

Evaluation of the design specifications of some residential neighborhood parks in Hillah City - Babylon province

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Abstract

This study was conducted between 2022 and 2024 to examine and evaluate the design specifications of Al-Bakrli Park and Al-Karama Park in Hillah and assess their functional performance. A design concept was proposed for each park. Evaluating the design specifications of the parks and identifying design errors will contribute to their correction during maintenance and development operations. This will enhance the overall functional efficiency of the parks, provide the amenities and entertainment needed by park residents, and enhance their environmental role in influencing the overall climate of the city.

Introduction

The development and progress of many nations is measured by the amount of green space they provide per capita. The most beautiful cities in the world are those with beautifully landscaped gardens. With the development of urban planning and urban growth, the need has emerged to establish design standards specific to parks and gardens to guide designers in their work, alongside the standards and criteria for other urban elements that comprise cities and residential neighborhoods. Urban planning and renewal have been significantly impacted by attempts to address the harmful effects of widespread urban expansion, such as environmental degradation, social inequality, and urban sprawl. This has led to the loss and deterioration of urban landscape, which are among the most important components of urban formation in cities. They play a significant role in achieving balance within the urban sector and are crucial for the city and its residents, who desperately need them for recreation, as well as for their natural, cultural, social, economic, health, urban, and recreational importance. Landscape designers therefore play a crucial role in preserving the environment for humans and achieving security and well-being by planning, designing, shaping, and managing urban landscape more than ever before. This is

done in accordance with design principles and standards that create a humane environment for these landscape, taking into account the interconnectedness between the cultural and natural environments. Cultural and natural environmental factors in urban design have become essential requirements on a global level.

Research Problem:

Most parks in the city of Hillah are being implemented according to design specifications that fall far short of international park design standards in terms of location, appropriate space, and the choice of plant design.

Research objectives:

To evaluate the design specifications of parks according to international design standards to identify deficiencies, including:

1. Park location.
2. Park area.
3. Structural components, including: exterior walls, gates, kiosks, walkways, landscape designated for various events, seating, lighting, restrooms, fountains, etc.
4. Plant components, including: selection of plant elements, plant design, and plant distribution.

Importance of the research:

Evaluating the design specifications of parks and identifying design errors will contribute to their correction during maintenance and development operations. This will enhance the overall functional efficiency of parks, provide the amenities and entertainment needed by park residents, and enhance their environmental role in influencing the overall climate of the city.

The concept of urban landscape

Mehdi (2012) stated that the term "landscape" first appeared in France in the early 1960s, when it was incorporated into the legal texts of the Urban Planning Law. Salem (2016) also defined it as an integrated, synthetic landscape that refers to both the physical aspect arising from a continuous, dynamic interaction between natural processes and human activity, as well as the non-material existential values and symbols that the natural landscape signifies. The term "landscape" derives from the Latin word "spatium," which primarily refers to landscape as areas for recreation, play, enjoyment, and freedom for residents, due to the presence of various plant elements (Belkacemi, 2019).

As Eetvelde and Antrop (2019) defined landscapes, they are: "a view, as people see and perceive it, its character formed by the action and interaction of natural and human factors, and an indicator of a place's identity." They are a group of landscape and areas that permeate the urban fabric of a city and beyond, including reserves, parks, visually distinct areas, coastlines, and public squares (Ahmed, 2019).

Awad (2021) defined them as a three-dimensional landscape space, described by the roof, represented by the vast sky and natural land, and the third dimension, represented by vertical elements such as forests and their trees, terrain, cityscapes, and buildings.

They are areas that can be designed as landscape that beautify cities. These

landscape are usually interspersed with paths and walkways for movement, walking, and spending quality time, providing a safe, comfortable, and stable quality of life, as well as achieving climatic comfort for humans (Al-Mansouri and Hawari, 2021).

Definition of Urban Landscape :

Researchers have differed in their definition of landscape, each according to their expertise in this field. The following is a definition of green space in various answers, based on the researchers' perspectives:

1. It is a space within a residential area or city containing plant elements and used for several purposes, including recreation, recreation, and sports, as well as beautifying and improving the city's living conditions and creating an ecological and biological balance (Lahouel, 2011).
2. It is a space within a residential area or city containing plant elements and used for several purposes, including recreation, recreation, and sports, as well as beautifying and improving the city's living conditions and creating an ecological and biological balance (Lahouel, 2011).
3. General Definition: These are landscape located within a geographical region or residential neighborhood, the majority of which are composed of plant elements (Bou Jemaa, 2012).
4. Al-Rikabi (2013) defined landscape as the basic and important component of the human environment, playing a significant environmental role in creating a comfortable local climate for humans, whether in a residential neighborhood or a city. They are an important source of oxygen, making them the lungs of the city.
5. These are landscape planned and designed by one of the city's planning departments, either open or fenced. They can be located within the city's residential neighborhoods and contain plant elements. They are selected according to specific criteria, such as their suitability for soil and climate conditions, the

purpose of their cultivation, and their aesthetics (Lamri, 2018).

6. Landscape are places established within residential neighborhoods or cities, intended for the public good. They are a place of life and have multiple social, recreational, environmental, aesthetic, and health functions (Belkacemi, 2019).

7. Aida (2019) stated that landscape are areas where tall and large trees can be planted; This creates a natural aesthetic image for residential neighborhoods and the city, and is intersected by a number of walkways and paths for people to move around for leisure.

8. Arrevaara (2021) stated that landscape are areas where the largest portion is dedicated to various plant elements and contains structural components such as seating areas and walkways, etc. They perform multiple functions, including recreational, environmental, aesthetic, and tourism, and are an important part of the master plan for every city.

9. Landscape have been defined as a field whose study is shared by many scientific disciplines due to their importance and multiple functions, whether environmental, health, or social, in order to provide a better life for people (Lakhdari, 2021).

Components of Urban Landscape

Despite the different uses and types of outdoor landscape, they all share the commonality of being a physical space designated for human activities and events. They consist of two components:

1. Physical components: These give the outdoor space its shape, characteristics, and

character, including natural and man-made elements.

2. Humans: All related activities, events, behaviors, and actions within the space. This means that the physical components and human activities are what determine the character and formation of the space (Farhat, 2003).

Field Study

Includes a comprehensive field survey of the sites and an analysis of all components in Al-Karama Park and Al-Bakrli Park in Hillah City.

Selected Parks in Hillah City

Al-Bakrli and Al-Karamah Parks in Hillah City, Babil Governorate, were selected as a practical model for developing residential neighborhood parks in Hillah City. A field survey was conducted of the complementary, physical, and botanical components of these seven parks (Al-Karamah Park and Al-Bakrli Park). Given the researcher's inability to obtain any plans, complete information, documents, or recent aerial photographs related to the study area, the researcher resorted to a field survey of the parks.

Study Sample:

This sample focuses on studying Al-Bakrli and Al-Karamah Parks in various residential neighborhoods in Hillah City. The sample size was estimated based on the number of daily park users. Samples were taken based on the number of park users.

Comprehensive Field Survey of Al-Karamah and Al-Bakrli Parks in Hillah City and Analysis of the Physical and Botanical Components of the Selected Parks

Table (1): Comprehensive Field Survey of Al-Karamah Park

| First: General information | | | |
|-----------------------------------|------------------------------|---|---|
| Park Location 2014 | Area: 8147.38 m ₂ | The number of visitors is approximately | Residential areas where visitors come from |
| Located in Al Karama neighborhood | 2 dunums | very few | Al-Karamah, part of 60th Street, and Awqaf |
| Second: Structural components | | | |
| 1 | Exterior Wall | Design and Construction Status | The wall is made of stone and iron cladding. |
| | | Evaluation | Very good. |
| | | Notes | The wall's design is nice, as is its height and shape. |
| 2 | Park Gate | Number of Gates | 6 |
| | | Gate Width | 2m. |
| | | Design and Construction Status | The gates are beautifully designed. |
| | | Notes | The park has six gates, some closed and two open, which lead to secondary streets. |
| 3 | Walkways | Type of Walkways | Muqarnas and the surrounding walkways near the outer fence are concrete. |
| | | Waywidth of Walkways | Varying in size. |
| | | Constructional Status | Dilapidated due to neglect and disuse. |
| | | Functional Efficiency | Good. |
| | | Notes | The walkways in this park have become dilapidated due to disuse, due to the delay in its receipt by the governorate. |
| 4 | Seating Benches | Types of Terraces | None. |
| | | Terrace Design | --- |
| | | Terrace Distribution | --- |
| | | Constructional Condition | --- |
| | | Notes | This park, despite its modern design, does not contain any seating. |
| 5 | Health Services | Number | 1 |
| | | Constructional Condition | Dilapidated. |
| | | Notes | It has one unusable sanitary facility. |
| 6 | Water Features | Number | 5 |
| | | Constructional Condition | Dilapidated. |
| | | Notes | This park contains five beautifully shaped fountains, but they are unusable. They were only in operation for a short time, and due to their depth, two children drowned in them, so they were discontinued. |
| 7 | Lighting | Type of Lighting | Vertical |
| | | Distribution Method | Distributed evenly on both sides of the park. |
| | | Notes | The lighting in the park is not working due to the |

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|----------------------------------|----------------------|--------------------------|---|
| | | | delay in its receipt by the governorate. Before the Governments |
| 8 | Children's Games | Number | 4 |
| | | Types | Complex Rides |
| | | Material | Fiberglass |
| | | Work Efficiency | Some of them are unusable |
| | | Distribution | Distributed in opposite directions |
| | | Notes | The number of rides is small in this park, and most of them are unusable due to broken parts |
| 9 | Parking Spaces | Area | None |
| | | Functional Efficiency | --- |
| | | Notes | --- |
| 10 | Kiosks | Number | None |
| | | Design and Construction | ---- |
| | | Notes | --- |
| 11 | Hall and Rooms | Number | 4 |
| | | Functional Efficiency | Unusable |
| | | Purpose of Construction | 2 For Information - Health Services |
| | | Notes | Rooms throughout the park are unusable |
| 12 | Water Drinking Areas | Number | None |
| | | Distribution Method | --- |
| | | Notes | There is only one large basin used for watering. |
| Third: Plant elements | | | |
| 1 | Trees | Number of species | 3 |
| | | Distribution system | Random |
| | | Notes | There are no large trees in the park due to its neglect and incompleteness. One of them is the Washingtonia palm. |
| 2 | Shrubs | Number of species | 4 |
| | | Distribution system | Random |
| | | Notes | The most important shrubs present are the coastal flower and the Egyptian acacia, which are small in size. |
| 3 | Herbaceous Plants | Number of species | None |
| | | Distribution system | --- |
| | | Notes | There are no herbaceous plants due to the park's incompleteness. |
| 4 | Green Landscapes | Area of the surface | 40% |
| | | Condition of the surface | Poor |
| | | Notes | Most of the green area is jungle and grassland. |
| Fourth: Entertainment activities | | | |
| 1 | Hiking | Allocated Space | 30% |
| | | Design Criteria | Some of them do not conform to park design standards |
| | | Elements Used | Children's games and green spaces |

| | | | |
|---|-------------------------|-----------------|--|
| | | Notes | There are currently no recreational activities in the park |
| 2 | Children's Games | Allocated Space | 15% |
| | | Design Criteria | The playground area is small |
| | | Elements Used | Children's games are small |
| | | Notes | Children's games are small due to the width of the park and the large number of walkways |

Source (personal interviews with people living near the park)

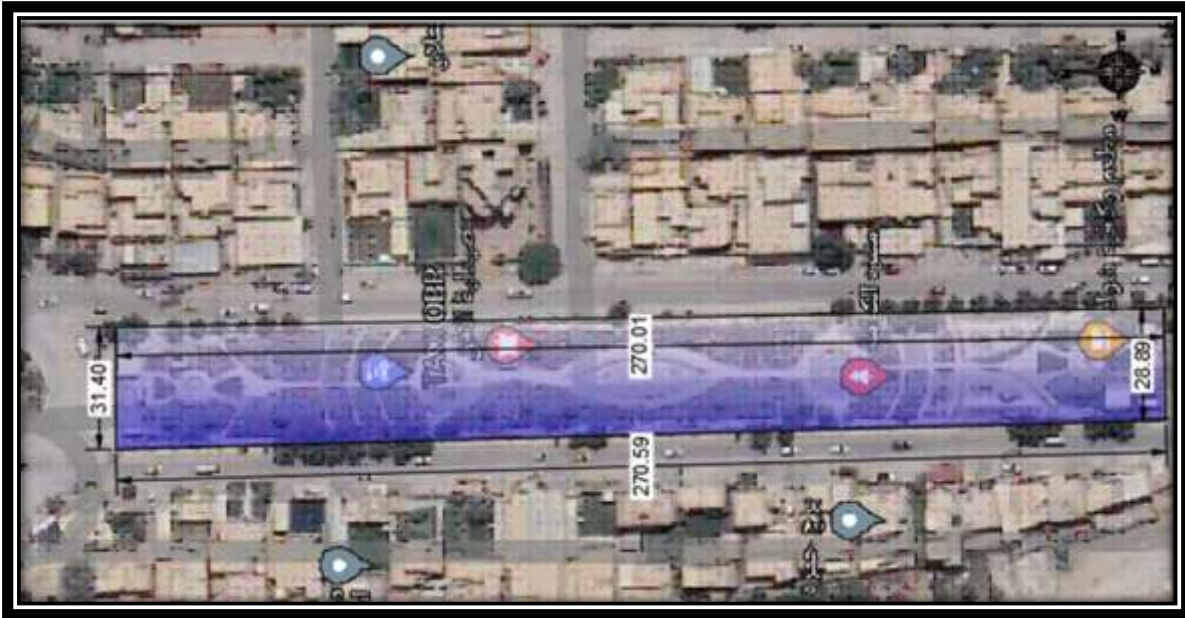


Figure (1): Aerial photo of Al-Karamah Park



Figure (2): The current state of the fountains, pots and external fence in Al-Karamah Park



Figure (3): The current condition of the walkways and green areas in Al-Karamah Park



Figure (4): The reality of the games, paved areas and green space in Al-Karamah Park



Figure (5): The current state of the gates and the external fence of Al-Karamah Park

Table (2): Comprehensive field survey of Al-Bakrli Park

| First: General information | | | |
|-------------------------------|------------------|--------------------------------|---|
| Park Location | | Area | Number of visitors: |
| In Bakrli 2018 | | 7,889,626 m ₂ | approximately 30 |
| Second: Structural components | | | |
| 1 | Exterior Wall | Design and Construction Status | The wall design is beautiful and has a shape that matches park walls. |
| | | Evaluation | Very good. |
| | | Notes | The wall along the park is very good. |
| 2 | Park Gate | Number of Gates | Approximately 2-3 meters. |
| | | Gate Width | Very beautiful. |
| | | Design and Construction Status | The gates, one on the main street, are open at all times, while the other, overlooking the secondary street, is closed. |
| | | Notes | Concrete. |
| 3 | Walkways | Type of Walkways | Various shapes. |
| | | Way Width | Good. |
| | | Constructional Status | Good, leads to the desired locations. |
| | | Functional Efficiency | The walkways are distributed evenly and lead to all parts of the park. |
| | | Notes | Concrete. |
| 4 | Seating Benches | Types of Terraces | Only one shape. |
| | | Terrace Design | Very few. |
| | | Terrace Distribution | The wall design is beautiful and has a shape that matches park walls. |
| | | Structural Status | Fairly good |
| | | Notes | Some of the seating is group, open, and clustered in one place, but there are very few. |
| 5 | Health Services | Number | 1 |
| | | Structural Status | Good |
| | | Notes | There is only one public health service in the park, and it is in good condition. |
| 6 | Water Features | Number | 2 |
| | | Structural Status | Fountains |
| | | Notes | Good |
| 7 | Lighting | Type of Lighting | There are two fountains in the park, which are beautiful but not working. |
| | | Distribution Method | Vertical |
| | | Notes | Distributed evenly. |
| 8 | Children's Games | Number | Some of the lighting is working. |
| | | Types | 2 |
| | | Material | Small rides installed. |
| | | Work Efficiency | Fiberglass |

| | | | |
|----------------------------------|-----------------------|--------------------------|---|
| | | Distribution | Does not work and is worn out. |
| | | Notes | Distributed opposite each other. |
| 9 | Parking Spaces | Area | The rides are few in the park and are worn out due to misuse and lack of regular maintenance. |
| | | Functional Efficiency | None |
| | | Notes | --- |
| 10 | Kiosks | Number | --- |
| | | Design and Construction | 2 |
| | | Notes | Simple in appearance. |
| 11 | Hall and Rooms | Number | The kiosks are simple and not working. |
| | | Functional Efficiency | 4 |
| | | Purpose of Construction | Good |
| | | Notes | For information, the engineer, health services, and a store. |
| 12 | Water Drinking Places | Number | The rooms are fairly good and are all occupied for various purposes. |
| | | Distribution Method | None |
| | | Notes | --- |
| Third: Plant elements | | | |
| 1 | Trees | Number of species | 5 |
| | | Distribution system | Random |
| | | Notes | Trees are randomly distributed, such as bougainvillea, acacia, and eucalyptus. |
| 2 | Shrubs | Number of species | 4 |
| | | Distribution system | Random |
| | | Notes | Shrubs are small in the park, including shrubby myna, coastal flower, camel, and others. |
| 3 | Herbaceous Plants | Number of species | 2 |
| | | Distribution system | Random |
| | | Notes | Herbal plants are very sparse, as the park was recently established. |
| 4 | Green Landscapes | Area of the surface | 60% |
| | | Condition of the surface | Good |
| | | Notes | Some of the area is in good condition, while some is dominated by bushes. |
| Fourth: Entertainment activities | | | |
| 1 | Hiking | Allocated Space | 70% |
| | | Design Standards | Somewhat complies with design standards |
| | | Elements Used | Green space and rides |
| | | Notes | Hiking elements, although present, are inoperable due to fountains not operating and the rides and green space not being maintained |
| 2 | children's | Allocated Space | 20% |

| | | | |
|--|-------|------------------|-------------------------------------|
| | games | Design Standards | Noncompliant |
| | | Elements Used | Rides are installed |
| | | Notes | Rides are dilapidated due to misuse |

Source (Personal interviews - Babylon Projects Department)

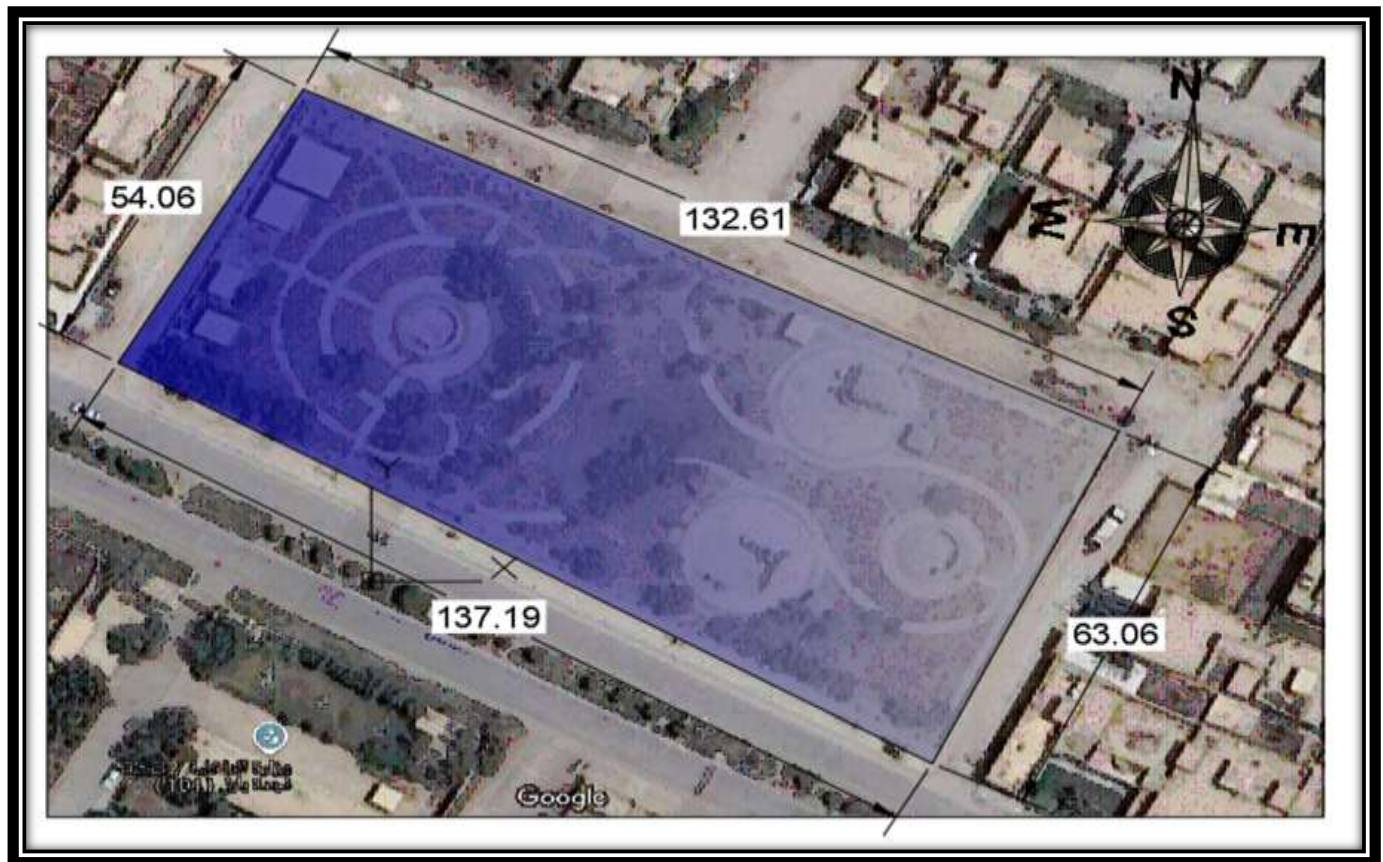


Figure (6): An aerial photo of Al-Bakrli Park



Figure (7): The current condition of the gates and the outer wall in Al-Bakrli Park



Figure (8): The current condition of the fountains in Al-Bakrli Park



Figure (9): The reality of the green area in Al-Bakrli Park



Figure (10): The current condition of the walkways in Al-Bakrli Park**Figure (11): The reality of children's games in Al-Bakrli Park****Figure (12): The current condition of the seating areas in Al-Bakrli Park**

The Design Concept

The design concept was based on proposed development designs for Al-Bakrly Park and Al-Karama Park, based on several key elements that formed the basis for the emergence and development of the design concept. These parks were designed using the engineering program Outo CAD in 2D and 3D formats, and were based on the field researcher's assessment, the design standards for residential neighborhood parks, the current state of the parks, and visitor opinions and desires.

First: Al-Bakrly Park

The design concept was primarily based on developing the current situation through the following measures:

- 1) Reducing the number of unimportant walkways, which were created for aesthetic rather than functional purposes.
- 2) Utilizing existing landscape for important events in the residential neighborhood parks and giving them a defined form through landscaping, fencing, and walkways.
- 3) Providing services throughout the site, including a cafeteria, health services, and seating.

4) Distributing a number of shaded and open seating areas in appropriate and important locations.

5) Proposing a large central plaza or rest area for departure and arrival, with a cafeteria for families to sit next to.

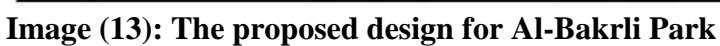
6) Proposing a designated picnic area according to design standards and appropriate landscaping.

7) Providing a large children's park designed for ages 6-12, including large and medium-sized complex rides, an open space, and a

walkway separated from the section designated for children aged 3-5, which includes small rides and an indoor hall, with sanitary services and kiosks for both age groups.

8) Extending the planting of large evergreen trees around the park and along the walkways to provide balance, insulation, and a windbreak.

9) Proposing an open play area according to design specifications and appropriate landscaping.



Fifth: Al-Karama Park

This park is a long, narrow strip that requires a design that is compatible with its current condition. The design prepared by the Municipality and Projects Authority was appropriate for this type of land, so the existing design was utilized. This design was modified slightly, including:

- 1) Eliminating unnecessary walkways and creating appropriate landscape for various events.
- 2) Implementing a plant design that is compatible with the shape and size of the park and the proposed events.

Annual afforestation was proposed using an alternating arrangement of palm trees and Egyptian acacia trees to reduce the length of the park and provide shade for the adjacent sidewalks.

Dense afforestation with tree clusters was proposed to isolate the children's gardens from the picnic area.

3) Providing services such as restaurants and cafeterias throughout the park.

4) Using artificial landscape in areas with heavy and concentrated traffic.

5) Providing health services and seating throughout the park.

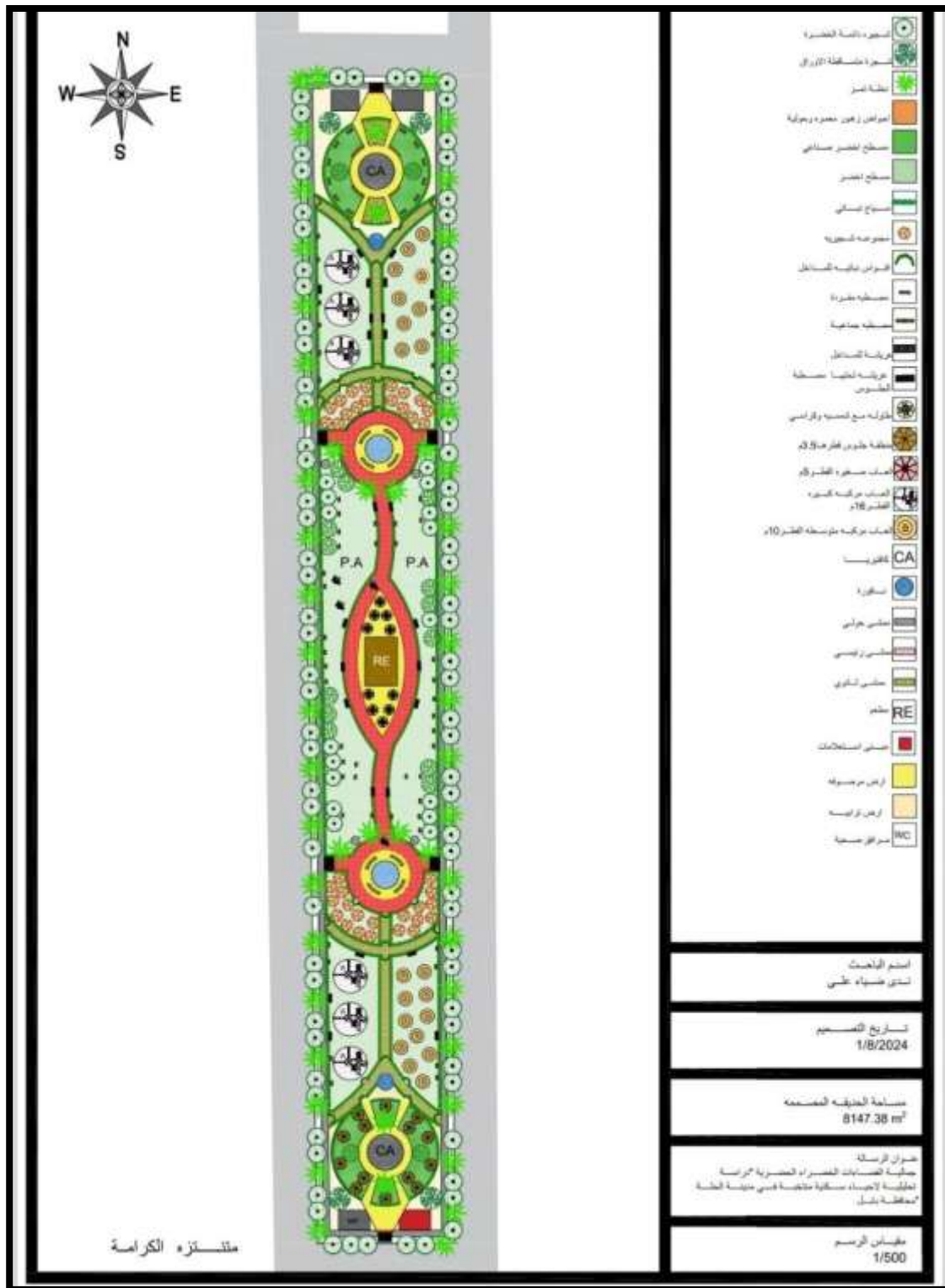


Image (14): The proposed design for Al Karama Park



Image (15): The design proposal for Al Karama Park in 3D format.**Image (17): The design proposal for Al-Karamah Park in 3D format.**

Conclusions

1. The lack of designated landscape for various activities, such as isolated areas for reading, relaxation, and children's gardens. Most of the walkways in the parks are unusable and deteriorating, designed with widths outside pedestrian design standards. Most of them are made of concrete, and if Muqarnas stones are found, they are dilapidated. There are no sanitary facilities, rooms, or halls in any of the parks, and if they do exist, they are only for workers.

2. The lack of comprehensive designs for Al-Bakrly and Al-Karama Parks upon their construction. Rapid urban expansion resulted in several design errors that occurred at the expense of landscape and parks. These landscape have become small areas between residential neighborhoods.

3. The lack of reliance on design standards for parks, and the lack of aesthetic elements in the seven parks, as well as the lack of specific features for these activities, has led to the lack of trees and shrubs in appropriate locations to reduce noise from the main streets surrounding all directions of the parks, such

as the broad-leaved, environmentally resistant Sparrow's Tongue trees, which are recommended for use in such situations.

4. 5- The lack of amenities, such as seating and umbrellas, in all parks. If they exist, they are unusable due to poor maintenance and age. There are also no restaurants, dining chairs, or kiosks within the parks.

6- The lack of a clear maintenance program in all parks to guide workers on required tasks and appropriate schedules, such as irrigation, mowing, fertilization, pest control, planting annual plants, etc.

Recommendations

1- Develop development designs for Al-Bakrli and Al-Karama Parks based on a future perspective and scientific data to prepare residents of residential neighborhoods for the coming years.

2- Select a significant and suitable location to establish a children's park in all parks in residential neighborhoods, providing seating

areas alongside them and suitable playgrounds.

3- Take into account the city's prevailing climatic conditions when designing parks and gardens by providing canopies and umbrellas for seating areas and selecting plant and structural elements.

4- Developing an appropriate plant design and selecting species suitable for all ages, taking into account the needs and desires of residents and climatic conditions, as well as the design criteria for landscape in parks.

5- Establishing a large park that includes various events and activities according to approved design standards.

6- Establishing a restaurant or cafeteria in all parks in residential neighborhoods.

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