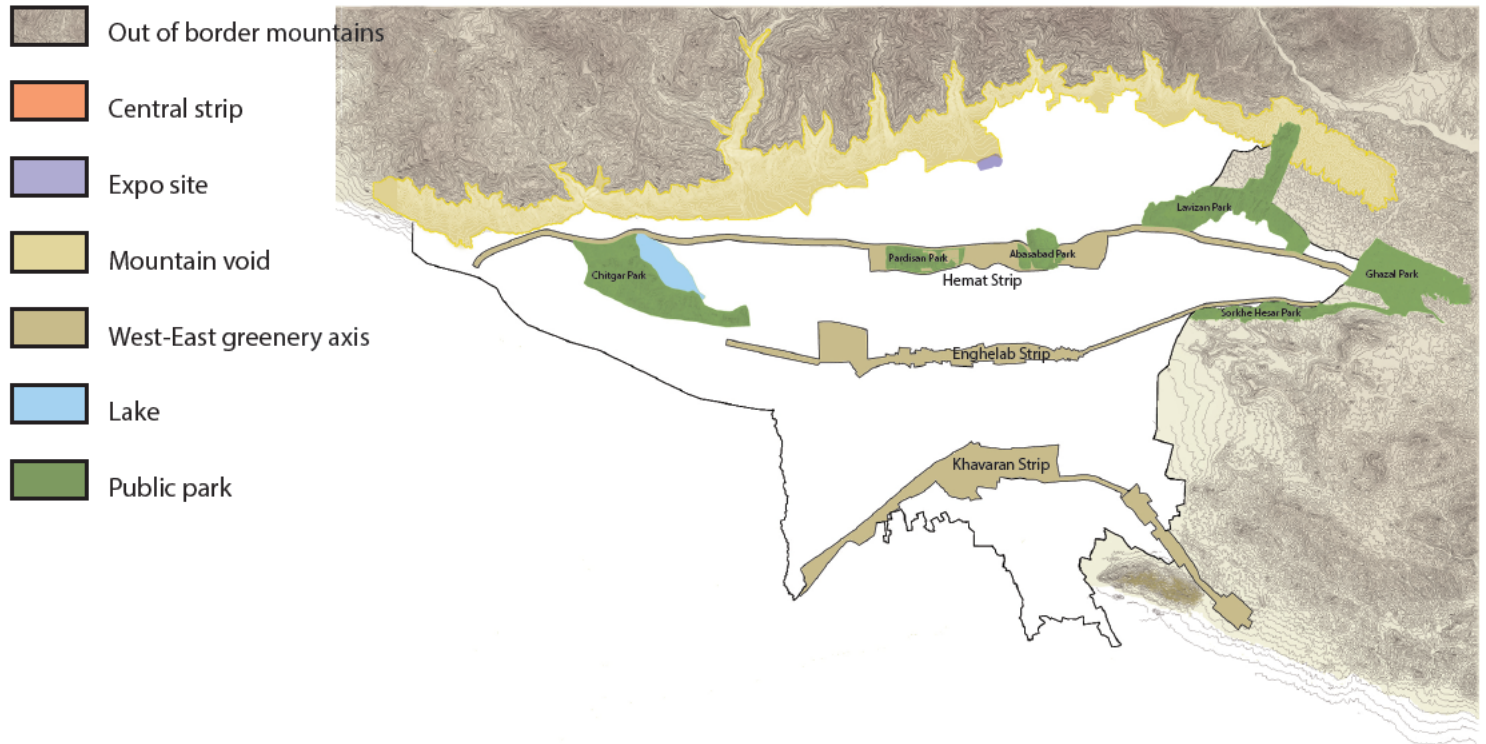
Water is a rare urban element in Iranian cities. Due to this reason it became sacred.

Regards to geographic location, city has the advantage of different rivers and canals. Nowadays water flow became lower compare to old days.

The planners wisely use the privilege of these rivers to reinforce the North-South direction strips.








5 green axis start from the mountain void and cross the city to reach the southern parts which have the lowest altitude in the city.

WEST-EAST ORIENTED STRIPS



Toward the orientation of Tehran expansion, three axes are provided to amplify open voids in the city. The upper one is connecting major parks in the heart of the city. Middle one is designed to transform one of the main roads in the first master plan to a green and open void. Last strip will connect some major infrastructures and hubs in the lowest part of city.

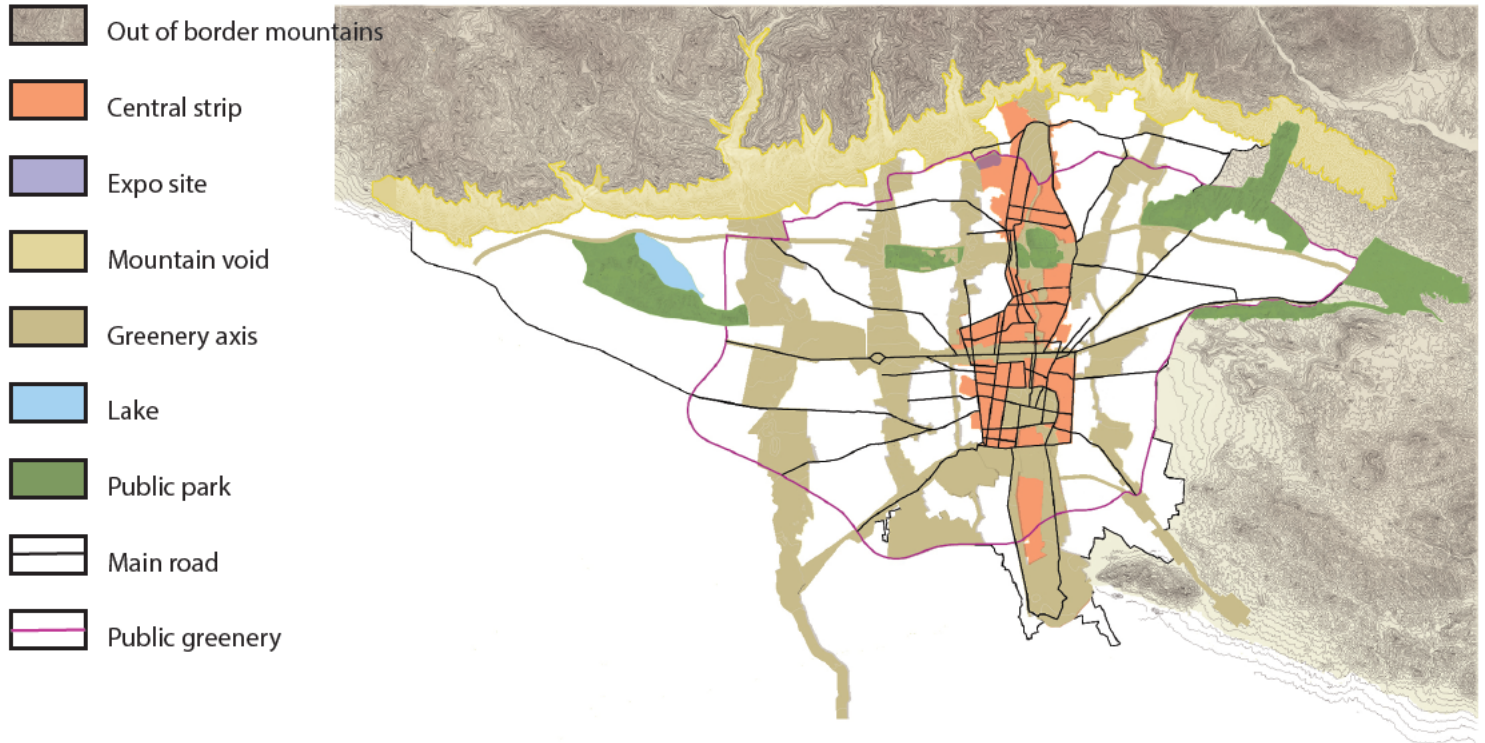
PROPOSAL GRID

-  Out of border mountains
-  Central strip
-  Expo site
-  Mountain void
-  Greenery axis
-  Lake
-  Public park



The grid which is created by the connections of voids provides a green network. This network is cover most existing open spaces and parks of the city. Open spaces that are created, obviate necessity of voids for the fabric.

PROPOSAL GRID AND MAIN ROADS

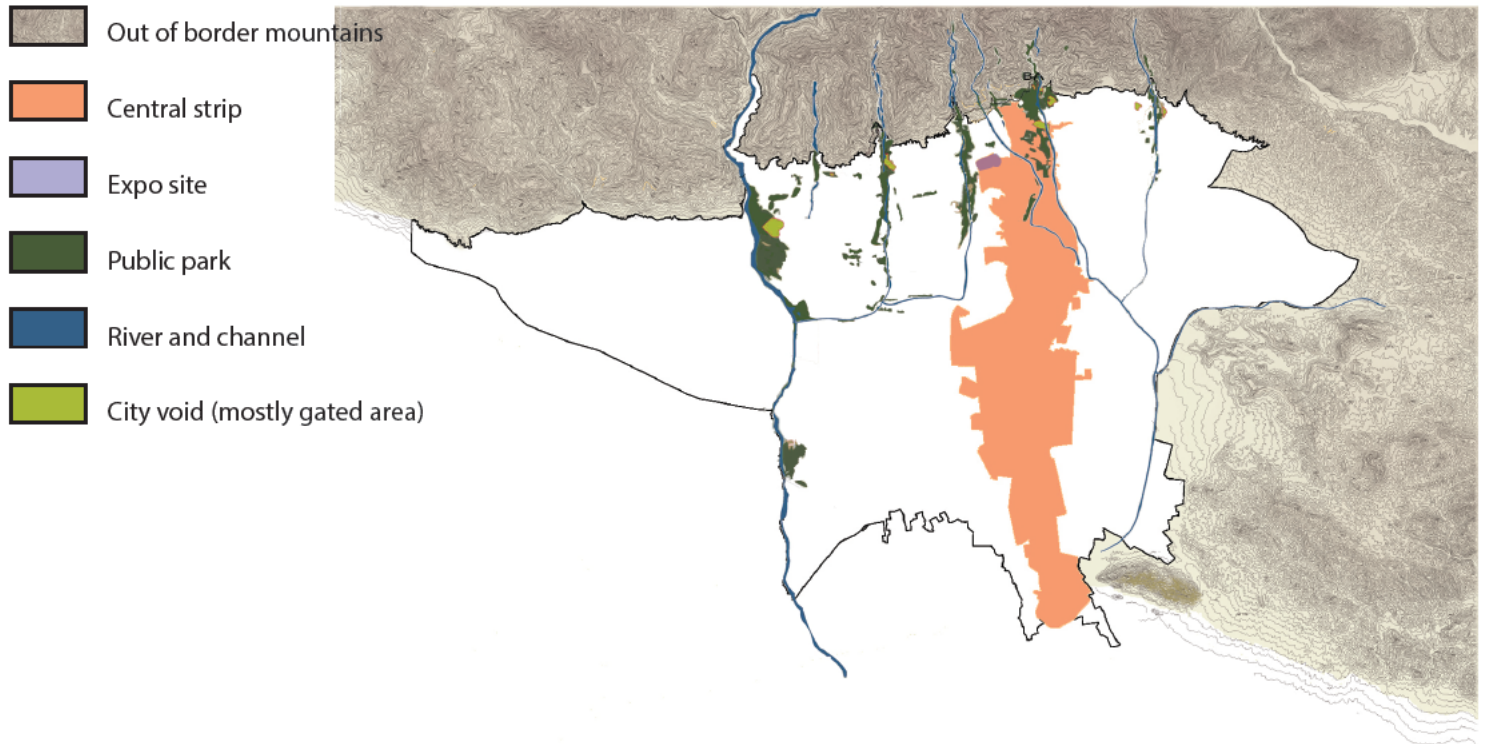


Main roads are mostly located in central strip and surrounded by greenery axes. Moreover other main roads have overlaps and intersections with the network.

This attitude not only makes the major roads convenient and safe for the citizens but also forms a rigid border around fabric to prevent it from future development.

STATUS OF EXISTING GREENERY

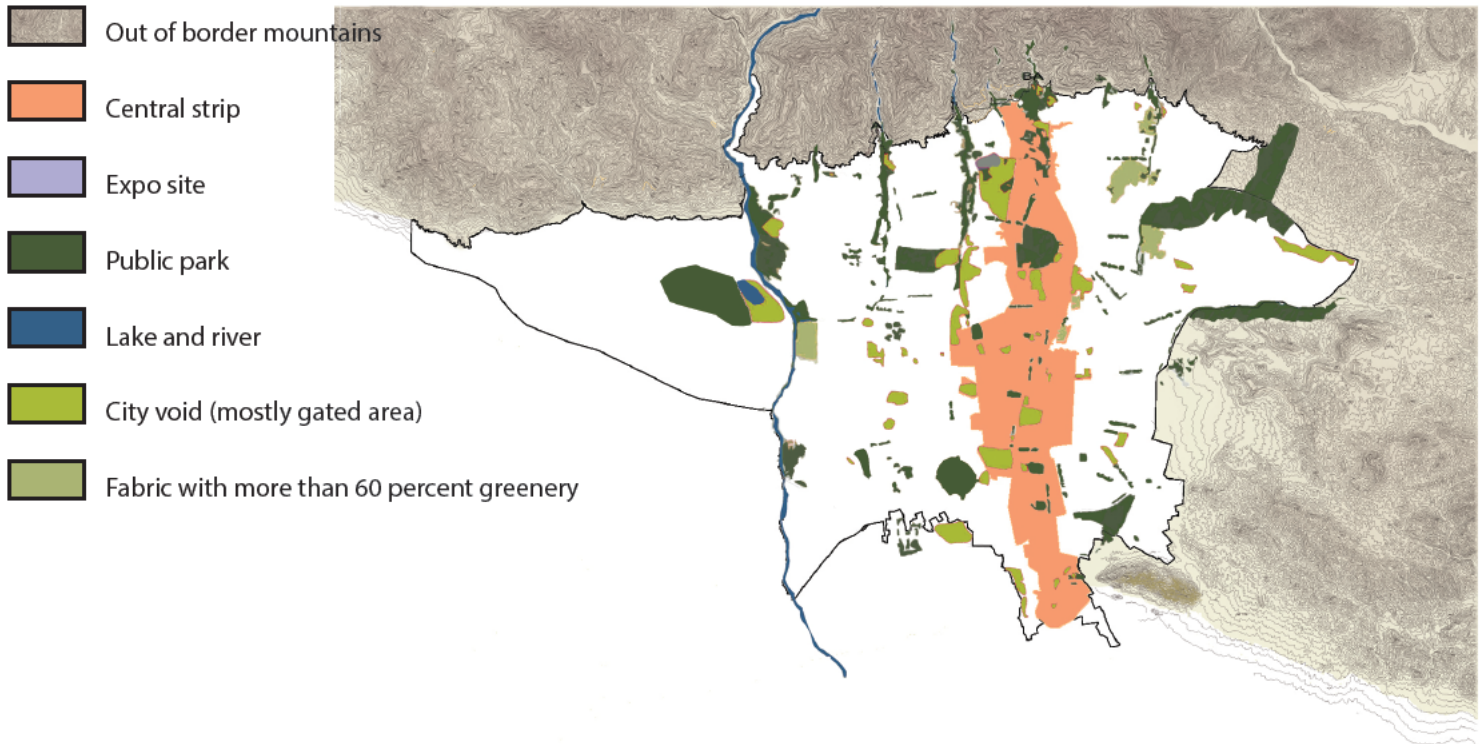
EXISTING LINEAR GREENERIES RELATED TO RIVERS AND CANALS



In the upper part of the city rivers and canals reinforced the greeneries and have been created linear parks and voids.

By using the privilege of these water elements this part of the city will transform to the leisure and green zone which can purify the air from pollution.

EXISTING PARKS VOIDS AND OPEN SPACES



With the efforts of Tehran municipality the existing open spaces of city are moving toward the latest master plan. These attempts lead to preservation of main voids. Although most of them are gated, but their functions are related to the public activities.

IDEA OF PRESERVING THE VOID
CONNECTION BETWEEN AXES

CONNECTION IN THE CITY SCALE DUE TO THE MASTER PLAN



Expo site surrounds by two North-South strips and mountain void.
Right now the site can be considered as a city void.

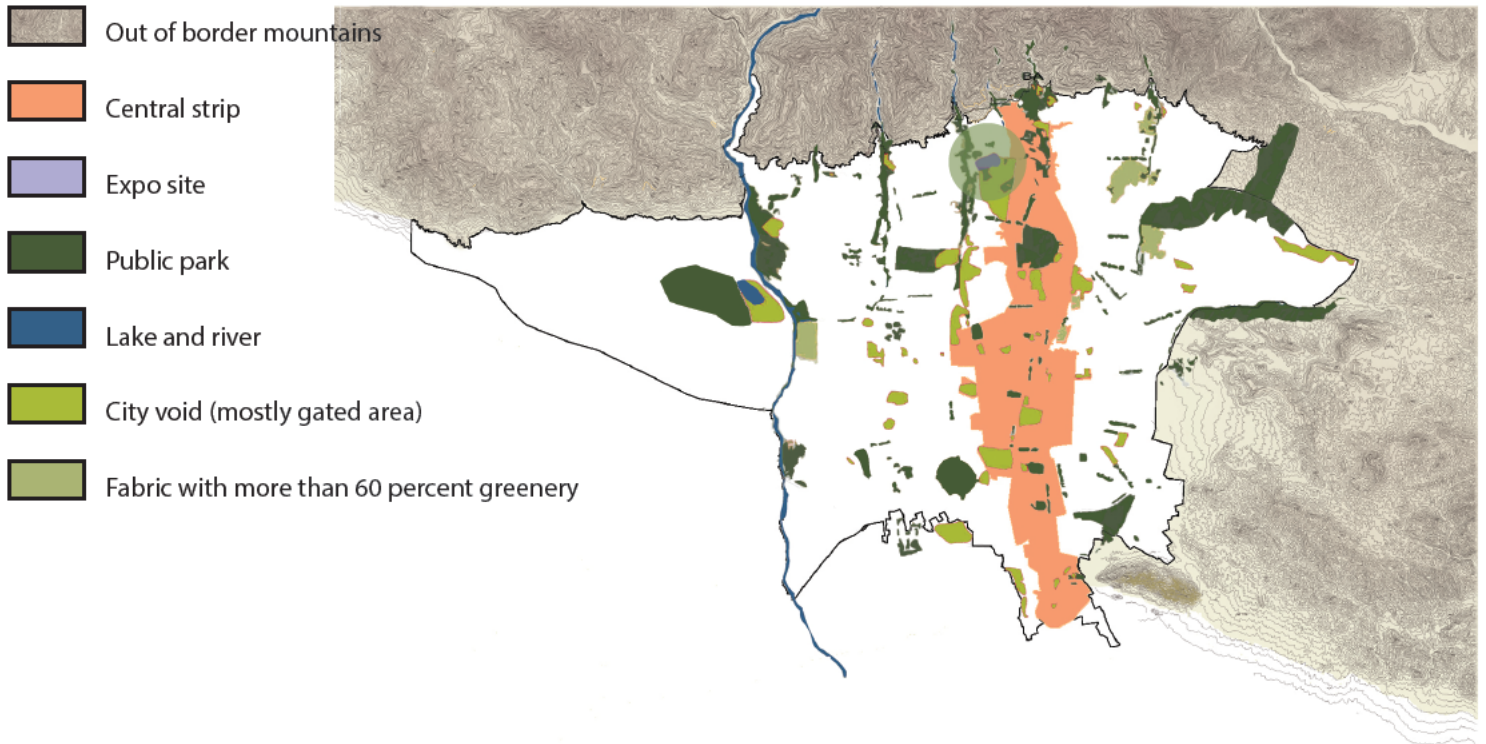
Imagine the Post Expo site fully occupied by fabric; this trend may leads to discontinuity of the existing voids. On the other hand idea of preserving the site as an existing void may provide the connection between the strips. Since the areas in the southern part and eastern part of the site are mostly open, this connection can reinforce and create green heart in the upper of the city.

CONNECTION IN THE LOCAL SCALE DUE TO THE MASTER PLAN



Having open space neighborhoods is an advantage for the Expo site. The area which is created by adding them to Expo site can be considerate as a new green spot in the city.

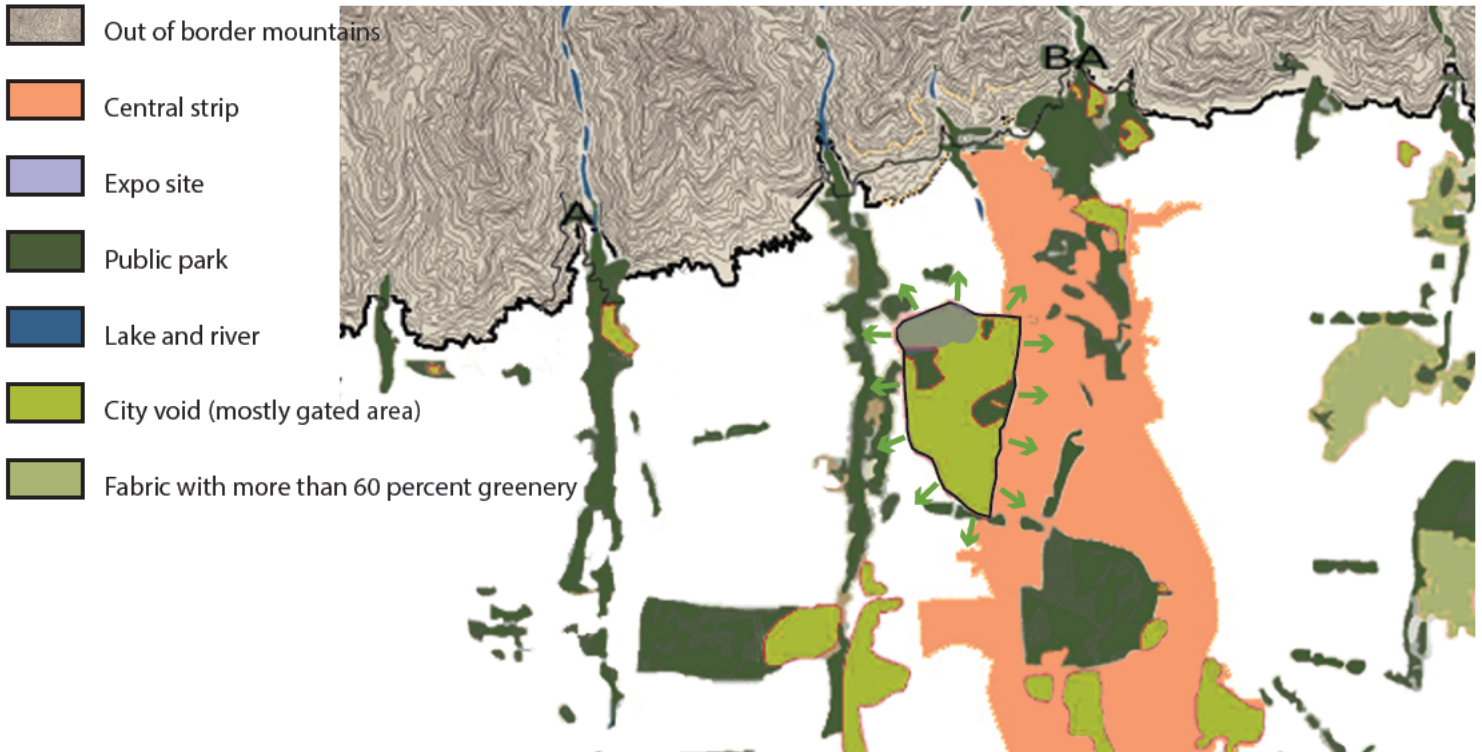
CONNECTION IN THE CITY SCALE DUE TO THE EXISTING GREENERIES



In the upper part of the city the condition of open spaces are much closer to the vision of the master plan compare to rest of the city.

Regards to these greeneries, the importance of the site as a connective element is highly clear.

CONNECTION IN THE LOCAL SCALE DUE TO THE EXISTING GREENERIES

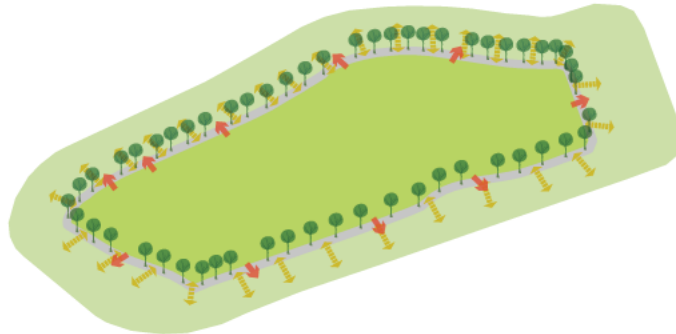


Obviously the connective area is the missed part of Tehran's greenery network puzzle.

So the idea of preserving the void attempts to connect surrounding areas as much as possible and designing process is focus to create the space as open as possible to reach the aim.

SECOND PHASE: THE IDEA OF CONTINUITY

- Analyses of Tehran old town in two periods
- neighborhoods analyses
- Idea of continuity, reclaiming the site and neighborhoods



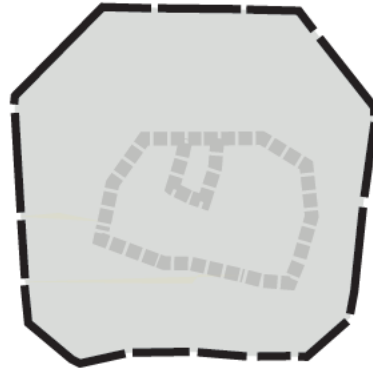
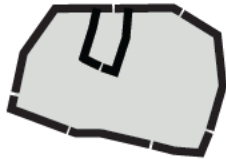
ANALYSES OF TEHRAN OLD TOWN IN TWO PERIODS



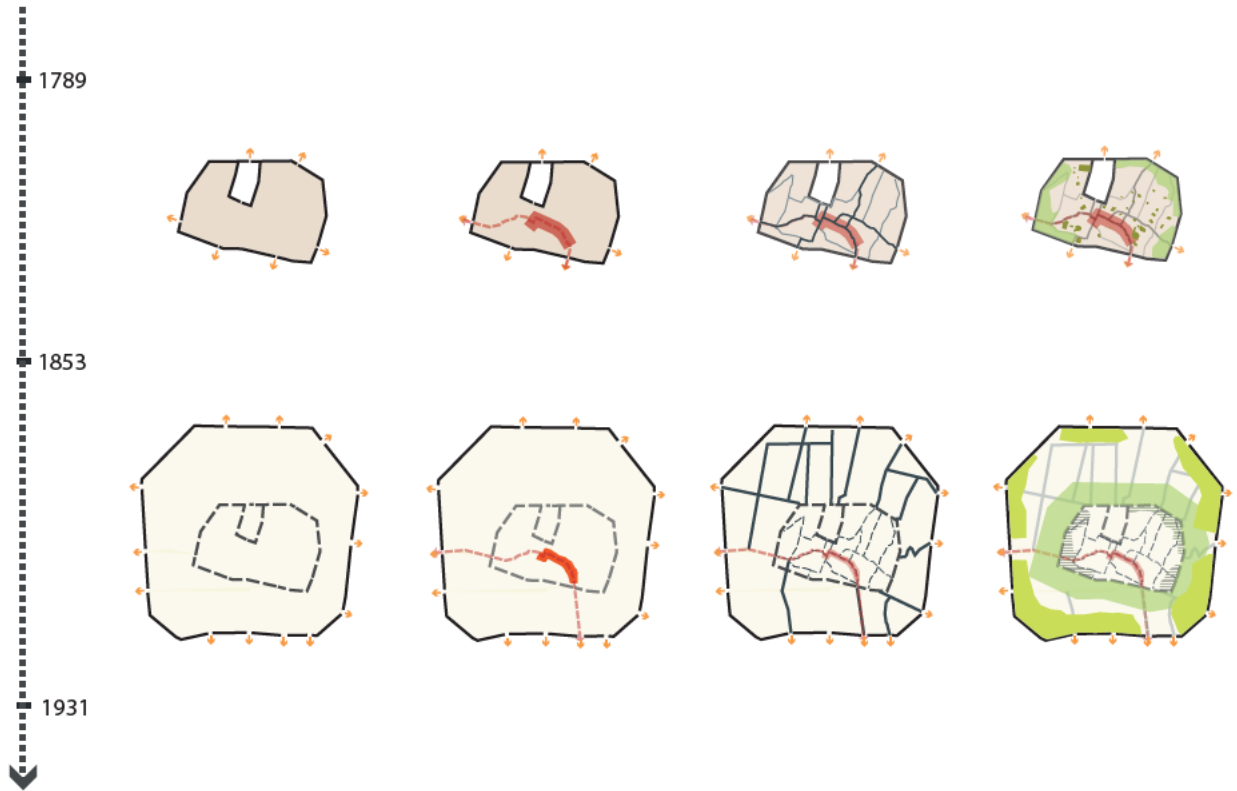
TEHRAN



WALLED CITY



TEHRAN PRIMITIVE URBAN GROWTH



TEHRAN IN 1852

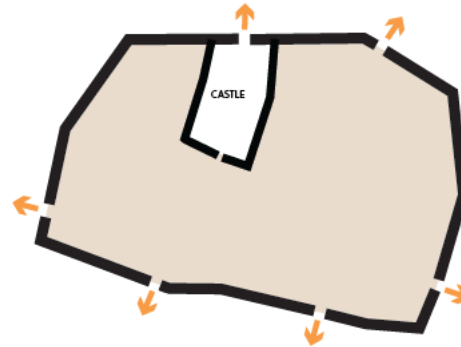
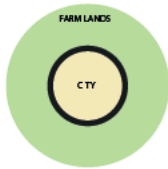


FORMATION OF THE FABRIC

 Fabric

 Wall

 Gate



Surrounding walls of the old town had 6 gates. These gates had been provided the access to the farm lands and important cities around the town.

The old castle (Arg) was located in the northern part of the town and it had its own gate. The fabric had been formed inside the walled city.

FORMATION OF THE BAZAAR

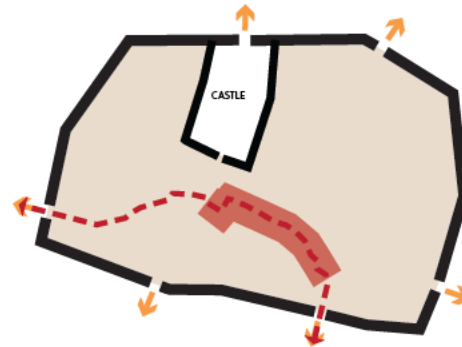
 Fabric

 Wall

 Gate

 Silk road








 Bazaar

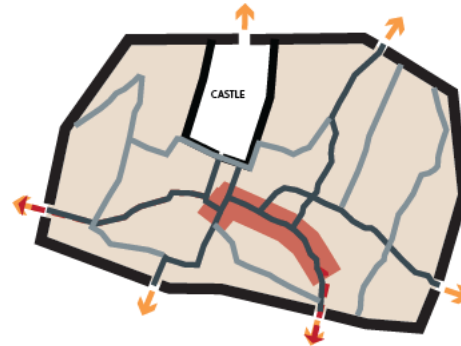


In the formation of Iranian cities bazaar played as an important role. It can be called as the most important city element.

In old town bazaar formed through the SILK ROAD which was the main commercial path of that period.

MAIN AND SECONDARY ROADS

-  Fabric
-  Wall
-  Gate
-  Silk road
-  Bazaar
-  Main road
-  Secondary road



Main roads were mostly created through bazaar, castle and the neighborhood cities, In general through the gates.

Secondary roads and the city fabric were formed together in organic and irregular forms.

GREEN AREAS AND TYPOLOGY OF OPEN SPACES

-  Fabric
-  Wall
-  Gate
-  Silk road
-  Bazaar
-  Main road
-  Secondary road
-  Inner greenery
-  Outer greenery
-  Public spaces



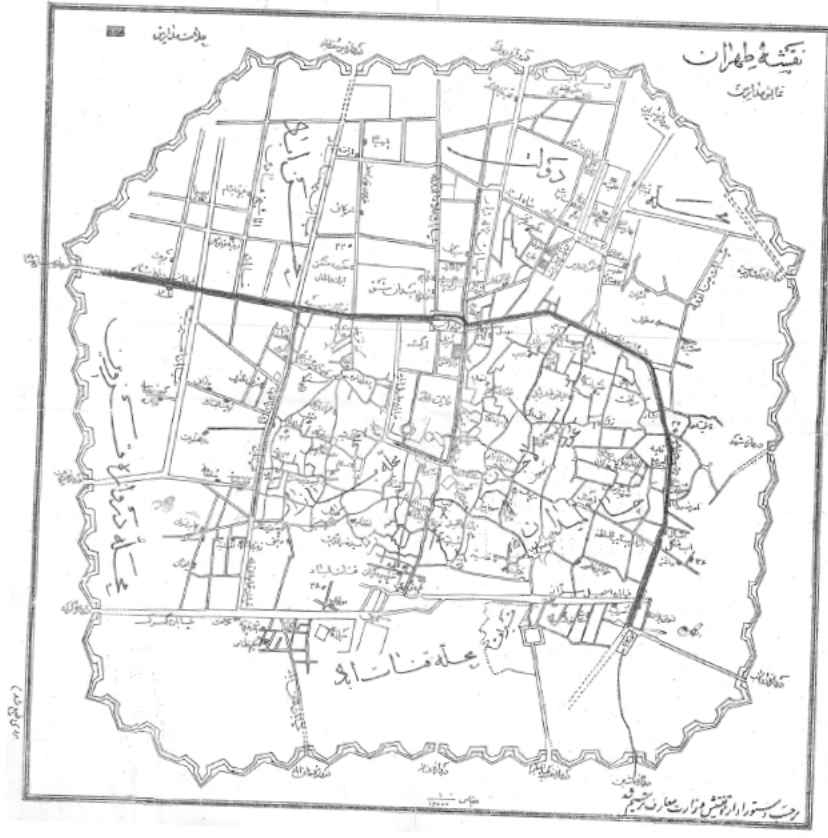
Three different types of greeneries were existing in the old town.

Public spaces separated among the fabric. They were mostly open spaces like squares and small parks.

Inner greeneries were protected against enemies inside the walls. In general these farms used to supply the city necessities.

Outer greeneries used to be as farms and gardens.

TEHRAN IN 1858



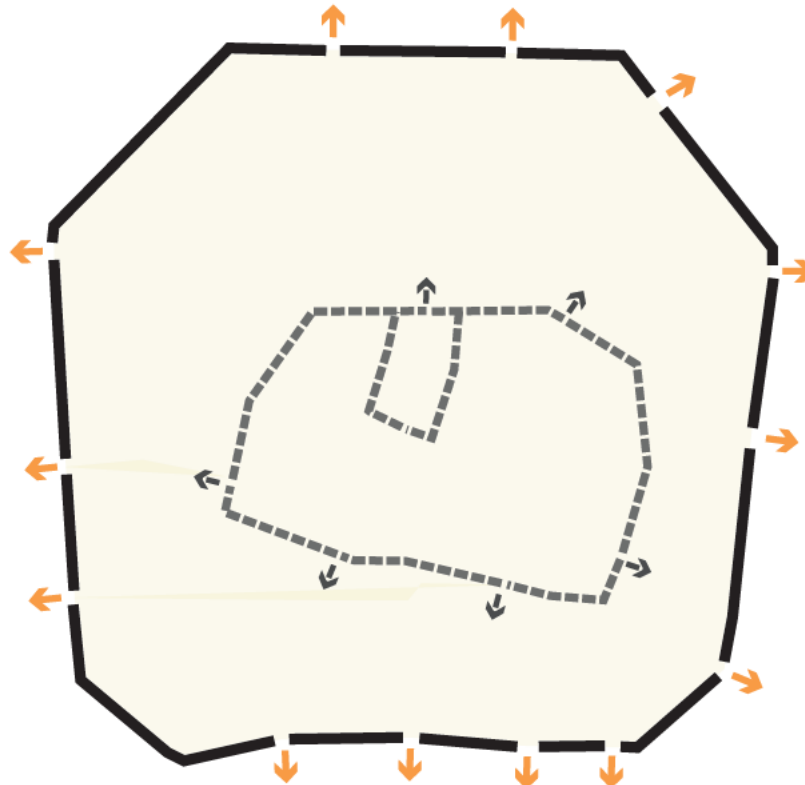
THE CITY EXPANSION

 Fabric

 Wall

 New gate

 Old gate



By passing time the old town needed to expand for new settlements. This expansion caused the demolition of old walls and creation of new ones and gates increased to thirteen.

FORMATION OF NEW ROADS

 Fabric

 Wall

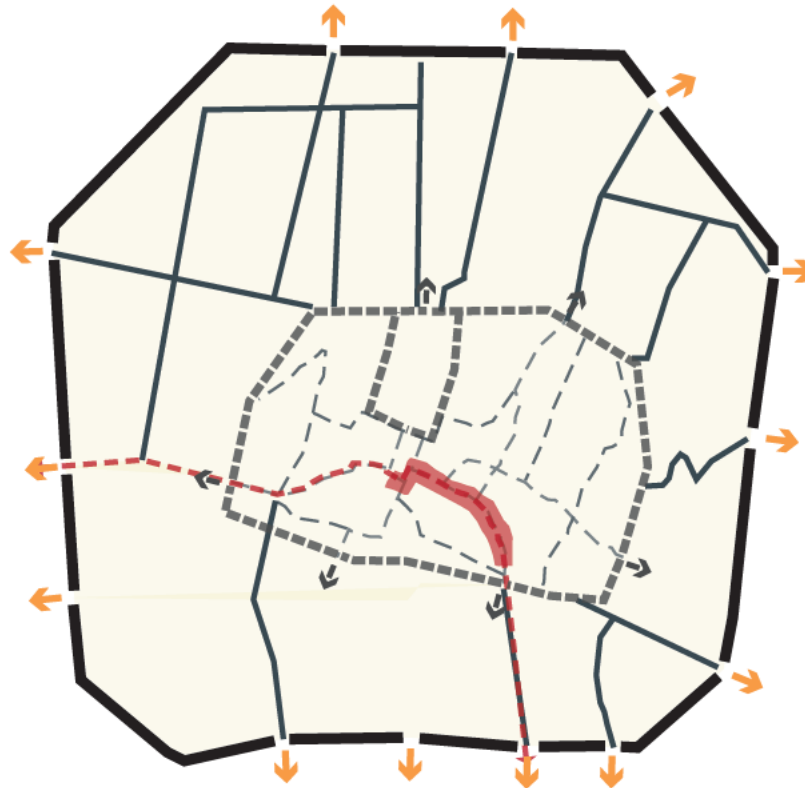
 New gate

 Old gate

 Bazaar










 New main road

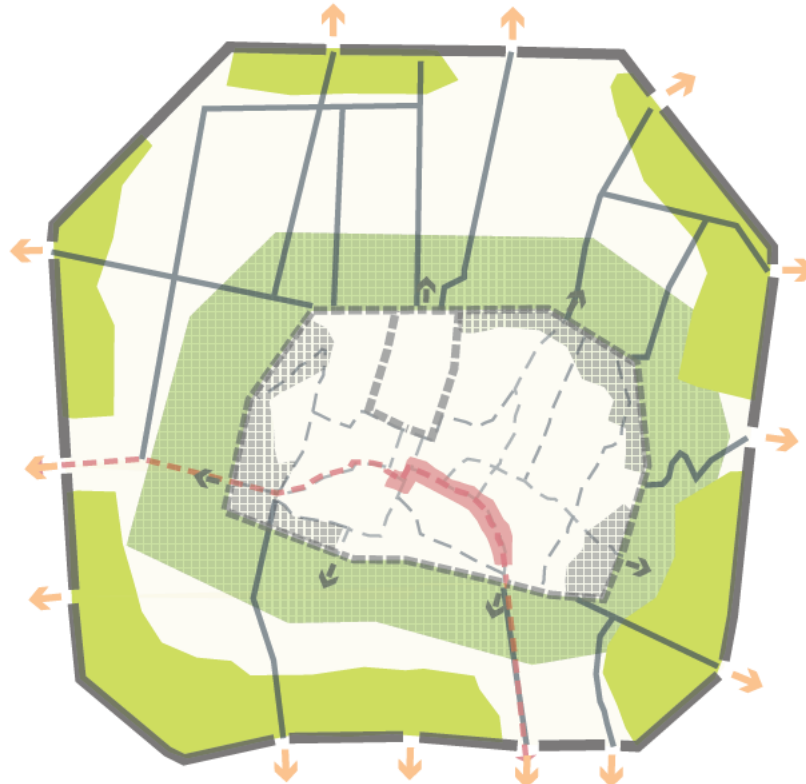
 Primitive road



New roads had been built inside the new border and their continuity were in primitive roads lines. Some part of the old walls path transformed to new roads.

VOIDS AND GREEN AREAS

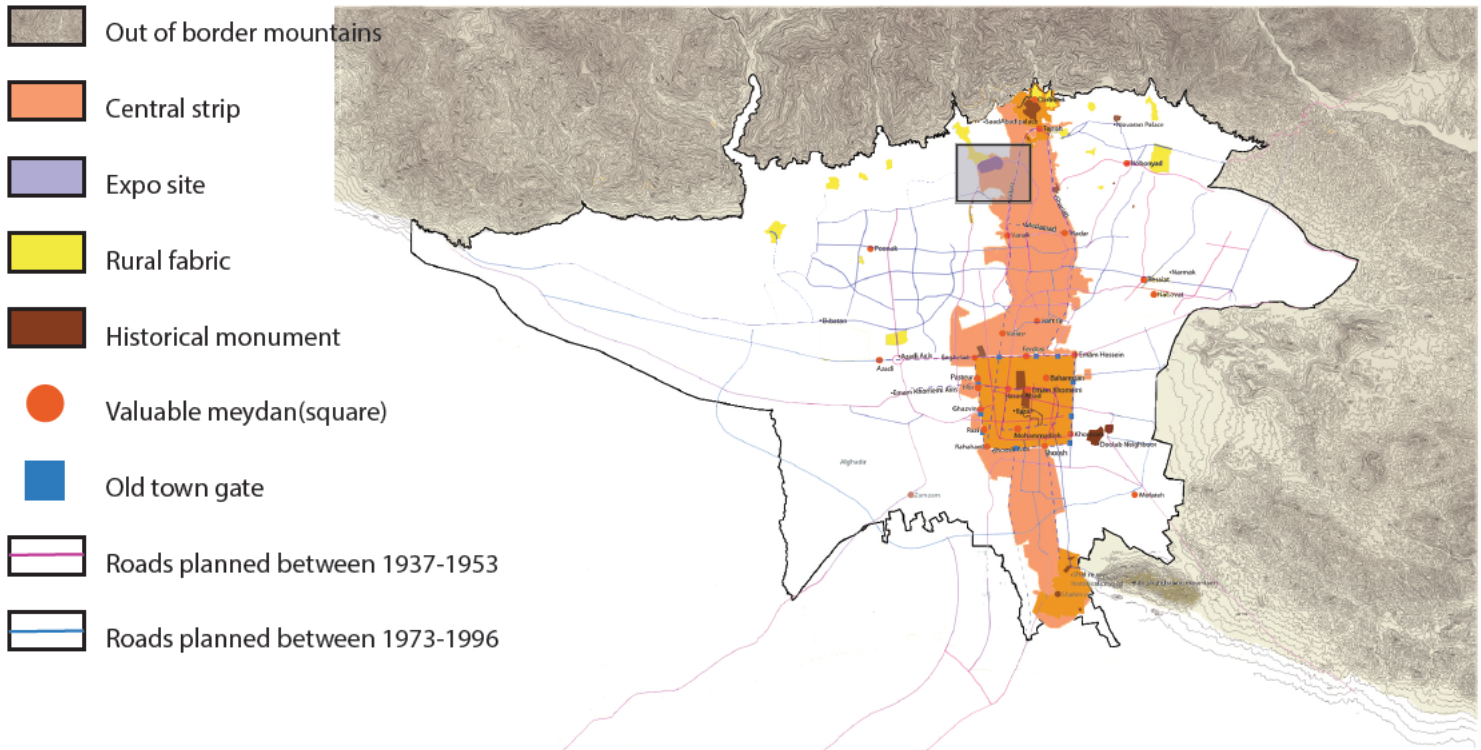
-  Fabric
-  Wall
-  New gate
-  Old gate
-  Bazaar
-  New main road
-  Primitive road
-  Old inner greenery
-  Old outer greenery
-  New inner greenery



After the expansion the old town inner and outer green spaces had been replaced by the new fabric and new inner greeneries had provided for supplying the city needs.




NEIGHBORHOODS' ANALYSES

FORMATION OF DISTRICTS IN THE CENTRAL PART OF TEHRAN



Modern Tehran has two main transformation periods, and in each term main roads had been added to the city. Since the demolition of old town walls the formation of fabric has been affected by the main roads. During the time the composition of main roads, land topography, rivers and some major infrastructures has created different quarters.

FORMATION OF THE SURROUNDING NEIGHBORHOODS

-  Fabric
-  Border
-  Gate



Similar to old town, the pattern which formed new city is, different quarters that have divided by various elements such as: highway, topography, river and canal.

These districts connect to the city or to other ones by GATES which are main roads.

Tehran Expo site also has the same character of its surroundings. It is enclosed by two highways which made it isolated from its neighborhoods.

SURROUNDING FUNCTIONS

Form



Linear



Grid



Irregular



Grid and
irregular
combination

Realization



Unbuilt



Partially
built



Completely
built

Height



Low-rise



High-rise

Function



Hospital



Sport



Park



Residential



Cinema and
amphitheatre



Office



University



Military



Hotel



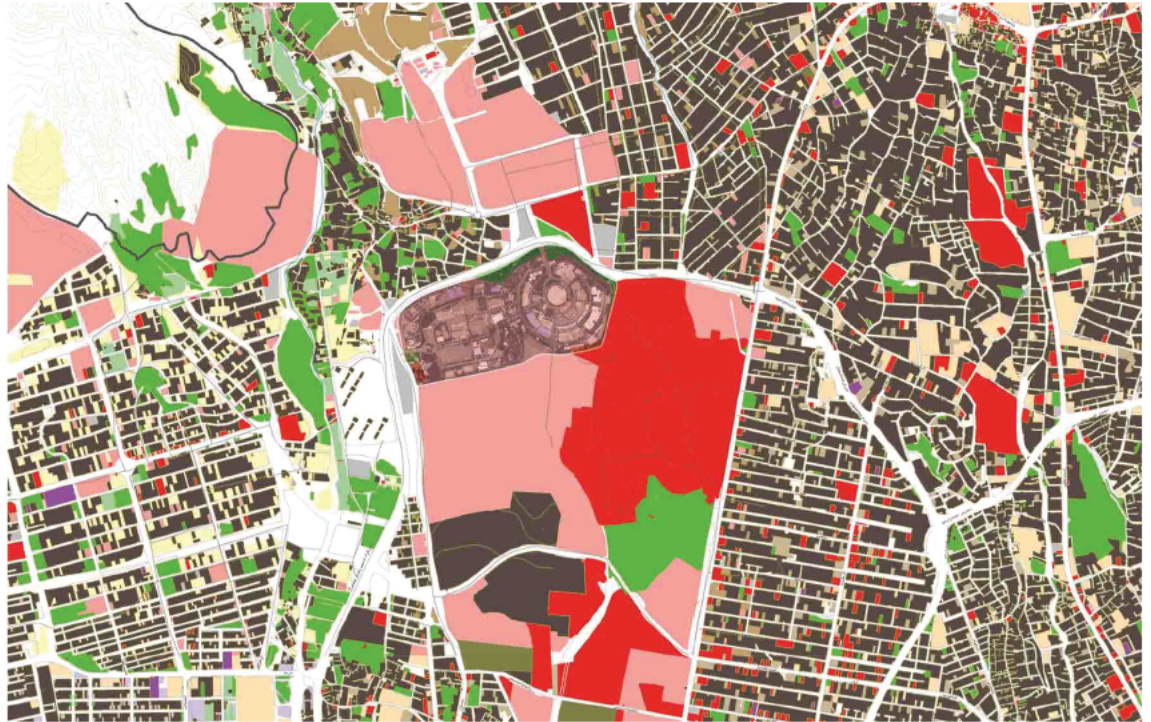
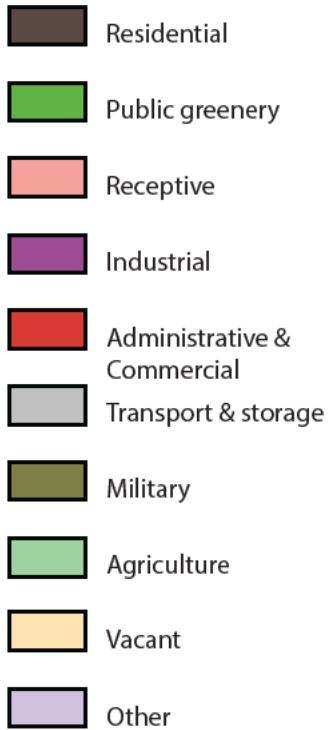
Leisure



ANALYSES ABOUT MAIN INFRASTRUCTURES

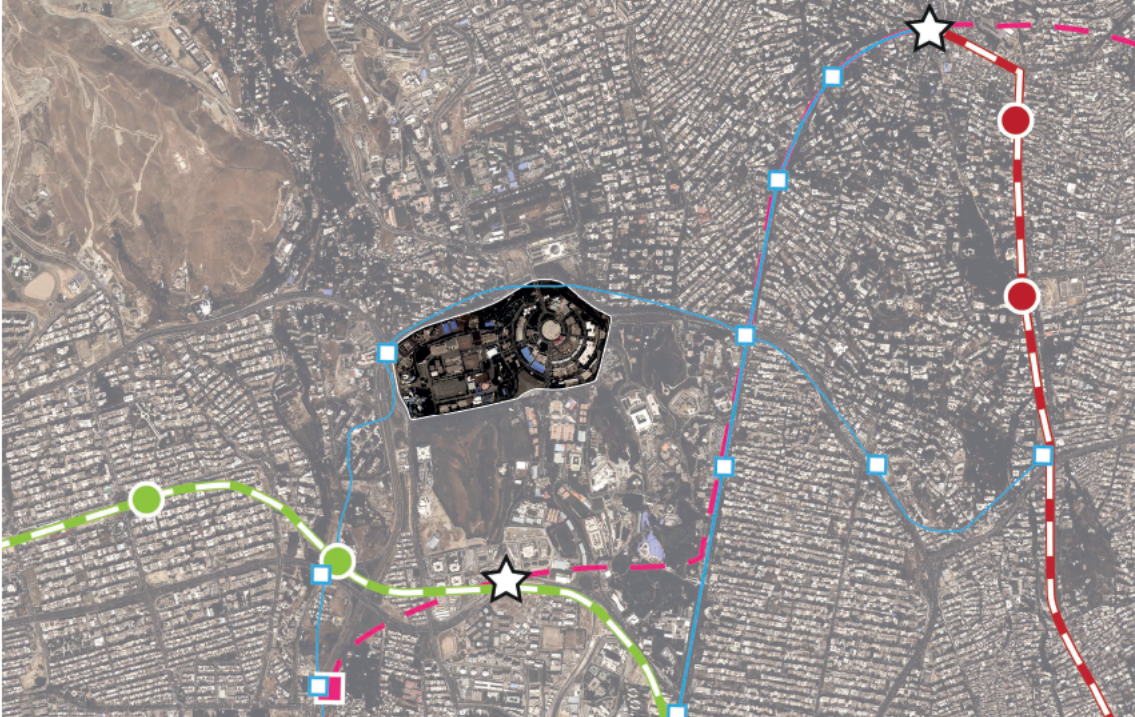
RIVERS, LAND USE, TYPOLOGY AND MORPHOLOGY OF SURROUNDINGS

LAND USE











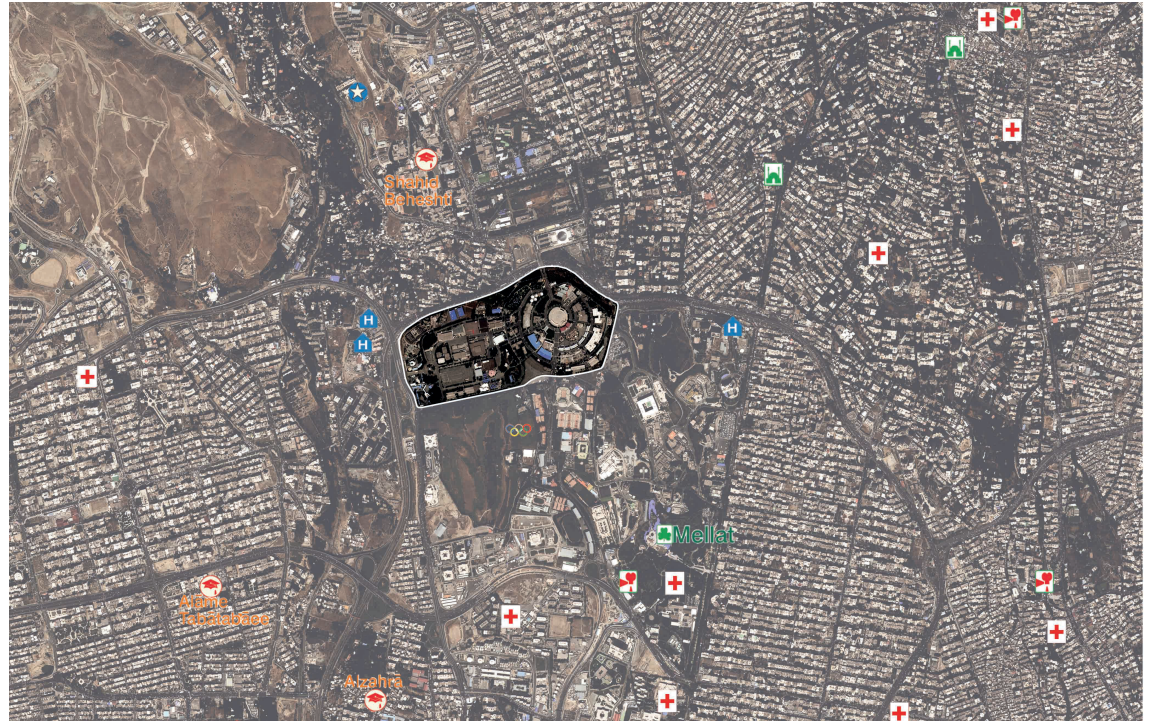
RAIL PUBLIC TRANSPORT

- Bus rapid Transit
Line 1
- Urban express railways
Line 4
- Urban metro lines
Line 9
- Urban metro lines
Line 1



RECEPTIVE BUILDINGS

-  Park
-  Hospital
-  University
-  Hotel
-  Police station
-  Mosque
-  Cinema
-  Sport complex



RIVERS AND CANALS

— River and canal

