

# Identification and Design of Abandoned Urban Land

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## Abstract

In the past few decades, rapid urbanization and uncontrolled growth have led to the creation of inhabitable cities that lack high-quality public spaces for their citizens. One of the major problems facing modern cities is the development of meaningless and unusable urban lands, often due to haste or unintended consequences. With fundamental changes occurring in the global landscape, many architects and thinkers are being forced to re-examine urban spaces in metropolitan areas and adopt new approaches to improve public spaces in cities. One such approach is the redevelopment of abandoned urban lands, which is hindered by the lack of basic principles and strategies for utilizing these lands in urban planning and architectural design. The over-development of cities is also a significant contributing factor to environmental and climate change-related issues, emphasizing the need for positive changes in abandoned urban lands. This project utilizes documentary content analysis and library tools to analyze lands in different areas based on their shapes, dimensions, and frequency, and determine the appropriate architectural strategies to improve urban spaces. The objective of this work is to identify and classify abandoned urban lands in a case study area of District 2 in Tehran, Iran, and provide different strategies based on their dimensions and frequency in the region.

**Keywords:** Public Spaces; Abandoned Spaces; Environment; Urban Spaces

## 1. Introduction

Following World War I and II, cities in Europe were left in ruins and destroyed buildings created a torn urban space that needed to be rebuilt. Reconstruction and modernization were top priorities for society, leading to a focus on speed and cost-efficiency in construction. However, this high construction volume resulted in buildings being constructed without consideration for their surroundings, creating dead lands between buildings that were viewed as abandoned and useless due to residents' lack of connection to them. Similarly, developing countries like Iran have experienced rapid urban growth since the 1960s, with over 68% of the population now living in metropolitans. Uncontrolled urban population growth, coupled with inadequate urban planning, has resulted in disconnected and forgotten lands in urban areas known as abandoned urban lands. These abandoned lands can be found anywhere in urban space. Moreover, in Tehran, the high-speed development of newly established neighborhoods has impacted the factors of identity and legibility, which are critical for security. These factors have been affected due to the rapid development, which concerns the city's residents. (Pakzad, 2005)

## 2. Research Background

Abandoned lands can be found in any part of urban spaces. They can be located next to skyscrapers or around shopping malls. These lands are not usable, disrupting the connection

residential areas. They have been isolated from the flow of walking activity and remain stagnant. In other words, it can be said that these spaces are left over from the developed urban spaces, remnants have been unused. (Niazkar & Memarian, 2014) Roger Trancik, the American urban theorist uses different phrases to describe abandoned space such as the following: (Rauber & Krafta, 2018)

- The space that is needed to be redesigned.
- The space makes no positive contribution to its surroundings or users.
- Unused space that is isolated from the flow of walking activities.
- The space is incapable of connecting with urban elements.

### 2.1 Effect of abandoned lands on the urban space

Urban spaces are the most important urban resources due to its economic, social, physical, and environmental impacts. Therefore, the unused spaces that have been formed during the development of the city will create urban problems. These effects include the following: (Tayefi Nasrabadi & Moghadam, 2017)

- The gathering of abnormal social groups such as addicts and criminals and reduced security in these spaces.
- Accumulation of construction debris and as a result of it, environmental pollution.
- The possibility of the collapse of buildings near these spaces.

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## 2.2 The function of abandoned spaces

Abandoned spaces lack any emotional attachment or sense of belonging. They are often used for parking, municipal or industrial workshops, taxi stations, and sometimes empty plots have not been redeveloped. The presence of such spaces in urban areas creates problems such as reduced social security at night, traffic congestion, underutilization of urban potential, and increased crime rates during late hours. These spaces are considered unacceptable and require redesign. (Ghezel Iyagh, 2016) Urban theorists Kevin Lynch and Jane Jacobs have commented on the modernization of cities. Lynch believes involving people in urban construction and renovation is crucial to achieving the best form of urban development. Public participation in urban renewal generates a positive impact on urban spaces, which affects the quality of urban life. Thus, it can be said that by participating in physical spaces, we can help improve the urban environment and promote social security in those spaces. Hiller (1996) emphasizes that increasing movement in urban spaces can help improve security. Areas with less movement are more prone to crime. (Navarro Laetitia & Pereira Henrique, 2012)

## 3. Theoretical Framework

Currently, over development of cities have one of the most damaging effects on the environment and climate change-related issues. Therefore, to create positive effects on the environment, changes can be made in abandoned urban lands. Creating a new chance to improve urban space, more valuable life, and positive environmental, economic and social impacts. (Vahid & Asgari & Latifi, 2020)

- Economic advantages: redevelopment of these lands increases the movement of people in these spaces and as a result has positive impacts on the economy of the suburbs of these lands.
- Environmental benefits: utilization of such abandoned lands in cities helps and protects green lands which are often sacrificed for development or urbanization projects.
- Social benefits: improves public interactions such as walking, enjoying nature, meeting friends and family to have fun, and relaxing in the city promoting healthy habits such as running, cycling thereby improving the quality of social life.

Understanding the quality of our urban environments is essential in They are Creating a better social life. The satisfaction or dissatisfaction of citizens within the urban environment defines the quality of the environment. To improve the quality of living environments, the purposeful redesign of abandoned urban lands is necessary. This requires considering social, economic, and other urban aspects, not just reconstructing the space in a one-dimensional way. (Torabi & Asadi, 2016)

Christopher Alexander, a theorist on urban planning, compared the structure of organic cities with planned cities in his book "City is Not a Tree". He concluded that organic cities are more stable than planned cities regarding the relationship between urban elements and the

environment. Therefore, while we need urban planning, we also need an organic approach to find a good balance. In his book "A Pattern Language", Alexander emphasizes using patterns in urban design and planning. He believes that connecting these patterns brings cities to life. Urban patterns refer to patterns on an urban scale, buildings, and even interior scales. (Alexander, 1966)

## 4. Research Methodology

The research methodology of the case study conducted on the site located in district 2 of Tehran, Iran involves a combination of qualitative and quantitative research methods. The case study approach is used to provide an in-depth analysis of the site, which is located in one of the 22 municipality districts of Tehran, namely District 2. District 2 is situated Northeast of Azadi Square and is known for its diverse urban fabric, which includes residential, commercial, and institutional developments.

The research process includes several steps, such as identifying the research problem, formulating research questions, collecting data, analyzing the data, and presenting the findings. In this case study, the research problem is to investigate the current state of development of the site in District 2 of Tehran and to identify the opportunities and challenges for its future development.

Data collection for the case study involves various qualitative and quantitative methods, including site visits, surveys, interviews, and document analysis. Site visits are conducted to observe and document the physical characteristics of the site, including its topography, vegetation, and built environment. Surveys and interviews are used to collect data on the site's current use, as well as the perceptions and opinions of the site's stakeholders, including residents, business owners, and government officials. Document analysis is used to review relevant documents, such as zoning regulations and planning reports, that provide insight into the site's historical and cultural significance, as well as its future development potential.

Data analysis for the case study involves a combination of qualitative and quantitative methods. Qualitative data is analyzed through the identification of themes and patterns in the data, while quantitative data is analyzed through statistical methods. The findings of the analysis are presented in a report, which includes a description of the site's physical characteristics, historical and cultural significance, current land use and development patterns, as well as an assessment of the opportunities and challenges for its future development.

In conclusion, the case study methodology provides a comprehensive and detailed approach to researching the site located in district 2 of Tehran, Iran. The methodology combines qualitative and quantitative research methods to provide an in-depth analysis of the site, which can inform future planning and development decisions.

### 4.1 Case study: an area of district 2 of tehran, iran

The site of the case study is located in district 2 of Tehran, Iran. District 2 of Tehran is one of 22 municipality districts of Tehran, which is located Northeast of Azadi Sq.



Fig.1. Location of the site

District 2 comprises of 9 zones, with zone 7 being the location of this project. The area is bordered by Modiriat Bridge and Shahid Dadman Boulevard to the north, Chamran Highway to the east, Farahzad River to the west, and Shahid Hemmat Highway to the south. The total area of zone 7 is 73813 hectares.

The majority of land use in this area follows the detailed residential plan. However, some parts of the area have commercial and educational lands, which are further divided into commercial and cultural categories. The educational lands include higher education and cultural facilities.



Fig. 2. Urban usage layer of the site

The main roads in this area are categorized into three types: primary roads, which consist of Yadegar Imam, Hemmat, and Chamran Highways; secondary roads,

which comprise major streets such as Ivanak Boulevard, Pakenjad Street, Iran TV, the Farahzadi, and others; and tertiary roads, which encompass the alleys of this area.

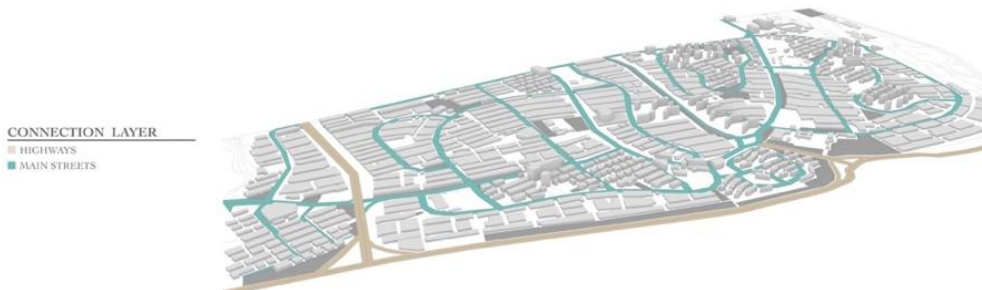


Fig. 3. Connection layer of the site The buildings in this area are divided into three groups based on their orientation.



Fig.4. Building orientation of the site

The architecture of this area can be classified into two main categories: large, interconnected buildings and small buildings. Small buildings in the area consist of

towers, while integrated buildings refer to residential buildings in the area.



Fig. 5. Building morphology of the site

The information regarding the site and identification

of abandoned lands were collected through field work, interview, personal experience and print media.

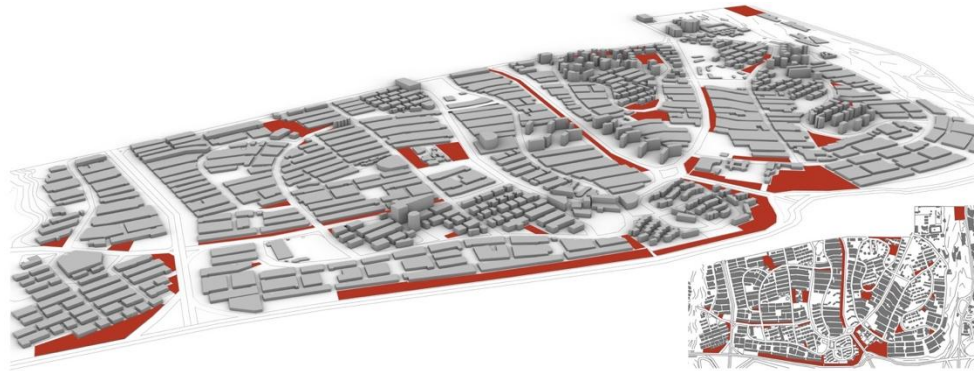


Fig.6. Identification of abandoned lands of the site

The abandoned areas in this region can be classified into three morphological categories. The first category consists of small plots, where the area is roughly equivalent to the area of building blocks. The second category includes large plots that exceed the area of building blocks in the region. The third category comprises plots that are narrow in width but very long in length.



Fig.7. Division of abandoned lands based on morphology

#### 4.2 Conclusion analysis of abandoned lands

Urban abandoned lands have been categorized in terms of morphology, accessibility, and uses of buildings.

- Morphology: They are divided into 3 categories:
  1. Abandoned land with an area more than 1000 square meters.
  2. Abandoned land with an area less than 1000 square meters.
  3. Abandoned lands have non-standard dimensions and their length is much larger than their width.
- Access: They are divided into 2 categories:
  1. A main access: abandoned land to which there is a main access.

2. Two main accesses: abandoned land to which there is two main accesses.
  - Uses of buildings: They are divided into 3 categories:
    1. Abandoned land, where most of the buildings near them are residential.
    2. Abandoned land, where most of the buildings near them are residential and commercial.
    3. Abandoned land, where most of the buildings near them are residential and cultural



Fig. 8. Analysis of abandoned lands

According to the conclusion of analysis obtained from the site, we finally count the abandoned lands and categorize the number of each of them in this area have the same qualities and determine the number of each.

#### 4.3 Analysis Of Abandoned Lands Based On Lbcs Standards

- **Activity:** There are various activities taking place on the site of this project, but one of the most significant ones is the presence of universities and schools such as Azad University and Imam Sadegh University, along with several other schools. Additionally, this site includes commercial complexes like Pelatin Complex and Royal Complex, among others. Moreover, some buildings on this site serve as offices.
- **Function:** The land in this area is mainly used for residential purposes according to the detailed plan. However, certain portions of the land have been designated for commercial and educational uses, which can be further classified as commercial or cultural. Educational lands consist of higher education and cultural facilities. It is important to note that the function of the land is determined by the economic function or type of establishment utilizing it.
- **Structure:** The structure of this area can be broadly categorized into two types: large interconnected buildings and small buildings. The small buildings in the area comprise towers, while the integrated buildings refer to the residential structures in the vicinity. It is

important to note that the type of structure or building on the land is often used to characterize land use.

- **Site:** Most of the abandoned lands in this area are generally unusable. Some of these lands have been used as green spaces for planting trees, and some others have been used as warehouses for construction workshops or as space for government construction projects. These lands have mostly been unused and abandoned.
- **Ownership:** Most of these lands are government-owned and their ownership is public, with a small number of them being private lands. This is often the case with abandoned lands in urban areas where the government takes ownership of them due to their neglect or disuse. Private lands, on the other hand, are often subject to different regulations and can have various ownership structures, such as individuals or corporations.

to effectively implement any changes or plans for this abandoned land, the issue of ownership must be analyzed. This is where the Land-Based Classification Standards (LBCS) come into play, particularly the Ownership category. It is important to determine who owns the land and their intentions for it, as this can greatly impact the feasibility and success of any proposed plans. Additionally, when considering the site development aspect of LBCS, it is important to consider the activity, function, and structure of the site. What will the land be used for? How will it be developed and structured? These are all important questions to consider when creating a

plan for the abandoned land. Overall, a comprehensive analysis of the abandoned land in this area must consider various aspects of the LBCS, including Ownership, Activity, Function, Structure, and Site Development. Only by considering these factors can an effective plan be created for the to redevelop of the abandoned land.

#### 4.4 Recommendation for designing an abandoned land in the site

This is an abandoned land along Paknejad Street. In the current situation, the southern part of this land is a taxi station, the middle and northern part of it is the construction site, the eastern part is arboriculture and the rest of the land is empty and abandoned. The total dimensions of the selected land are 40 meters by 1200 and its area is 54800 square meters.

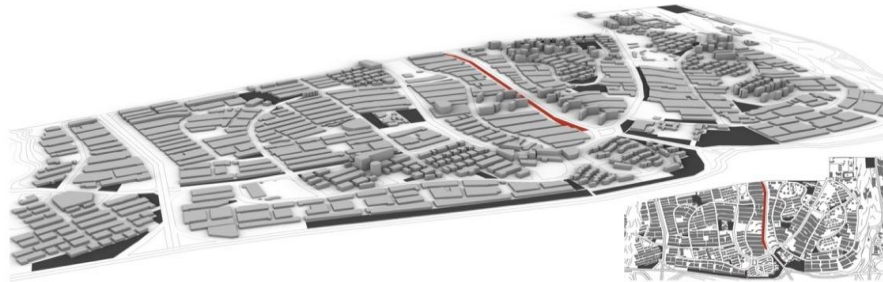


Fig. 9. Designing an abandoned land



Fig.10. Analysis the site of the abandoned land

- The morphology of buildings in this area is divided into two categories: micro, including towers, and large, including buildings.
- The main access of for this site is from the eastern part of the land (Paknejad Street) and there are two sub-accesses for the site from the northern parts (Dadman Street) and the southern part (Sanat Square).
- The orientation of the buildings in this area are divided into 3 categories.

There are buildings and towers along with the abandoned land. Therefore, the skyline of the blocks is different in different parts of the site. For example, in some parts of the site, the skyline of the buildings is 10 meters high and in some parts there are towers with an approximate height of 40 meters.

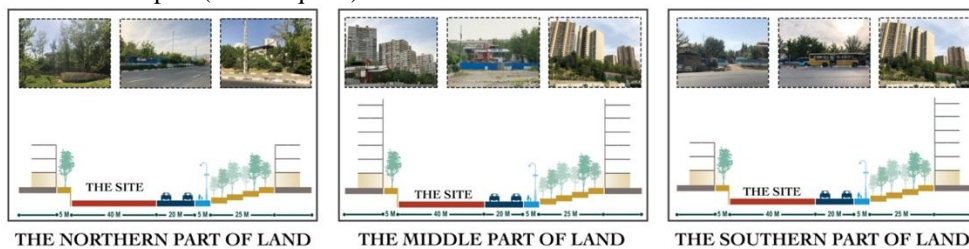


Fig. 11. Skyline analysis the buildings near the abandoned land

#### 4.5 Design Strategy and principles

The design approach for this abandoned land involves considering the skyline of the surrounding area, where most of the buildings have a height of 10 meters. To maximize the view, the proposed project should also be at a height of 10 meters. Additionally, the main volume of the building adjacent to the towers will be higher, reaching a height of approximately 30 meters. The main volume is situated at the center of the land, and two paths are created in the northern and southern parts of the

volume. These paths can be accessed via ramps, and by determining the ramp length and the height of each floor, the number of floors for the northern and southern routes can be established. Consequently, the northern path is designed with 3 floors, while the southern path is designed with 2 floors, resulting in a 5-story main volume at the center of the land. The project will also eliminate parts of the abandoned land have trees. Finally, the volume design volume will consider the orientation of nearby buildings and adjust accordingly.



Fig.12. Designing strategy and principles

## 5. Conclusion

The dearth of fundamental principles and strategies for abandoned lands is a significant issue in urban planning and architectural design. As cities expand, more lands are left unused. To revive these abandoned lands, designers must consider both the environment and end-users. It is time to recognize that the environment and users are two crucial factors that influence architecture, and successful models and theories must be revisited. Social spaces such as streets, squares, and other open areas should be the primary focus of urban design before individual buildings. Instead of converting streets and squares into resort areas, they could be transformed into social spaces that are integrated with the surrounding urban fabrics. These new design concepts aim to connect architecture and environment, enhance urban spaces, and encourage public interaction.

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