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Urban renewal of the historic centre of Rusafa

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Abstract. The historical centers represent the present of the past, which is embodied in its buildings and spaces, which are places of continuous life bearing the history of the city with all its material and objective dimensions, making it living centers that form an essential part of the body of the city and give it a vision for another time and it represents a cultural heritage that should be preserved and maintained. The research started from the reality that indicates the great change in the land uses of the region and the deterioration of the situation and change in use in addition to the neglect of its role and historical status, the study aims to study the subject of urban renewal of heritage areas in general and urban development and the area of Senk in particular. The problem of research is to determine a policy of urban renewal that is most suitable for interacting with the region and preserving its cultural heritage as one of the constituent parts of the historic center of Baghdad. Therefore, the objective of the research is to achieve real development of the region (the Senak region) by reviving the role commercial and vital as one of the parts of the center of the city of Baghdad to propose a plan for the development of the region and the development of the commercial area in which is the area between the square Khalani and Hafiz al-Qadi Square extended to Al-Rashid Street in light of the developments that have occurred and the current need for the region form and function and solve current and expected problems and find more types of uses Convenient to the area.

1. Introduction:

Urban renewal in historical city centers and its development the period immediately after the Second World War witnessed a trend that calls for reconstruction and in the larger scale of this event and intensively under the influence of the ideas of modernity in particular. During this period there is a belief that existing cities are unable to respond to the challenges of the contemporary period with their problems, The result was a solution that led to major shifts in city plans and there were some extreme trends calling for a break with the past, and the past hindered the future [5], Therefore, most of the important reactions to this idea took place in the reconstruction of cities destroyed during the Second World War. Consequently, modern plans for large-scale urban reconstruction have been developed. The application of modern ideas has led to radical changes in city centers and sectors in many European cities. The late 1980s witnessed a new international trend focusing on the urban transformation of neglected areas, in particular, abandoned industrial sites. "Globalization led to a halt in the industry in cities that were considered centers of the oldest factories" and many cities in Europe and America have changed from being large centers of production to large centers of consumption. Thus, the interest in urban development continued and it is still in most parts of the world and expanded its urban, economic and social fields, and crystallized its main goal in the comprehensive development related to man and his environment. He was considered the link between human experience and scientific and technological progress, thus enhancing the specificity of cities and their distinctive identity. The world, including the developing countries, has begun to attach great importance to the resurrection of its forgotten heritage and the glories of the history of its peoples, embodied in the ancient areas of its cities.



1.1 Research goal:

The objective of the research is to achieve real development of the region by reviving the commercial and vital role in it as part of the center of the city of Baghdad by proposing a basic plan for the region and developing the commercial zone in it, the area between Al-Khalani Square and Hafiz Al-Qadi Square extending to Al-Rasheed Street in light of the developments that have occurred and the need The current area of the shape and function and solve current and expected problems and find types of uses more suitable for the region.

The following objectives were identified by the researcher:

- 1- Find current problems for the area.
- 2- To make maximum use of the potential of the region and the availability of the figures in order to improve its situation.
- 3- Improve and enhance the efficiency of the functional interaction of land uses and the reorganization of urban functions to suit the needs of the region.
- 4- Trying to control the city scene by crystallizing the urban landscape of the study area, certainly by the principle of determining the heights and find the determinants of construction suitable for each part of the parts.

1.2 Research Methodology:

The study has been adopted for the theoretical side related to the subject and the study of the current situation of the region. Current uses of aesthetic elements the physical condition of the buildings to identify the most important problems and needs of the region and then reach the results that help in the preparation of the general plan.

2. Renewal methods in city centers:

Contemporary literature suggests that the new strategies of urban renewal and development of the 1990s and the early 21st century include (6) key ideas:

- 1- There are a great commitment and commitment to the urban preservation of the historical environment and the importance of celebrating the most important buildings and spaces.
- 2- The importance of "civilization, arts, entertainment, and entertainment" has increased and invested in the urban regeneration of many cities. Community participation must be recognized because it has a real role to play and the community-based approach has emerged to challenge market-based solutions that have suffered large urban areas.
- 3- There is a need to increase employment opportunities, reduce poverty and social exclusion, provide community facilities and training courses rather than rely solely on urban renewal.
- 4- Increased opportunities for cooperation and action between actors and organizations. Joint action requires knowledge of "effective urban renewal, skills, and resources of the public and private sectors and communities.
- 5- "The idea of a harmonious city as a sustainable urban form has increased among national decision-makers, and there are also principles to support sustainability to shape urban development and urban renewal initiatives, Strategies and reuse programs that fall within the twin city idea [1].
- 6- Most of the problems faced by the old neighborhoods and centers are due to their inability to adapt to the contemporary requirements, whether those requirements are urban, social, economic, civilizational or environmental, in addition to their inability to achieve the required balance between the requirements of strict preservation and the requirements of contemporary development on the other hand, Therefore, the aim of the urban renewal strategies was to bridge this gap between historic and contemporary neighborhoods and centers by working to raise the level of historical centers to the immediate and future requirements, on the one hand, and to preserve the vitality of the past and spirit of the past.

One of the most prominent trends that addressed the problems of historic city centers are:

2.1 Conservation policy:

Urban conservation is the most prominent method used in urban development, as it is associated with areas or buildings of historical or architectural importance. It has been defined as "measures to protect

the architectural and historical properties of ancient areas and buildings of great importance, in the form of repairing or removing signs of corrosion and deterioration, and of providing acceptable standards for the protection of open spaces and public squares" [3].

2.2 Rehabilitation or rehabilitation policy:

One of the urban renewal strategies for urban redevelopment and integration (social, civilizational, economic). The restoration of neighborhoods is a policy that has conservation goals, as it represents an advanced stage in "preserving the cultural heritage" and efforts to preserve the historical sectors and neighborhoods emphasize the "maintenance" of public and private property, the importance of the role of the economy in the conservation process which is considered an effective necessity for any historical place, Good governance This is what the revitalization strategy, which is linked to two important factors, whether urban or functional, and the spatial characteristics of the urban environment, [5].

2.3 The policy of Redevelopment:

A comprehensive program aimed at reorganizing the urban, functional and demographic structure of the existing urban area by removing old dilapidated buildings that occupy the large proportion of the existing urban fabric and reconstructing the areas according to a new comprehensive plan reflecting long-term policies for population distribution and land use [3].

3. Study Area Description.

Rasafa is one of the four commercial centers of the city of Baghdad, which includes many of the residential area, and it considerable pressure through the ongoing development processes, which explains the increased losses in the area compared to other old buildings in Baghdad.

3.1 Reasons for selecting the study area:

The cultural and architectural heritage in this area represents one of the most important historical centers of Baghdad where historical landmarks began to disappear day after day due to negligence and lack of maintenance of these buildings. The area suffers from the basic problems of the old historical areas of Baghdad in general, which resulted from poor planning and neglect, Owners of property and stakeholders in addition to the weakness of public awareness among residents and visitors of this area, which led to:

- The absence of clear urban controls or standards used by the municipal bodies to preserve the nature of the area or develop it in a specific direction, thus making the general product a heterogeneous mixture of buildings and loss of architectural identity between modern and old.
- The existence of many buildings destroyed or abandoned.
- A large proportion of the heritage role has been transformed into ruins or places of commercial storage due to the implementation of the policy of forced preservation without radical or effective treatment to protect them.
- Lack of infrastructure and services for the area.
- Extending the commercial activity to the old residential neighborhoods.
- The wholesale trade of a large part of the commercial markets despite the lack of services for such economic activities.
- There are no recreational areas and open spaces in the area.

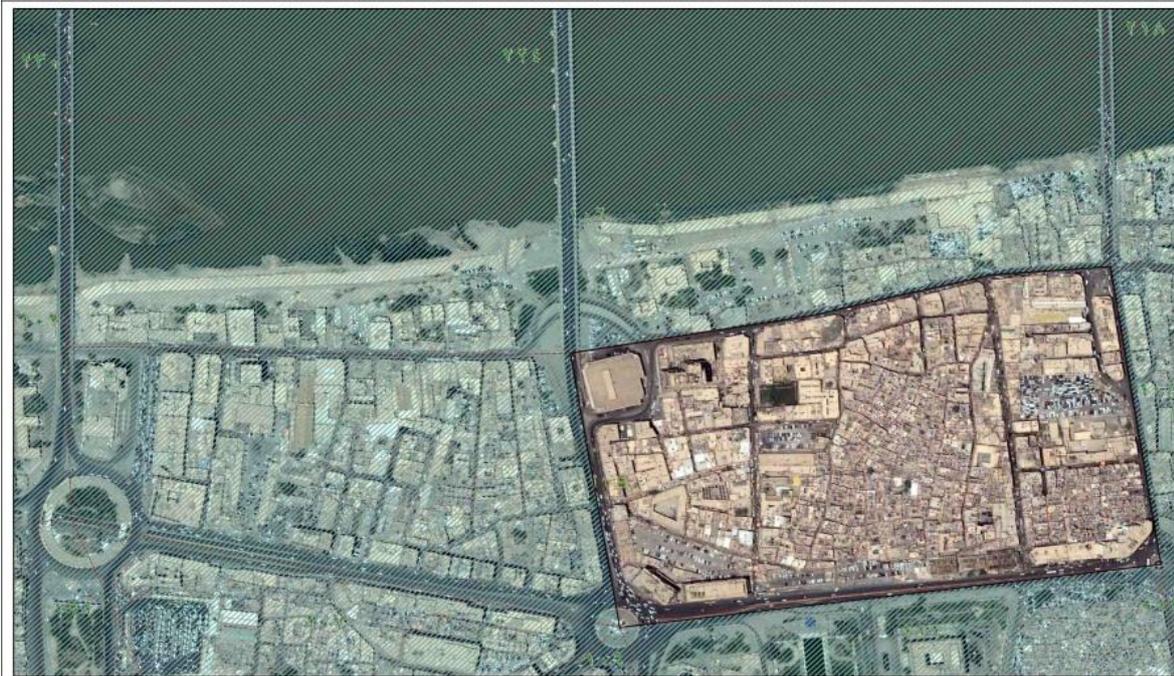


Figure 1. Study area chart, Source: Geographic Systems Unit - Baghdad Municipality

4. The most important buildings in the study area:

The study area and its existing buildings are among the almost rare areas that still preserve their old urban fabric and their original residential use of traditional houses and alleys, as well as a number of historical and historical buildings and a good construction condition. One of these buildings is:

- The Latin Church dates back to 1731 and is the most important landmark in the region. There are a number of abuses that have been abandoned and have been lacking for more than 10 years.
- Alnidal preparatory school for boys which dates back to pre-1945.
- The communications building, which was designed by the well-known architect Rifaat al-Jadirji, which has been destroyed more than once and has been restored to the communications department.
- Al-Zora cinema and Al-watani Cinema 1, one of the oldest cinemas in the area, which opened in 1943 and their current function are places to store backup materials for cars.
- Ministry of Commerce building is currently vacant.
- The tomb of Mr. Abu Tahir al-Tayeb, one of the grandsons of Imam Musa al-Kadhim, which is a shrine to the inhabitants of the area and its visitors.
- Some of the heritage roles in the middle of the study area where these houses are characterized by architectural value and architectural character characterized by the central courtyard and, some of them are in good condition and others need a policy of development to reduce the extinction and destruction.
- Rafidain Bank, Al-Warka Bank, Al-Senak area, and some of the buildings located on Al-Rasheed Street, which are characterized by its continuous pillars and almost identical buildings with two to three floors of unique architectural style.

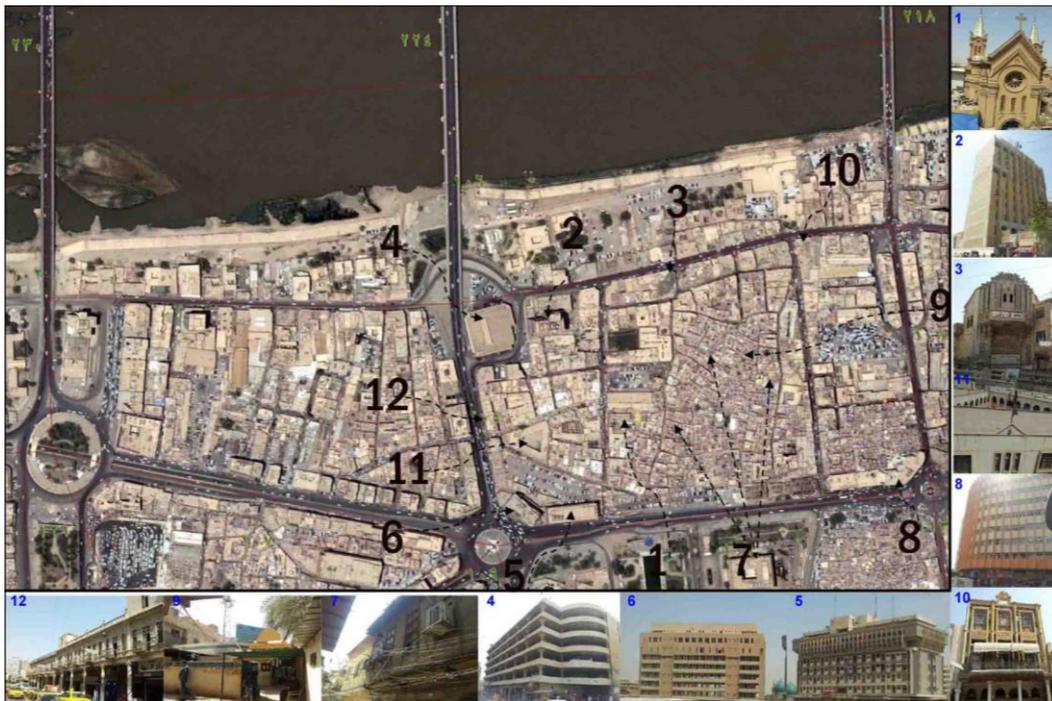


Figure 2. The most important buildings in the study area

5. Field survey:

It is necessary to identify the objectives of the survey and the manner in which it is used to develop the policy. The buildings of the study area were completely surveyed, with a total number of (579) building. For the purpose of conducting the survey thoroughly and drawing it on the drawings, the survey was based on the field survey and Map of inventory and numbering from the design department base - Baghdad Municipality.

The survey was analyzed according to the variables for each building as follows:

- Current land uses of the area.
- Building heights for the area.
- Age of existing buildings for the area.
- Conservation buildings.

5.1 Land uses:

The purpose of this survey is to study the patterns and densities of different uses and how they are distributed and their relation with each other, as well as to find the extent to which the functions and uses can be changed, increased, re-signed, or proposed to add new jobs. Its new be more convenient. The land uses in this region are sometimes overlapping due to the rapid growth and transformation from residential use to commercial and service due to the high value of the land in the region as part of the central business area and thus adapting to the uses of high economic returns such as commercial use. The study area was completely surveyed and is (579) plots. The analysis of the field survey shows that it is the commercial use occupies 53% of the land use plan for the region (table 1, figure 1) it has spread in Most of the region and displaced the dominant residential use of the region, which occupies 24% of the region and then the use of transport by 20% and other uses distributed among religious and educational and open areas and government buildings by 3%.

Table 1. Land Uses

Land uses	transportation	Services	governmental	Mixed use	Residential	Commercial
percentage	20 %	1 %	1%	1 %	24 %	53 %



Figure 3. Land use of the study area.

5.2 A number of floors:

From the analysis of the field survey, we notice that 65% of the buildings are two stories high and some buildings are one story high. These heights are concentrated in the central area where the old houses are located, and the buildings overlooking Al-Rasheed Street are three stories high or two floors, this indicates that this area is not being exploited optimally because the permitted height is 4 floors. The buildings have a height of 3-4 floors constituting 25%, which is a small percentage. The highest height is for the Al-Rasheed communications building (13 floors) and some buildings are 5 to 10 floors high. See table 2.

Table 2. The number of floors.

The number of floors	9 Floors and above	8 to 5	4 to3	2 to1	Open spaces
percentage	1%	8 %	25%	65 %	1 %



Figure 4. A number of floors in the study area.

5.3 Building Age:

From the analysis of the field survey form, 45% of the buildings are old buildings dating back to the year 1930, represented in the middle area (heritage houses) and from 1950-1930 (7%). There are buildings dating back to 1950-1980 and 40% represented by modern buildings on Al-Rasheed Street and Al-Senak Street, as well as the modern small buildings within the residential area, which accounted for 7% after 1980 until the date of surveying the area. Table 3, Figure 3.

Table 3. The Building age

Building age	Open areas	Buildings between 1980 and 2018	Buildings between 1950 and 1980	Buildings between 1930 and 1950	Pre- 1930 buildings
percentage	1%	7 %	40 %	7 %	45 %



Figure 5. Building Age in study area.

5.4 Conservation Buildings:

This survey is considered one of the basic elements of the study. It aims to identify structures of historical and important value that need to be preserved. The field survey included the study area in full and it was based on the survey questionnaire which was based on the following factors:

- Buildings of exceptional historical value (including the historical event or associated with the events of the region).
- Typical buildings reflecting a common type or style associated with a period.
- Scarcity represents a unique type of paternity or the last remaining of a particular model.
- The value of the building within the urban design and the fabric of the area, including buildings that require reconstruction.
- The construction status of the building (percentage of extinction).

5.5 Buildings of exceptional historical value:

The buildings that need to be preserved, and the excavators are of historical importance because they are connected to the local history or ancient historical events of the country and the number of these buildings is two buildings, (2%) of the buildings surveyed, while (310) building, which constitutes the proportion (98%) of the buildings surveyed do not have a historical link see table 4.

Table 4. The importance of the building in terms of history.

The importance of the building in terms of history	Normal	Linked to a local history	Linked to the history of Iraq	Linked to an ancient historical events
percentage	98	1	0	1

Typical buildings reflecting a common type or style associated with a period:

Surveys of buildings with distinctive designs showed that 8% of the survey group is of a common architectural style, and 1% of them have an old and distinctive style. 91% Architectural Excellence See Table 5.

Table 5. the importance of the building site.

The importance of the building site	regular (Like any other site)	unique importance	Important (City level)
percentage	91 %	8 %	1 %

5.6 Scarcity in the presence of a single type of buildings:

Surveys of rare buildings showed that (1%) of the survey group is scarcity at the national level, 8% have unique importance at the regional level and 91% are buildings of a regular nature. Table 6.

Table 6. Basic building function.

Basic building function	Ordinary buildings	Buildings with a distinctive architectural style	Buildings with a common architectural style
percentage	91 %	1 %	8%

5.7 The value of the building within the urban design:

From the study of the field survey, 6% of the buildings are characterized by having an important thought and importance at the level of the region while (8%) of the buildings were medium of excellence and (86%) of a typical nature does not contain any thought for the urban fabric of the region, see Table 7.

Table 7. The scarcity of the building.

The scarcity of the building	Normal building	unique (Region-wide)	unique (At the national level)
Number of buildings	308	24	3
percentage	92%	7%	1%

5.8 Building condition (percentage of extinction):

The construction surveys showed that the buildings that were in good condition were 6%, and those with 10% of the buildings had a structural impact (4%) of buildings, and 8% (16%) of buildings were affected by (40%) and (56%) of the buildings were demolished. (50%) or more, see Table 8.

Table 8. state of the building

	State of the building (% Of total demolition)				
	41% or more	31 to 40%	21 to 30%	11 to 20%	0 to 10%
Number of buildings	187	52	43	31	22
percentage	56%	16%	10%	8%	10%

5.9 Conclusion:

From the analysis of the field survey form, which was conducted on the study area, we conclude with a survey of the field. It is clear that the middle area of residential use is an old residential building with a poor construction condition. The development and urban transformation, mostly in the form of demolition and reconstruction, Demolition and removal of some of them or their arrival to a bad construction condition are not suitable for housing. While some of them preserved their existence and

the details and architectural styles of the area. Although commercial use has spread to many parts of the region and damaged parts of this fabric, the study area still retains part of this traditional urban fabric, see Figures 6 and 7.

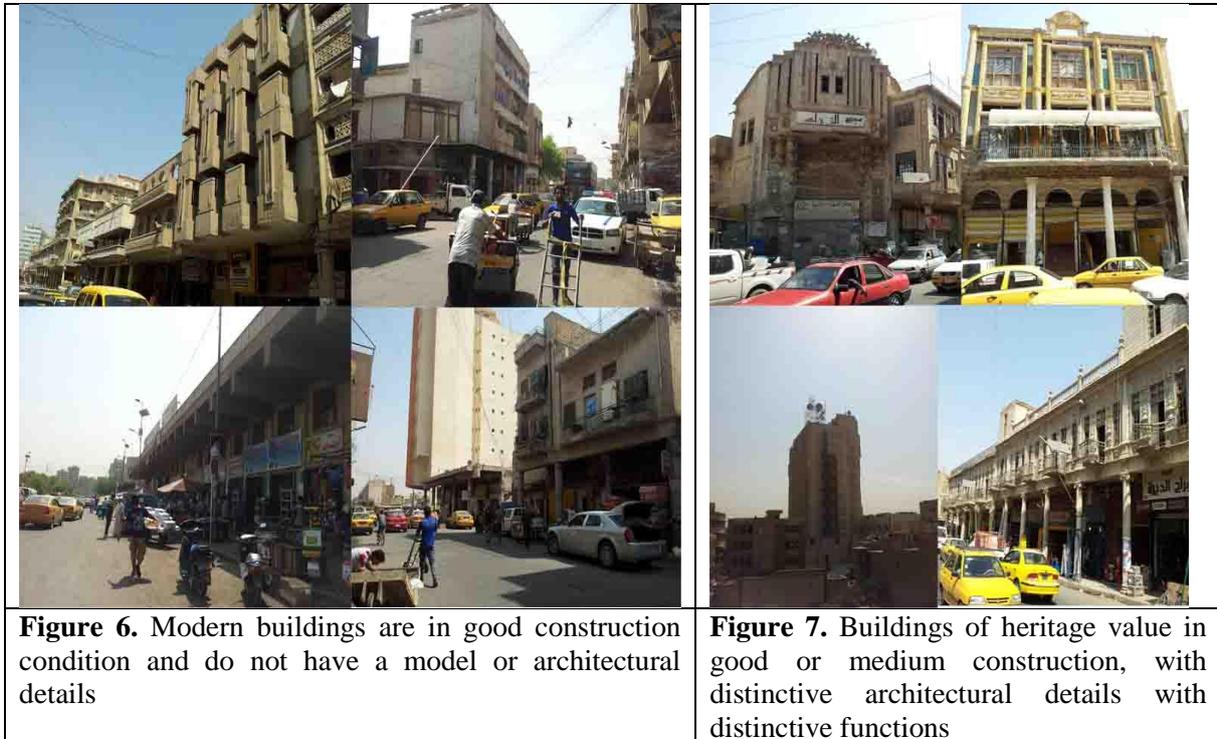


Figure 6. Modern buildings are in good construction condition and do not have a model or architectural details

Figure 7. Buildings of heritage value in good or medium construction, with distinctive architectural details with distinctive functions

6. Urban Development Plan:

The goals and objectives that the urban development plan seeks to achieve are related mainly to the problems that have been dealt with in addition to the historical, commercial and heritage importance of the region, which is constantly under threat and destruction. Therefore, the main objective of the urban development plan is to achieve real development of the region through the development and revitalization of the commercial and vital role of the city and preserve the urban fabric and distinctive urban character and the achievement of a thoughtful and more suitable for land uses.

6.1 Objectives of the development plan for the region:

- 1- Improve and raise the efficiency of the functional interaction of land uses and the reorganization of urban functions to suit the needs of the region.
- 2- Try to control the city scene by crystallizing the urban landscape of the study area, certainly on the principle of determining the heights and find the determinants of construction suitable for each part of the parts.
- 3- Determine the urban controls of the area or the standards used by the municipal bodies to preserve the nature of the area or develop it in a specific direction that does not cause loss of architectural and architectural identity between the old and the old.
- 4- Creating recreational areas and open spaces in the region for their lack.
- 5- Preserving the historical urban fabric that characterizes the region and keeps its original inhabitants or descendants of the parents and grandparents.
- 6- Improve the standard of living of the population, provide, and develop the necessary social and infrastructure services.

6.2 Proposed planning and design policies:

After the field survey conducted, and exit a number of results of the study area, which shows that the study area contains some of the constraints represented by the existence of a number of buildings with architectural value, such as heritage houses, and there is a historical dimension represents the existence of historical corridors of the run As well as the building of the Latin Church and the building of communications and the Ministry of Commerce and the position of the Senate, which needs a supplementary supplement to accommodate the size of vehicles, the development potential represented the presence of land between the building of the Ministry of Commerce and the building of communications to the Church Street and benefit from them For development purposes. Therefore, the policy in the region is the policy of compatibility between the development and maintenance, development of the commercial center of the Senak area, which includes the addition of new or replacement parts of the parts of the deceased or the addition of new buildings and the reorganization and distribution of land uses and preservation of historical parts or have a historical or important dimension in the formation region.

Based on what has been mentioned in the region and the problems facing it, and the urban plan is based on a series of planning and design policies interrelated and overlapping with each other and at the level of urban planning and urban design:

- Comprehensive planning policy for the region.
- Conservation policy for the region.
- Urban Design Policy.

7. Comprehensive planning policy:

which includes each of the following:

7.1 Development:

It is necessary to review the previous development projects proposed for the region, which lacked evaluation so that the development process was not followed up and maintained by programs that integrate the development projects within them within the region on one hand and the region and the surrounding urban fabric and its integration on the other. The development plan for the region should include the direction in which the events are directed efficiently to accommodate their desired expansion.

7.2 Land Use:

- 1- To increase the area's uniqueness and historical importance within the urban fabric of the city so that the introduction of strange or intensive uses that affect the historical value of the area must be prevented.
- 2- Activate and increase the activities related to the function of the area, such as increasing the area allocated for commercial use, especially in Al-Sinak Street, and preserving its characteristics, the integration and continuity between the traditional style and the contemporary style of commercial areas.
- 3- Restore existing cultural, recreational and religious functions Saika in the region - Cinemas, cafes and the church - In order to preserve the character of the region and prevent the tyranny of commercial use, and this can be through the reuse of heritage buildings in conservation areas and areas of visual importance or traditional buildings associated with urban fabric in the region to accommodate these events.
- 4- Improve the standards of the residential environment and maintain the residential function through the use of a balanced policy that combines rehabilitation and maintenance and redevelopment of the housing balance so that the maintenance of dilapidated housing units and the reconstruction of the units are very poor. Reducing residential densities and providing residential areas with services, infrastructure, and social services by exploiting some of the units or by preparing the land for use.

7.3 Area Conservation Policy:

The conservation policy is focused on preserving the constituent characteristics of urban personality and identity by:

- 1- Preserving the buildings of historical and heritage value with its urban framework and studying the possibility of reusing them with functions that do not contradict with their original functions.
- 2- Maintaining integrated areas - the central residential area.
- 3- Providing commercial and service activities, social services and infrastructure.
- 4- Preservation of the characteristics of the urban space configuration and urban character characteristic of the entire area such as corridors and narrow alleys and houses with a central courtyard and distinctive architectural features.

7.4 Urban Design Policy:

The Urban Design Policy sets out design indicators and controls to crystallize all elements of the urban structure and to formulate the general framework for the proposed development project which is consistent with the local identity and urban character of the area through the level of urbanization of the region achieved through:

- 1- Integration of conservation areas with each other and with other regions in the formation of the region as a whole and preservation of the characteristics of the urban fabric in the region through the application of special controls to control the development.
- 2- Determining structural patterns that affect the dominant urban fabric in terms of functionality and visual and on the urban space configuration of the region from the following aspects:
 - * Building heights: not exceeding the highest height of the building (32) meters of the natural surface level.
 - * Architectural style: This allows the formation of coherent blocks of buildings by employing buildings with internal spaces.
 - * Architectural style: the facades, which gives the human scale and the unity of architecture in the region.

8. Alternatives to the development plan:

The Urban Renewal Policy, which will be based on the three development alternatives for the study area (conservation and development). In light of the field study and the objectives of the development plan, planning alternatives have been prepared. Commercial use and business management will occupy priority in urban land use.

- Social Goals

- Community acceptance
- Preservation of historical and cultural assets

- Economic objectives

- Cost of land
- Economic linkages with the CBD
- The economic return of site development
- Cost of providing services

- Transport objectives

- accessibility
- Public transport support

- Location Properties

- Determinants
- Development slum area for future expansion
- Homogeneity of the urban fabric

8.1 The first alternative:

The study of urban development plan for the city of Baghdad was integrated in 2015 with the study of the development of Rusafa to find a consensual alternative between them, which shows:- Concentration of commercial activities along Al-Sinak Street, Khalafa and Al-Kurd Street, with the rehabilitation of the traditional commercial style of the commercial area and providing the necessary parking spaces for its service.- Apply conservation policy to the central area and adjacent to the use of housing, which includes the old heritage role and rehabilitation with replacement in some parts for religious and cultural uses.- Replacement of the roads in the commercial use section located between the former Ministry of Commerce building, and the communications building in new ways replacing existing organic roads and alleys.

8.2 The second alternative:

- Commercial dispersion in more than one center.
- Giving spaces for open spaces and green.
- Residential concentration in the central region.

8.3 Third Alternative:

- The plan was mixed between the originality of the intersection and the historical corridors and the structure of the distribution of blocks and preserved the urban fabric of the study area, by maintaining the hierarchy of spaces and spaces, direct and indirect through the alleys and winding of the region.
- The structural design plan for the land uses of the alternative is to expand the trade and business area so that it is an extension of Al-Khulafa Street with its public utilities by unifying the complementary buildings in a distinct manner and providing a number of industrial buildings for modern technology.
- Mixed use can be exploited as needed.
- The concentration of redevelopment in Al-Senak Street, Church Street, and Syed Sultan Ali Street.
- Minimize the need to create multi-story car parks by allocating the basement for this purpose in the commercial center in order to create a safe environment and more service functions and better as well as organizing the spaces in a manner that gives smooth movement and smooth better than the parking spaces associated with the movement of cars and disabled And the predecessor movement.

9. Evaluation of planning alternatives

The method of matrix achievement objectives in the evaluation of alternatives was based on this method of setting the weights of the goals of importance, and these sites were analyzed through the method of Achievement Matrix-GAM - and study the proposed alternatives from the economic, social, environmental and urban aspect and give weight to each factor These factors, through the use of this method, where (1 - 3) of the detailed objectives and points (1-10) and determine the best alternative to achieve the highest degree of access to each of these goals and then choose the best alternative of the proposed alternatives, see Appendix 1.

10. Conclusions

1-The study area suffers from the absence of open areas where the central area is crowded with old heritage buildings with a cohesive texture surrounded by a modern building area that did not take into consideration the existence of open areas as it is a commercial area where land prices increase.

2-The study area is considered one of the heritage areas with an ancient urban fabric that still preserves the characteristics of the urban heritage. In order to highlight the historical value, maintenance, and maintenance of historic areas, it is necessary to conduct a comprehensive analysis of the urban fabric, considering the value of the heritage and the image that can be formed by the buildings group and surrounding areas.

3-Among the important urban aspects that have emerged as obstacles have affected the development of urban areas in Baghdad, the theme of the organization of the city scene, which reflects the imbalance in the appearance of contradiction and sharp conflict between the old and modern between the traditional Baghdadi environment with distinctive cultural values and contemporary development, which symbolizes the era of high technology and rapid changes .

4- The absence of clear urban regulations or standards used by the municipality to preserve the nature of the area or develop it in a specific direction, thus making the public output a heterogeneous mixture of buildings and loss of architectural identity between modern and old for the study area.

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Appendix 1**Table 1.** the Matrix 1 Investigation Objectives:

Objectives				Alternatives					
				alternative the first A		alternative The second B		alternative the third C	
T	Objectives	Objectives	Weights	Factor	Weighting	Factor	Weighting	Factor	Weighting
	the public	Detailed		value		value		value	
1	The Urban	Override settings	3	5	15	7	21	6	18
2	Side	Future expansion	2	6	12	5	10	7	14
4		Homogeneity with urban fabric	2	8	16	7	14	8	16
5	Economic factor	Cost of land	3	8	24	8	24	8	24
6		Economic links with CBD	2	9	18	7	14	7	14
8		Cost exceeded settings	3	8	24	6	18	8	24
9		Cost of providing services	3	8	24	6	18	8	24
10	Transport and Traffic	Effective transit processing	2	8	16	7	14	9	18
11	Agent	Easy access	2	8	16	6	12	8	16
12	Social factor	Community acceptance	2	9	18	8	16	9	18
13		Social homogeneity	3	8	24	7	21	7	21
Total				119		192		223	

Table 2. Analysis Sensitivity, Weight Target the new in an analysis Sensitivity the above Less and at least Top

Objectives		Alternatives							
T	Objectives the public	Objective s Detailed	Weigh ts	The first alternative A		The second alternative B		The third alternative C	
				Valu es Facto r	the weight Preponder ant	Valu es Fact or	the weight Preponder ant	Valu es Fact or	the weight Preponder ant
1	the side Urban	Overrun Determina nts	1	5	5	7	7	6	6
2		Expansion Future	2	6	12	5	10	7	14
4		Homogen eity With Weaving Urban	1	8	8	7	7	8	8
5	Factor Economic	cost Earth	1	8	8	8	8	8	8
6		Links Economic With CBD	1	9	9	7	7	7	7
8		cost Overrun Determina nts	3	8	24	6	18	8	24
9		cost Provide Services	1	8	8	6	6	8	8
10	Worker Transporta tion	Processin g Transit In force	3	8	24	7	21	9	27
11	Traffic	ease Access	1	8	8	6	6	8	8
12	Factor Social	Acceptanc e the society	1	9	9	8	8	9	9
13		Homogen eity Social	3	8	24	7	21	7	21
Total				139		119		140	

Table 3. Analysis Sensitivity Weight Target the new in an analysis Sensitivity Equal for every weight:

Objectives				For our audit					
				The first alternative A		The second alternative B		The third alternative C	
T	general aims	Detailed objectives	Weights	Factor value	Weighting	Factor value	Weighting	Factor value	Weighting
1	The Urban Side	Override settings	2	5	10	7	14	6	12
2		Future expansion	2	6	12	5	10	7	14
4		Homogeneity with urban fabric	2	8	16	7	14	8	16
5	Economic factor	Cost of land	2	8	16	8	16	8	16
6		Economic links with CBD	2	9	18	7	14	7	14
8		Cost exceeded settings	2	8	16	6	12	8	16
9		Cost of providing services	2	8	16	6	12	8	16
10	Transport and Traffic Agent	Effective transit processing	2	8	16	7	14	9	18
11		Easy access	2	8	16	6	12	8	16
12	Social factor	Community acceptance	2	9	18	8	16	9	18
13		Social homogeneity	2	8	16	7	14	7	14
Total				182		148		186	

Table 4. Analysis Sensitivity Weight Target the new in an analysis Sensitivity the least Top the rest Fixed

Objectives				Alternatives					
T	general aims	Detailed objectives	Weights	The first alternative A	The second alternative B	The third alternative C			
				Factor value	Weighting	Factor value	Weighting	Factor value	Weighting
1	The Urban	Override settings	3	5	15th	7	21	6	18
2	Side	Future expansion	2	6	12	5	10	7	14
3		Distance from center	3	6	18	5	15th	8	24
4		Homogeneity with urban fabric	2	8	16	7	14	8	16
5	Economic factor	Cost of land	3	8	24	8	24	8	24
6		Economic links with CBD	3	9	27	7	21	7	21
8		Cost exceeded settings	2	8	16	6	12	8	16
9		Cost of providing services	3	8	24	6	18	8	24
10	Transport and Traffic	Effective transit processing	3	8	24	7	21	9	27
11	Agent	Easy access	2	8	16	6	12	8	16
12	Social factor	Community acceptance	3	9	27	8	24	9	27
13		Social homogeneity	3	8	24	7	21	7	21
Total				220	198	224			

Table 5. Analysis Sensitivity Weight Target the new in an analysis Sensitivity Mediterranean Less the rest Fixed

Objectives				Alternatives					
				The first alternative A		The second alternative B		The third alternative C	
T	general aims	Detailed objectives	Weights	Factor value	Weighting	Factor value	Weighting	Factor value	Weighting
1	The Urban	Override settings	3	5	15th	7	21	6	18
2	Side	Future expansion	3	6	18	5	15th	7	21
3		Distance from center	1	6	6	5	5	8	8
4		Homogeneity with urban fabric	3	8	24	7	21	8	24
5	Economic factor	Cost of land	1	8	8	8	8	8	8
6		Economic links with CBD	3	9	27	7	21	7	21
8		Cost exceeded settings	3	8	24	6	18	8	24
9		Cost of providing services	1	8	8	6	6	8	8
10	Transport and Traffic Agent	Effective transit processing	3	8	24	7	21	9	27
11		Easy access	3	8	24	6	18	8	24
12	Social factor	Community acceptance	1	9	9	8	8	9	9
13		Social homogeneity	3	8	24	7	21	7	21
13									
Total				202		178		205	

Table 6. Sensitivity Analysis The weight of the new target in the mean sensitivity analysis is lower and the remainder constant

T	general aims	Detailed objectives	Weight	Alternatives					
				The first alternative A		The second alternative B		The third alternative C	
				Factor value	Weighting	Factor value	Weighting	Factor value	Weighting
1	The Urban	Override settings	3	5	15th	7	21	6	18
2	Side	Future expansion	1	6	6	5	5	7	7
4		Homogeneity with urban fabric	1	8	8	7	7	8	8
5	Economic factor	Cost of land	1	8	8	8	8	8	8
6		Economic links with CBD	3	9	27	7	21	7	21
8		Cost exceeded settings	1	8	8	6	6	8	8
9		Cost of providing services	1	8	8	6	6	8	8
10	Transport and Traffic	Effective transit processing	3	8	24	7	21	9	27
11	Agent	Easy access	1	8	8	6	6	8	8
12	Social factor	Community acceptance	1	9	9	8	8	9	9
13		Social homogeneity	3	8	24	7	21	7	21
Total				142		130		148	