

# NOISE POLLUTION IN THE RUSAFA SIDE OF THE CITY OF BAGHDAD

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## ABSTRACT:

*102 sites were selected to monitor the noise at the ( Rusafa ) side of Baghdad city for various activities and locations for several human uses. During three daily observations for one month and during January and July, the first represents winter and the second is summer. The city of Baghdad with high noise levels and above the limit for many human uses and other activities according to the standard of the Iraqi Ministry of Health and according to the global standard WHO,Noise levels are acceptable only for some evening observations of some educational uses, either because some of these educational sites are located on the main streets of traffic or in residential areas and houses, or because other educational uses (universities) do not have evening studies in order to be Noise monitoring was observed nearby. As for the educational sites, the noise was due to the proximity of the main streets and the traffic congestion near the monitoring site.*

## AN INTRODUCTION:

The problem of noise pollution is one of the problems facing the modern developed world, whose effects are not limited to one place or the other, except in some barren areas. They affect the entire population at different ages, their living standards, the diversity of their species and the diversity of their environments. This problem is not recent and urgent. This is not limited to developing countries that suffer from poor planning and overlapping of activities and jobs whether industrial, commercial, residential, educational, health, transportation, etc., but also to the developed countries due to the progress and development of the industry And broadening trade exchanges.

The noise was monitored in Rusafa / Baghdad in 2018 by a noise measurement device and monitoring the highest noise level in the measurement areas and for two months of the year in January and July. In each month, noise was monitored for (102) (9) am and 9 pm in the first ten days of January and July, the second ten days and the ten days of the third and two observations in the morning and evening for each of the 102 sites. (1-3) meters from designated monitoring areas in the study area.

A / 9 monitoring for the measurement of noise pollution in the Rusafa side of the city of Baghdad in January:

**First: Spatial and temporal analysis of the noise pollution of most road intersections in the Rusafa side of Baghdad city according to land uses in January:**

Table 1 shows that the noise level at most of the major road junctions of the Rusafa district of Baghdad in January for the three noise observations is above the international and local standard for the noise level as shown in Tables 2 and 3, Road intersections are more noisy (Al-Kholani Intersection, Al-Wathba Intersection, Al Nahda Intersection). These areas are the areas of the Rusafa district center as well as commercial and marketing centers very close to them. The noise was monitored 1-3 meters from the main intersections center in Rusafa district, The lowest levels of noise detected during the month of 2018 for observations (9) am for three observations per month were for the districts (city of medicine and engineers) due to the regularity of traffic control and traffic regulation in these areas. Noise is also high for the world standard And the local noise.

Table (2) Monitoring the 9 am during the month of January for most of the crossing areas of bridges in the Rusafa sector					Table (1) Monitoring the ninth am during the month of January For most intersections roads in Rusafa district				
Third Pillar	Second Pillar	The first berth	Web site name	T	Third Pillar	Second Pillar	The first berth	Web site name	T
78.2	77.9	75.3	Muthanna	22	77.1	75.6	75	The Prince Restaurant	1
69.3	72.3	71.1	Sarafia	23	75.2	76.1	76.3	Health Street	2
75.1	74.5	73.4	The door of the great	24	78.9	78.7	78.3	The call collector	3
78.2	77.3	79.1	The Sunk	25	81.2	80.3	79.3	Intersection of money	4
71.1	75.2	72.1	Crucifixion	26	73.2	73.4	72.3	Beirut Square	5
70.2	69.1	68.3	Baghdad	27	84.6	83.5	82.3	Palm Mall	6
72.1	73.5	73.4	Abounas / Mansour	28	79.4	77.2	79.3	The Eastern Door	7
73.1	73.1	74	People	29	78.3	80.1	79.3	The door of the great	8
70.3	72.1	71.3	Banks / Waziriya	30	79.2	81.3	80.3	Intersection of Renaissance	9
Table (3) Monitoring the ninth morning during the month of January for most of the industrial neighborhoods in Rusafa sector					77.3	78.3	79.3	Market neighborho od	10
					70.4	70.3	72.2	Engineers	11

Third Pillar	Second Pillar	The first berth	Web site name	T	102.5	97.2	95.3	Khalani	12
74.2	74.3	75.1	New Baghdad	31	91.3	88.3	89.2	Wathba Square	13
70.9	72.1	74.1	Sheikh Omar	32	78.1	78.3	79.3	White Cinema	14
73.2	74.1	73.3	Bab Al-Sharqi	34	73.2	75.3	73.4	Darwish	15
71.9	70.1	71.4	Husseiniya	35	75.1	74.2	72.3	Arboretum / canal	16
78.3	79.3	78.3	Student	36	75.9	73.6	75.2	Nurseries / Municipalities	17
69.3	71.1	73.2	the Palestine street	37	76.3	76.1	76.2	Maysaloun Square	18
66.4	65.1	66.3	The door of the great	38	76.9	76.3	75.3	People Stadium	19
Source: Based on field monitoring in 2018.					74.2	75.3	75.2	The door of the greatpalaste n	20
					69.1	70.3	70.1	Medical City	21

**Second: Spatial and temporal analysis of the noise pollution of most of the transit areas of the bridges in the Rusafa side in Baghdad city according to land uses in January:**

Table 1 shows that the highest noise measurement in Rusafa for most of the bridge crossing areas of the study area was in Al-Sank and Al-Muthanna, while monitoring the noise 1.5 meters from the bridge site and due to traffic congestion. The main commercial areas located in the areas mentioned at 9 am, During the three observations during the study period. The noise monitoring in the noise measurement unit in the decibel unit was less than the selected areas mentioned above (Baghdad Bridge / Al-Dar and Al-Sarafiya) due to the ease of moving during the last bridges. The second bridge, the above mentioned analysis, states that the bridge crossing areas are polluted areas according to the international standard, Look at Map (1).

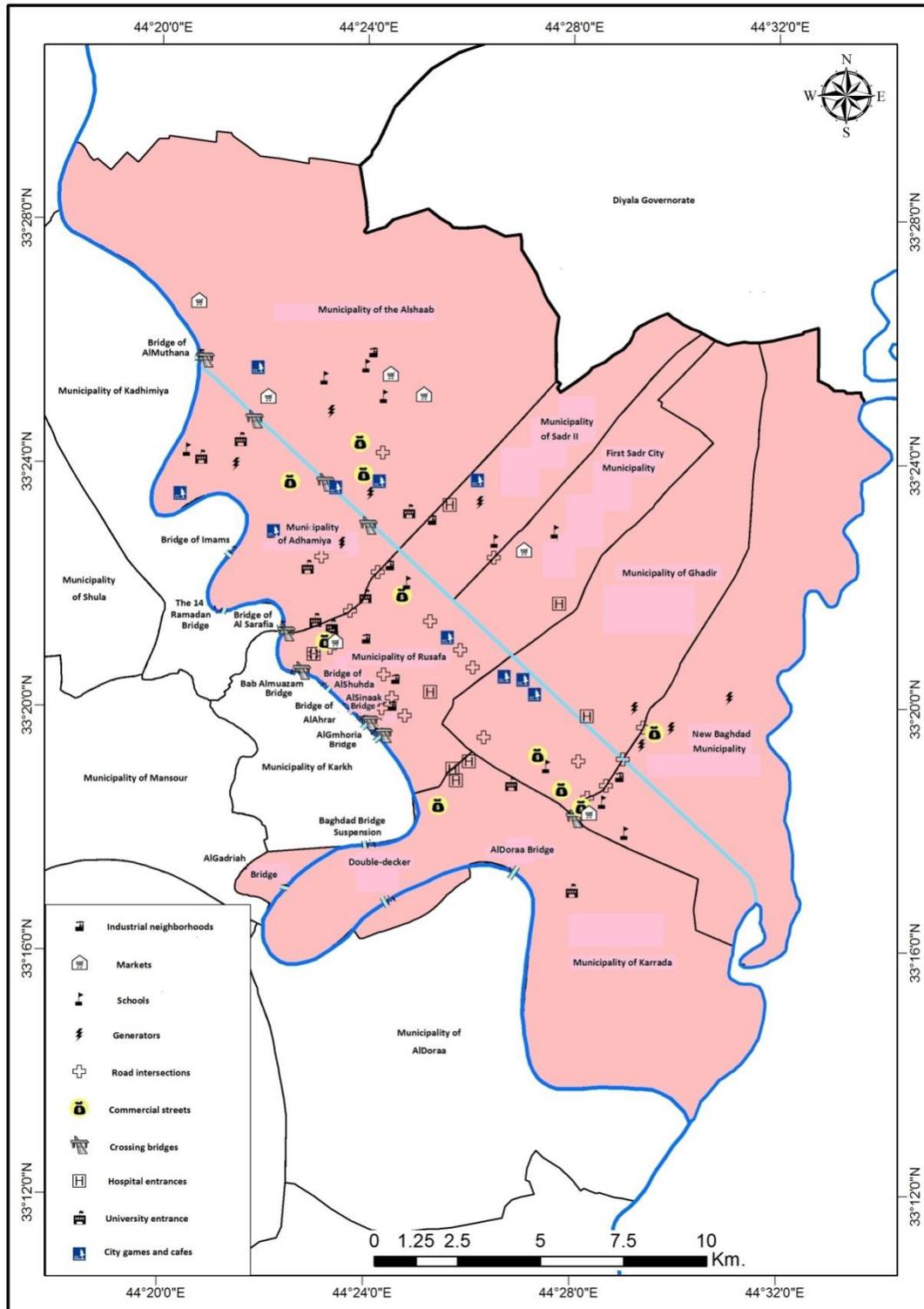
**Third: The spatial and temporal analysis of the noise pollution of most industrial neighborhoods in the Rusafa side in Baghdad city according to land uses in January:**

Table 2 shows that most areas of industrial neighborhoods in Al Rusafa sector suffer from noise pollution and that there is slight variation in noise between regions, but on the whole they measured

unacceptable noise according to international and local standards. The industrial neighborhoods in Talbieh, New Baghdad, and Sheikh Omar were descending in order to monitor the least noise in the morning schedule of 2018 in January in the industrial districts of Husseiniya. This discrepancy is due to the fact that there are major areas such as major industrial districts, secondary and secondary areas Located in the outskirts of Baghdad if it is Q noise out compared with the main neighborhoods.

**Fourth: The spatial and temporal analysis of the noise pollution of the entrance of universities and colleges in Rusafa side in Baghdad city according to land uses in January:**

Table (4) shows that the highest measurement of noise for morning observations in January at 9 am during the three observations in the noise measuring device 1.5 meters away, where the first ranking is the University of Mustansiriya for noise pollution, This is due to the overcrowding of the students and the traffic congestion of the student and staff transport lines near the entrance gates of the university, and also because of the location of the university near the main street and Asay in the Rusafa sector. The last arrangement in noise pollution is the entrance to the College of Engineering / University of Mustansiriya, The College of Traffic congestion and also to the closure of the main street corresponding to the unified garage (Bab al-Mu'amad) by the security forces in the Rusafa sector, and this has the main role in the occupation of the last arrangement of noise measurement noise device 2 meters away from the entrance to the Faculty of Engineering, Mentioned • It is not within the internationally and locally allowed standard.



Map (1): Geographical distribution of land uses in the study area( Alrusafa Side ).

Table (5) Monitoring the 9 am during the month of January for most of the entrances to hospitals in Rusafa district					Table (4) Monitoring the ninth morning during the month of January to the entrances of universities and colleges in the Rusafa sector				
Third Pillar	Second Pillar	The first berth	Web site name	T	Third Pillar	Second Pillar	The first berth	Web site name	T
65.4	67.3	68.3	Medica- l City	50	71.4	70.3	72.1	Bab Al Ma'amam Complex	39
70.3	71.4	70.2	Cheikh Zayed	51	68.4	69.3	70.5	Faculty of Engineering Mustansiriya	40
75.9	74.8	74.4	Canadia n	52	72.7	73.4	74.2	Fine arts	41
76.9	76.3	76.3	Upper birth	53	74.9	75.8	75.4	Mustansiriya University	42
68.9	69.3	71.7	Ibn al- Bitar	54	75.9	75.8	73.4	University AL Iraqia	43
65.9	63.9	65.6	Son of the cavern of the spinal cord	55	70.3	70.2	70.1	Baghdad Administration and Economy	44
75.3	72.3	78.3	Al- Zahraw i	56	75.1	73.4	72.3	Management of Mustansiriya economy	45
75.8	75.3	73.4	My cousin	57	76.8	74.3	75.1	University of Technology	46
62.3	65.3	66.3	Hamma d Shehab Al- Askari	58	69.3	70.8	70.1	Zafarani Institute of Technology	47
Source: Based on field monitoring in .2018					73.8	74.7	75.7	Institute of Management	48
					70.6	69.3	71.4	Faculty of Law / Mustansiriya	49

**Fifth: Spatial and temporal analysis of the noise pollution of most of the hospital entrances in the Rusafa side in Baghdad city according to land uses in January:**

Table 5 shows that the highest measurement of noise levels at Rusafa during 2018 and morning balances at the entrance of hospitals were respectively (Upper Birth Hospital and Al-Zahrawi Obstetrics Hospital) due to the nature of the cases treated by these hospitals And the majority of the cases of childbirth that accompanied by noise from the reviewers and also noise from the persons accompanying the patients, in addition to the sites of the first hospital, is a key location for The second site of the Al-Zahrawi maternity hospital is characterized by a popular location that is overcrowded and also has one of the main markets for vegetables and foodstuffs. Therefore, the noise level is very high and not very high. • International and local standards.

As for the lowest levels of noise from the entrances to hospitals respectively, the hospital was (Hammad Shehab Al-Askari), due to the location of the hospital, which is on the outskirts of northern Baghdad and also because of the lack of assault and after the main street and the congestion of cars speeding and chaos.

#### **Sixth: The spatial and temporal analysis of the noise pollution of most commercial streets in the Rusafa side of Baghdad city according to land uses in January:**

Table (6) shows that the highest values of noise for the commercial streets in Rusafa in 2018 and for the morning balances in January during the three observations were for the commercial streets (New Baghdad and Palestine) in sequence, because these streets are considered commercial streets Home Shopping Centers The main roads, which are the main roads and the main ones, are the main ones, the main ones are the main roads and the food and the main roads are less noisy. The streets are not congested at 9:00 am, and the traffic is also flexible during the monitoring hour. • Commercial streets in Rusafa are polluted according to international standards and local standards.

Table (7) Monitoring the 9 am during the month of January for some commercial and residential generator sites in Rusafa sector					Table (6) Monitoring the ninth morning during the month of January for most of the commercial streets in the Rusafa sector				
Third Pillar	Second Pillar	The first berth	Web site name	T	Third Pillar	Second Pillar	The first berth	Web site name	T
99.9	99.4	100.4	People	69	76.3	75.3	74.3	Bank Street	59
93.5	94.9	95.8	GeneratorsCrucifixion	70	78.6	78.5	78.3	the Palestine street	60
89.5	91.4	90.5	GeneratorsNew Baghdad	71	80.1	79.5	79.2	New Baghdad	61
101.5	99.9	97.7	GeneratorsASSADAR city	72	76.9	75.8	76.3	Aden Street	62
66.7	65.9	65.4	GeneratorsArboretum	73	73.4	70.9	70.1	Office Street	63
78.8	77.5	76.7	GeneratorsMunicipalitie	74	67.4	68.3	69.3	Al	64

			s					Mutbak Street	
90.9	88.7	89.9	GeneratorsCairo	75	66.7	63.9	65.4	Al Rubaie Street	65
54.4	52.4	51.6	GeneratorsSecretary	76	63.6	63.9	62.8	Salikh Street	66
44.2	43.9	43.3	GeneratorsHusseiniya	77	74.5	75.5	76.3	Al Mutair Street	67
.Source: Based on field monitoring in 2018					77.9	76.5	77.5	Karrada Street inside	68

**Seventh: The spatial and temporal analysis of the noise pollution of some commercial and residential generators in the Rusafa side of Baghdad city according to land use in January:**

Table 7 shows that the highest rate of noise measurement at Rusafa in January 2018 at 9 am was for a generator in the city of People and ASSADAR city, respectively, due to the increased momentum and energy generated by these Generators by virtue of their commercial location. Most of its uses are commercial with very high energy and torque and also because of its proximity to the main street or its location on the central islands. For the main streets and at a distance of 1-3 meters, the noise of the traffic and speed of the vehicles and the sound alarms and the sound of the generators are studied. The lowest noise monitoring sites in the city were located in the secretary and Husseinia area. Major commercial areas or large commercial congestion. These generators are also not required to operate in the winter season, which is a winter season that overlooks the need for electric power. However, they do not meet the local and international standards of noise and land use.

**Eighth: Spatial and temporal analysis of the noise pollution of some of the sites of the various schools in the Rusafa side in the city of Baghdad according to land uses in January:**

Table 8 shows that the highest monitoring of noise pollution in 2018 during the ninth morning of January for educational use was in the sequence of (ASSADAR city and primary city of ASSADAR city) due to the nature of this region which suffers from population explosion. For the population compared to occupied space, and this is reflected in the schools that are located in this city are also suffering from exceeding the limit allowed in the classroom, and also applies to most schools in the area mentioned above.

The lowest schools are polluted by the same balances for the same year and in the same time in descending order respectively (Al-Rubaie Street and Gulf School / Gulf district). The reason for the low noise in these schools is that they are girls' secondary schools first. The number of students per class is higher than the schools mentioned above and also due to the somewhat higher awareness of the population in these areas and the fact that they are considered from the areas that are not poor compared to the first and second schools. Most of the noise observed is due to the location of the schools, in the affected area. Where the latter parent schools and added to the noise of the school,

and though all the schools under study and through monitoring are not matching the global and local standards for noise. •

Table (9) Monitoring the 9 am during the month of January for some entertainment sites in Rusafa district					Table (8) 9 am during the month of January for some secondary and primary school sites in Rusafa district				
Third Pillar	Second Pillar	The first berth	Web site name	N	Third Pillar	Second Pillar	The first berth	Web site name	N
76.7	78.9	76.5	City of Games Sinbadl	88	77.6	75.5	77.7	New /Excellencies Baghdad	78
74.5	75.4	74.3	City of Baghdad Games	89	73.5	74.5	73.3	A / Gulf / Darwish area	79
64.8	65.4	68.3	The tourist island	90	73.6	72.5	73.5	D. Al-KhansaAl Rubaie Street	80
60.1	61.8	62.6	The House of Tabra	91	74.7	73.9	74.5	People/D. Al-Osaimi	81
40.3	41.2	40.1	Coveies and banks cafes	92	73.6	74.3	72.3	/D.Tawaah Husseiniya	82
70.1	69.3	68.3	For greenthe Palestine street	93	77.9	78.9	78.3	A. Husseiniya/Pleasure	83
54.6	58.3	55.8	Elia El Corniche	94	78.9	78.5	77.3	Th.Engineers / Engineers	84
54.5	57.2	59.3	Separate cafesPeo ple Crucifixion and ASSAD	95	74.8	73.9	75.5	/TH.Crucifixion Crucifixion	85

		AR city						
Source: Based on field monitoring in .2018	78.9	79.5	79.9	ASSADAR/Primary city	86			
	79.9	78.8	77.9	High ASSADAR /School city	87			

**Ninth: Spatial and temporal analysis of the noise pollution of some recreational sites in the Rusafa side in Baghdad city according to land uses in January:**

Table (9) shows that the highest level of noise monitoring during the month of January at 9 am and at 2 meters was in accordance with the City of Games Sinbadl and Green. This is due to the fact that it is a major entertainment venue and most of the students' And back to the sound of the fuss that is produced by the movement of the many games that are in it and also back to the main road which is located on the way of the army channel, which is a major highway to the City of Games Sinbadl, As for green, these The park is a park for the owners of intellectual games (table, domino, and chess), but do not complain of a large crowd in the morning and most of the noise observed near it is because of the location of the park opposite the University of Mustansiriya headquarters, which has four colleges and the average number of people who enter the 30 A thousand people a day, and thus cause a great traffic jam and sounds of sound stimuli, and this has a great impact on the noise and noise from them.

As for the least noise was monitored for the entertainment sites in (banks, Corniche and Elia cafes in the area of the creations) and that is because these cafes are in fact cafes, Cornets and entertainment sites that start work after 4 pm and there is no morning activity, The noise is at a distance of 2 meters until the first location is located between the two main adjacent to the army channel and adjacent to the main street of the banks. These roads are known for the first speed of traffic and the second overcrowding, which is why noise during monitoring, and therefore is among the effects on recreational areas of noise, Location The second is because it occurs at the main entrance to the area of the crevices and the narrow road leading to the entrance to the area, causing noise due to lack of breadthThe road and the number of cars that crowded at the entrances of the area mentioned, and therefore the noise resulting not because of the recreational use because they are places of recreational use only afternoon, and in spite of the reasons and analysis mentioned, they do not fit the standards of global and local entertainment only the last two sites mentioned. •

**Tenth: Spatial and temporal analysis of the noise pollution of some local shopping sites in the Rusafa side of Baghdad city according to land uses in January:**

Table (10) shows that the highest noise pollution in the Rusafa side of the city of Baghdad for 2018 in January and the balances of 9 am for the local markets were in accordance with Husseiniya market and Bab al-Mu'amaz market. The reason is that these positions occupy the top position despite the differences Few of them with other markets in terms of noise but the loudest noise in them is that the first market is a popular market of the rankingThe first and Alwa for the sale of fruits and vegetables is also a major and dependent on more than 500000 people daily as a major donor of daily food, and it is characterized by heavy traffic during monitoring at a distance of 3

meters at 9 am, while the second market is also a major center for the marketing of fruits and vegetables and food and finances a lot of But it is easy to move inside and wide compared to the first market and also the traffic is not all roads lead to easily, which prevented a large proportion of the population from going to him, but still is characterized by noise with other markets, and without the circumstances mentioned above, Members.

As for the less noisy markets among the selected measurement areas, Al-Fahmah market has the most recent position in the sequence after the market from the crowded housing centers. It can be considered a shopping area in the area of Al-Fahmah and also due to the fear of the security situation. The region prevailed, and despite the above mentioned reasons, it is still in line with international and local noise standards in local shopping areas.

(Table 10 Monitoring the 9 am during the month of January for some local shopping sites in Rusafa sector				
Third Pillar	Second Pillar	The first berth	Web site name	٢
68.5	69.5	70.1	Souq Al Fahama	96
71.4	73.5	74.5	Al Rashidiya Market	97
74.7	76.8	77.3	Market 4 thousands	98
76.8	78.5	77.2	MarketNew Baghdad	99
78.7	78.3	78.9	MarketASSADAR city	100
76.9	78.6	79.8	MarketThe door of the great	101
79.7	79.1	80.3	MarketHusseiniya	102

.Source: Based on field monitoring in 2018

B / 9 pm to measure the noise pollution in the Rusafa side of the city of Baghdad in the month of January:

#### **First: Spatial and temporal analysis of the noise pollution of most road intersections in the Rusafa side of Baghdad city according to land uses in January:**

Table (11) shows that the highest level of noise for the traffic intersections in the Rusafa area of Baghdad during the night observation in January 2018 and three observations per site in the month mentioned that the highest level of noise was for the sites (Maysaloun Square and Beirut Square) on the relay. These areas are areas of night walks throughout the Rusafa district of many of the families living near these areas and even away from them resort to it for hiking and also for the

roaming and this causes traffic jams and traffic jams bring noise to these areas during the monitoring, for the lowest sites (Intersection Traffic T.) polluted Daudhaiaa(Medical City and Prince Restaurant). This is due to the prevention of the night visit to the patients in the main hospital. There is no momentum for the visitors at the intersection and the end of the official and actual hours. There is no crowding for the employees, but only the staff who are stationed at night. It is a purely residential area where there is no industrial activity and commercial traffic is very low at 9:00 pm during monitoring and noise, which is only due to traffic, so it does not meet international and local standards for the last intersection and is acceptable, For Medical City noise in these places at night. •

Table (12) During the month of January, most of the crossing areas of the bridges in the Rusafa sector were observed					Table (11) pm during the month of January for 9 most intersections roads in Rusafa sector				
Third Pillar	Second Pillar	The first berth	Web site name	T	Third Pillar	Second Pillar	The first berth	Web site name	T
63.5	62.4	62.3	Muthanna	22	62.2	65.1	65.3	The Prince Restaurant	1
68.9	69.8	69.9	Sarafia	23	71.3	70.5	71.1	Health Street	2
62.5	62.3	62.3	The door of the great	24	71.9	72.2	73.5	The call collector	3
67.5	68.1	67.7	The Sunk	25	74.1	74.5	74.1	Intersection of money	4
72.2	71.3	71.2	Crucifixion	26	74.9	75.3	75.1	Beirut Square	5
67.7	68.9	68.8	Baghdad	27	73.9	73.9	74.1	Palm Mall	6
74.8	75.1	74.4	Abounas / Mansour	28	69.3	69.3	69.1	The Eastern Door	7
74.8	75.1	74.1	People	29	69.2	68.1	68.2	The door of the great	8
72.3	71.3	71.1	Banks / Waziriya	30	65.4	65.3	65.1	Intersection of Renaissance	9
(Table 13) pm during the month of January for most 9 of the industrial neighborhoods in Rusafa sector					72.5	72.4	72.3	MarketDistrict	10
					70.3	70.4	70.5	Engineers	11
Third Pillar	Second Pillar	The first berth	Web site name	T	70.9	70.5	70.2	Khalani	12
47.3	48.5	45.3	New Baghdad	31	69.3	71.3	71.5	Wathba Square	13
47.9	48.5	48.9	Sheikh Omar	32	71.4	70.4	70.2	White Cinema	14

53.8	53.5	53.3	Bab Al-Sharqi	34	73.5	73.4	73.3	Darwish	15
58.4	59.3	58.3	Husseiniya	35	72.1	71.1	70.5	Arboretum With the channel	16
65.5	64.5	63.3	Student	36	69.9	72.3	71.5	Nursery with municipalities	17
66.8	67.5	66.3	the Palestine street	37	76.6	74.9	77.3	Maysaloun Square	18
65.9	65.3	65.5	The door of the great	38	74.1	73.9	73.1	Playground People	19
.Source: Based on field monitoring in 2018					64.1	65.2	64.4	The door of the great Palasten	20
					57.9	58.3	58.1	Medical City	21

**Second: Spatial and temporal analysis of the noise pollution of most of the transit areas of the bridges in the Rusafa side in Baghdad city according to land uses in January:**

Table (12) shows that the highest measurement of noise during bridge crossing was for Abu Nuwas Bridge and People Bridge. This is due to the first because it is considered to be the main commercial areas in the city of Baghdad, Al-Mansour area, There are many noise areas in these areas, and the least polluted areas are the "Door of the Great" and the "Al Fares" bridge. This is due to the fact that the first bridge due to lack of commercial movement and educational movement, which is the main reason for the crowding during the day and also not to go this passersby to this place at night only for the old housing remaining from Baghdad, or for Baghdad is a purely residential bridge to be used for the people of the region It must be crowded at night, and therefore do not conform to international and local noise standards.

**Third: Spatial and temporal analysis of the noise pollution of most of the transit areas of bridges in the Rusafa side in Baghdad city according to land uses in January:**

Table (13) shows that the highest level of noise pollution for the evening balances in January at the Rusafa side of the bridge crossing areas was the first ranking of the Palestine street bridge facing the Mustansiriya University, due to its proximity to the main commercial centers As well as adjacent to parks, cafes and night casinos, contributed to increased noise in the monitoring area. During the three observations in the above month, respectively, the latest arrangement of the New Baghdad Bridge was due to the fact that this major commercial area in the morning, And isolation Almost This is due to the fear of most of the residents of this area and the occupants of the security situation that had prevailed in the past at a time, the least areas were contaminated by noise at night for the crossing areas of bridges, They are not within the international and local standards for acceptable levels of noise for Area I and are within the allowable standard for the New Area.

Third: Spatial and temporal analysis of the noise pollution of most of the transit areas of bridges in the Rusafa side in Baghdad city according to land uses in January:

Table (13) shows that the highest level of noise pollution for the evening balances in January at the Rusafa side of the bridge crossing areas was the first ranking of the Palestine street bridge facing the Mustansiriya University, due to its proximity to the main commercial centers And also

adjacent to parks, cafes and night casinos, has contributed to increased noise in the monitoring area, and during the threeThe latest arrangement of the New Baghdad Bridge was due to the fact that this major commercial area was in the morning, but it was suspected of almost complete inactivity and isolation at night, especially after the monitoring period and in the winter, due to fear Most of the residents of this area and the occupants of the security situation that had previously prevailed at one time, the least areas were contaminated by noise at night for the crossing areas of bridges, although it is not within the international standards and local levels of noise acceptable for the first area, The name (New Baghdad).

#### **Fourth: The spatial and temporal analysis of the noise pollution of the entrance of universities and colleges in Rusafa side in Baghdad city according to land uses in January:**

Table (14) shows that the highest noise pollution for university sites in Rusafa was to the Institute of Management. This is due to the fact that the monitoring at 9:00 pm is not because of the night attendance at the universities because this is not possible due to the end of evening work at 5:00 pm. Noise pollution at this time due to the proximity of the Institute of Management of the main road is a mode of movement between the Karkh and Rusafa, and the least monitoring area in the Rusafa side of the College of Engineering Mustansiriya and this is after the collegeThe traffic congestion near the observation area during the day is almost non-existent at night. There are no high levels of noise as the day is monitored for pollution as a night noise pollution monitor, and generally it is not within the acceptable levels of noise for the first and last location. Within acceptable noise levels of the global standard.

Table (15) 9 pm during the month of January for most of the entrances to hospitals in Rusafa district					Table (14) The ninth evening during the month of January for the entrances of universities and colleges in the Rusafa sector				
Third Pillar	Second Pillar	The first berth	Web site name	T	Third Pillar	Second Pillar	The first berth	Web site name	T
61.3	61.3	61.1	Medical City	50	54.3	55.3	75.3	Bab Al Ma'amam Complex	39
67.8	67.8	67.3	Cheikh Zayed	51	52.9	52.8	53.3	Faculty of Engineering Mustansiriya	40
66.9	67.3	66.3	Canadian	52	64.1	64.1	63.3	Fine arts	41
68.3	68.3	68.1	Upper birth	53	66.3	67.5	65.5	Mustansiriya University	42
62.9	63.9	63.8	Ibn al-Bitar	54	59.6	59.2	59.8	University AL Iraqia	43
64.8	65.3	64.1	Son of the cavern	55	56.3	57.3	58.1	Baghdad Administration and Economy	44

			of the spinal cord						
68.3	67.3	68.3	Al-Zahra wi	56	57.8	58.1	57.3	Management of Mustansiriya economy	45
65.8	65.5	65.3	My cousin	57	64.8	65.4	64.2	University of Technology	46
52.3	50.3	51.3	Hammad Shehab Al-Askari	58	58.9	58.3	58.2	Zafarani Institute of Technology	47
Source: Based on field monitoring in .2018.					70.5	70.3	71.1	Institute of Management	48
					57.3	56.5	56.3	Faculty of Law / Mustansiriya	49

**Fifth: Spatial and temporal analysis of the noise pollution of most of the hospital entrances in the Rusafa side in Baghdad city according to land uses in January:**

Table (15) shows that the highest noise monitoring at the Rusafa side at night and at the entrances to hospitals at a distance of 1.5 meters at night at the Upper Birth Hospital. This is because the hospital site is a central location for births in the public sector. To the emergency cases that arrive at night, and in order even for the least hospitals were polluted by noise (Hammad Shehab Al-Askari Hospital). This is due to the fact that this hospital is located from the center of Rusafa side and also that this hospital receives only according to the geographical area and residents of Husseiniya, Rashidiya, Al-Tameem and Al-Quds areas exclusively according to its internal regulations. The noise is ideal because of the acceptable distance from the international road linking Baghdad governorate to the northern regions. However, all the above levels from the highest monitoring to the lowest monitoring are not within the acceptable standards of noise globally and locally.

**Sixth: The spatial and temporal analysis of the noise pollution of most commercial streets in the Rusafa side of Baghdad city according to land uses in January:**

Table (16) shows that the highest noise monitoring of the main commercial streets in Rusafa at night during the month of January and at a distance of 1.5 meters was to Al Mutair Street. This street is characterized by the existence of cafes and also centers of large food market characterized by noise at night and during At the time of monitoring, either the least commercial streets monitoring the noise during the same time and on the same date was the street (offices) because this street characterized by commercial stagnation at night, there is noise only due to traffic and congestion due to the movement of natural transport inside and outside the city, Do not fall within the accepted high limits And locally.

Table (17)	Table (16)
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9:00 pm during the month of January for some commercial and residential generators in Rusafa district					9 pm during the month of January for most of the commercial streets in Rusafa sector				
Third Pillar	Second Pillar	The first berth	Web site name	T	Third Pillar	Second Pillar	The first berth	Web site name	T
93.4	93.5	92.3	People	69	69.3	68.8	68.5	Bank Street	59
93.9	92.3	91.3	GeneratorsCrucifixion	70	65.1	64.5	63.5	the Palestine street	60
92.6	91.5	94.3	GeneratorsNew Baghdad	71	68.3	68.1	67.3	New Baghdad	61
96.4	95.5	95.3	GeneratorsASSADAR city	72	68.5	68.3	68.3	Aden Street	62
94.1	93.3	93.3	GeneratorsArboretum	73	65.9	65.3	65.1	Office Street	63
93.1	94.3	94.1	GeneratorsMunicipalities	74	67.1	67.7	67.3	Al Mutbak Street	64
92.9	91.3	91.2	GeneratorsCairo	75	70.9	71.3	71.1	Al Rubaie Street	65
92.9	93.3	92.3	GeneratorsSecretary	76	64.5	64.5	64.3	Salikh Street	66
89.3	90.6	90.4	GeneratorsHusseiniya	77	72.5	72.3	72.2	Al Mutair Street	67
Source: Based on field monitoring in 2018.					71.5	70.5	68.3	Karrada Street inside	68

**Seventh: The spatial and temporal analysis of the noise pollution of some commercial and residential generators in the Rusafa side of Baghdad city according to land use in January:**

Table (17) shows that the highest noise monitoring during the month of January for the evening observations at Rusafa side was that the generators (ASSADAR city) occupied the first ranking in terms of noise pollution during the three observations. Cairo). This is due to the fact that this area differs from the first area in that the population density is lower than the first area and the increase

of load and power generators in ASSADAR city is compared to the latter region and in general is contrary to international and local standards within acceptable levels of noise for other machines and equipment Ge.<sup>•</sup>

**Eighth: Spatial and temporal analysis of the noise pollution of some of the sites of the various schools in the Rusafa side in the city of Baghdad according to land uses in January:**

Table (18) shows that the highest noise pollution for educational use (school) during the study period and night balances was the first ranking of high school schools in ASSADAR city at a distance of 1.5 meters. This noise pollution is not the official time at night, But this is due to the fact that this city is characterized by a very high population density when compared to the rest of the cities of Rusafa, and even less noise pollution in the school (pleasure) in the city of Husseiniya. The decrease in noise pollution in this evening to the lack of population or the lack of various human uses, but due to the location of the school located between the residential neighborhoods and most often in the residential district and away from the main streets, although the last school falls within the global standard. And noise localization for educational uses, reversing the first location.<sup>•</sup>

**Ninth: Spatial and temporal analysis of the noise pollution of some recreational sites in the Rusafa side in Baghdad city according to land uses in January:**

Table (19) shows that the highest level of noise pollution in the Rusafa area for leisure sites in the evening terrace was for parks in the Palestine street, the first ranking of noise pollution, due to the fact that the first monitoring site is one of the most crowded places. To the attendees and the noise of the games practiced in such gardens, and also the location of the gardens are also a major cause of noise, because it is located on the main street and central to the transition between Rusafa and Karkh, for the least sites. The tourist area is the same as the tourist island, due to the occupation of the last arrangement because of the isolation of the desired entertainment site, and also that its location is far from the center of the Rusafa side, the little noise that affects them, and also the rules of procedure of the tourist island is not allowed to delay beyond the hour. However, all sites do not meet international and local standards for noise and health.<sup>•</sup>

Table (19) Watching the ninth evening during the month of January for some entertainment sites in the Rusafa sector					Table (18) 9:00 pm during the month of January for some high school and elementary schools in Rusafa district				
Third Pillar	Second Pillar	The first berth	Web site name	T	Third Pillar	Second Pillar	The first berth	Web site name	T

<sup>•</sup>The global standard for power equipment equipment is WHO 40-60 for the Iraqi health standard of 55-60 dB.

<sup>•</sup>World standard for recreational uses WHO25-40 and Iraqi Health Standard 30-45 .

<sup>•</sup>The World Standard for Educational Use in accordance with the WHO 30-40 standard and for the Iraqi Health Standard also 30-40.

69.9	70.1	69.3	City of Games Sinbadl	88	38.4	37.6	38.3	New /Excellencies. ش Baghdad	78
71.3	72.1	71.3	City of Baghdad Games	89	37.7	36.7	35.5	A / Gulf / Darwish area	79
50.3	50.9	51.5	The tourist island	90	39.7	39.1	39.9	D. Al-KhansaAl Rubaie Street	80
57.1	56.9	57.3	The House of Tabra	91	37.7	37.6	37.7	People/D. Al-Osaimi	81
76.7	76.5	77.3	Coveies and banks cafes	92	55.6	54.4	54.3	Husseiniya/D.Tawaah	82
77.8	76.9	77.8	For green the Palestine street	93	33.5	33.4	32.2	Husseiniya/A. Pleasure	83
76.8	76.6	76.6	Elia El Corniche Corniche	94	48.5	47.7	46.6	Engineers / Engineers	84
75.9	75.5	75.4	Separate cafes People Crucifixion و ASSADAR و city	95	51.3	52.3	51.1	Crucifixion/ Crucifixion. ش	85
.Source: Based on field monitoring in 2018					58.7	58.3	57.3	ASSADAR city/Primary	86
					59.2	58.4	58.9	ASSADAR /High School city	87

**Tenth: Spatial and temporal analysis of noise pollution of some local market sites in the Rusafa side of Baghdad city according to land uses in January:**

Tenth: Spatial and temporal analysis of noise pollution of some local market sites in the Rusafa side of Baghdad city according to land uses in January:

Table (20) shows that the highest level of noise measurement in January and during the night observation and three separate observations in the same month for local market sites was the first ranking of Market New Baghdad due to the fact that this market extends along the main street of the same area and most The observed noise is due to the traffic of private and public transport vehicles, and the lowest areas of the local market. The market area was Souq Al Fahama. The reason for this is that the market is local and limited to the people who depend on it. They are from the same area and at night there is no movement of the market or any activity In addition, these markets in the period and time are within the global and local market standards. \*

\* The World Standard for Shopping Centers WHO35-40 and the Iraqi Health Standard 45-55displ.

Table (20) During the month of January for some of the local market sites in Rusafa district				
Third Pillar	Second Pillar	The first berth	Web site name	T
27.1	28.2	26.9	Souq Al Fahama	96
31.1	31.2	31.3	Al Rashidiya Market	97
33.4	34.2	34.6	Market 4 thousands	98
41.7	40.2	41.4	MarketNew Baghdad	99
35.9	34.9	34.8	MarketASSADAR city	100
34.8	34.7	34.4	MarketThe door of the great	101
34.8	34.9	35.6	MarketHusseiniya	102

Source: Based on field monitoring in 2018.

C / 9 am monitoring the noise pollution in the Rusafa side of the city of Baghdad in July:

### First: Spatial and temporal analysis of the noise pollution of most road intersections in the Rusafa side in Baghdad city according to land use in July:

Table (21) shows that the highest noise measurement in July for 9 am for road intersections in Rusafa side of the Dispel unit was for Khalani intersection. This is due to the intersection of major intersections in the study area as well as the main intersection of a main shopping center Traffic During the monitoring period (9 am) and during the three observations in July. In the relay, the lowest locations for the roads intersections were the Beirut Square, due to the fact that the intersection was empty due to the main hustle in the winter due to the disruption of official institutions Education and Beirut Square are a major route for many universities and colleges. There is also no review of the AM complex. The lowest intersections are audio-contaminated, yet all monitoring areas are not within the global and local standard of noise and mental health.

Table (22) Monitoring the 9 am during the month of July for most of the crossing areas of bridges in Rusafa sector					Table (21) Monitoring the ninth of the morning during the month of July for most intersections roads in Rusafa sector				
Third Pillar	Second Pillar	The first berth	Web site name	T	Third Pillar	Second Pillar	The first berth	Web site name	T
78.3	78.1	77.3	Muthan	22	80.3	79.3	81.1	The	1

			na					Prince Restau rant	
73.9	74.1	73.3	Sarafia	23	80.9	80.1	79.7	Health Street	2
74.9	75.1	74.3	The door of the great	24	78.3	79.3	80.1	The call collect or	3
85.1	84.3	82.3	The Sunk	25	75.7	75.3	75.3	Interse ction of money	4
75.3	74.1	75.3	Crucifixi on	26	71.3	70.5	71.3	Beirut Square	5
79.9	79.4	78.3	Baghdad	27	84.8	84.7	83.3	Palm Mall	6
75.1	78.5	78.3	Abounas / Mansou r	28	80.9	80.3	79.9	The Easter n Door	7
77.9	77.5	78.3	People	29	76.4	75.8	76.3	The door of the great	8
77.3	75.9	74.6	Banks / Waziriy a	30	81.5	81.4	82.3	Interse ction of Renaiss ance	9
Table (23) Monitoring the ninth of the morning during the month of July for most industrial neighborhoods in the Rusafa sector					82.1	81.4	81.3	Marke tDistri ct	10
					74.2	73.5	74.3	Engine ers	11
Third Pillar	Second Pillar	The first berth	Web site name	T	90.8	89.3	90.3	Khalan i	12
75.3	73.5	74.3	New Baghdad	31	87.7	87.4	88.8	Wathb a Square	13
76.8	77.3	76.3	Sheikh Omar	32	81.9	80.3	81.3	White Cinem a	14
70.5	71.5	70.2	Bab Al- Sharqi	34	75.8	75.8	76.3	Darwis h	15

63.5	64.3	60.3	Husseini ya	35	76.8	74.8	75.3	Arbore tumWi th the channe l	16
71.3	70.3	70.1	Student	36	75.8	76.9	77.3	Nurser y with munici palities	17
68.6	67.4	68.3	the Palestine street	37	79.1	78.9	78.3	Maysal oun Square	18
61.3	62.4	61.3	The door of the great	38	78.1	77.9	77.3	Playgr oundP eople	19
Source: Based on field .monitoring in 2018					73.2	75.1	74.3	The door of the greatP ALST EN	20
					71.9	72.3	71.3	Medica l City	21

**Second: Spatial and temporal analysis of the noise pollution of most of the transit areas of the bridges in the Rusafa side of Baghdad city according to land use in July:**

Table (22) shows that the highest level of noise monitoring in Rusafa in July of the morning positions among the bridge sites and 1.5 meters where the Sunk crossing was due to the fact that this area is often crowded at this time as an area The majority of the number of essentials needed in Baghdad, and also being a major transit area between Karkh and Rusafa. In addition, the lowest areas of the transit bridges were pollution (Sarafia), This is due to the fact that this point is an exclusive transit point, not a commercial area and market centers adjacent to the transit area, and that the noise detected is due to traffic and noise generated.

**Third: Spatial and temporal analysis of the noise pollution of most industrial neighborhoods in the Rusafa side of Baghdad city according to land uses in July:**

Table (23) shows that the highest level of noise measurement in the industrial districts in the city of Baghdad for the Rusafa side in July during the morning and for the three observations The industrial district point (Sheikh Omar) recorded the highest noise pollution and in the sequence, the least noise pollution recorded for the industrial neighborhoods was Due to the nature of the size of the industrial district and also because of industrial Industrial DistrictAnd it is limited to one type of maintenance. The resulting noise is very small when compared to other industrial neighborhoods. This does not meet the international and local standards for measuring noise except for the industrial district in the door of the great.

**Fourth: The spatial and temporal analysis of the noise pollution of the entrance of universities and colleges in Rusafa side in Baghdad city according to land uses in July:**

Table (24) shows that the highest noise pollution at the entrances of universities and at a distance of 3 meters was at the entrance of Mustansiriya University due to the observed noise not because of official working hours. Traffic and traffic congestion at the time of monitoring, respectively, the least monitored areas for the entrance of universities was the entrance (Faculty of Engineering Mustansiriya) due to the lack of traffic congestion such as days in the winter table because of disruption of the official hours of students, and there is no justification for traffic congestion if there was no movement for university students. In Rusafa, however, the observed noise level is within the global and local Iraqi health standards for noise measurement.\*

Table (25) Monitoring the 9 am during the month of July for most of the entrances to hospitals in Rusafa district					Table (24) Monitor the ninth morning during the month of July to the entrances of universities and colleges in Rusafa district				
Third Pillar	Second Pillar	The first berth	Web site name	T	Third Pillar	Second Pillar	The first berth	Web site name	T
75.2	74.5	73.3	Medical City	50	55.9	56.4	55.3	Bab Al Ma'amam Complex	39
75.5	76.8	75.4	Cheikh Zayed	51	55.1	53.5	54.4	Faculty of Engineering Mustansiriya	40
78.3	79.9	78.7	Canadian	52	60.9	61.4	60.3	Fine arts	41
79.8	80.3	79.3	Upper birth	53	70.6	71.6	71.3	Mustansiriya University	42
74.2	75.8	74.3	Ibn al-Bitar	54	69.5	68.9	69.4	University AL Iraqia	43
72.4	71.8	72.3	Son of the cavern of the spinal cord	55	65.9	66.7	65.6	Baghdad Administration and Economy	44
79.9	79.9	80.3	Al-Zahrawi	56	64.8	63.9	63.6	Management of Mustansiriya economy	45
78.1	77.8	78.3	My cousin	57	70.4	71.3	70.6	University of Technology	46
69.9	70.8	70.3	Hammad Shehab	59	66.5	67.7	65.6	Zafarani Institute of Technology	47

\* World standard for educational uses WHO 30-40 and Iraqi health standard 40-50 dB.

			Al-Askari						
Source: Based on field monitoring in 2018.					69.9	71.1	70.5	Institute of Management	48
					61.7	62.4	61.4	Faculty of Law / Mustansiriya	49

#### Fifth: Spatial and temporal analysis of the noise pollution of most of the hospital entrances in the Rusafa side in Baghdad city according to land use in July:

As for table (25), the highest noise monitoring at the entrance to hospitals and at a distance of 1.5 meters was at the entrance (Al-Zahrawi hospital), due to the fact that the hospital is characterized by a high population density and also at the local market location nearby, , While the minimum noise monitoring for the hospitals and 1.5 meters from the entrances to the hospital was (Ibn al-Kaff for spinal cord). This is because the location of the hospital is far from the main noise center (the army channel road), and also because of the lack of traffic. On the hospital mentioned, and because of the breakdown of many devices in theThe hospital has made very few audits, although the noise issued does not fall within the global and local allowed standards. \*

Table (27) Monitoring the 9 am during the month of July for some commercial and residential Generators sites in Rusafa sector					Table (26) Monitor the ninth morning during the month of July for most commercial streets in the Rusafa sector				
Third Pillar	Second Pillar	The first berth	Web site name	T	Third Pillar	Second Pillar	The first berth	Web site name	T
119.9	117.8	115.6	People	69	77.3	78.8	77.3	Bank Street	59
120.7	121.4	120.4	GeneratorsCrucifixion	70	80.8	80.3	79.3	the Palestine street	60
121.1	119.9	118.6	GeneratorsNew Baghdad	71	83.8	84.8	83.4	New Baghdad	61
118.4	119.5	119.7	GeneratorsASSADAR city	72	79.1	78.8	79.3	Aden Street	62
114.5	112.5	113.5	GeneratorsArboratum	73	76.8	75.8	76.3	Office Street	63
109.9	112.6	111.4	GeneratorsMunicipalities	74	71.4	71.8	70.1	Al Mutbak Street	64

\* WHO standard for noise level for hospitals 20-30 dB and for Iraqi health standard 35-45.

110.9	109.9	108.5	Generators Cairo	75	69.8	68.7	69.5	Al Rubaie Street	65
110.2	109.8	108.8	Generators Secretary	76	66.9	64.6	65.7	Salikh Street	66
110.5	109.6	109.4	Generators Hussainiya	77	79.6	79.4	79.5	Al Mutair Street	67
.Source: Based on field monitoring in 2018					79.2	80.1	79.8	Karrada Street inside	68

**Seventh: The spatial and temporal analysis of the noise pollution of some commercial and residential generators in the Rusafa side of Baghdad city according to land use in July:**

Table (27) shows that the highest noise monitoring for the Generators in the Rusafa side for July and during 9 am was for the Generators (ASSADAR city). This is due to the great determination placed on the Generators in the area due to the large number of subscribers, , The lowest generators were monitored for noise pollution by Generators (Secretary Area). However, the noise level is the highest noise source on the Rusafa side compared to other uses. Therefore, the global and local standard did not match the acceptable noise level.

**Eighth: Spatial and temporal analysis of the noise pollution of some of the sites of the various schools in the Rusafa side in the city of Baghdad according to land uses in July:**

Table (28) shows that the highest noise monitoring at school entrances in July and at 9 am was for High School Engineers. The source of the noise is not due to official work, because it is disabled in the summer, but the source of noise is the location of the hospital at the main street leading to The Eastern Door Center of Rusafa, while the least noise pollution for school entrances was the High School Excellencies in New Baghdad due to the location of the school located in the middle of the residential neighborhoods and also to the disruption of official working hours at the time of monitoring, And noise localization of educational uses Does not suit the first school, and it does not fit the second school the universal standard and applies to the local standard.\*

Table (29) Monitoring the 9 am during the month of July for some entertainment sites in the Rusafa sector					Table (28) 9 am during July for some high school and elementary schools in Rusafa district				
Third Pillar	Second Pillar	The first berth	Web site name	T	Third Pillar	Second Pillar	The first berth	Web site name	T
76.7	78.9	76.5	City of Games Sinbadl	88	52.1	50.3	51.4	New /Excellencies. Ğ Baghdad	78
74.5	75.4	74.3	City of	89	52.7	53.4	54.3	A / Gulf / Darwish area	79

\*World standard WHO for power generation 40-60 and Iraqi health standard 60-75.

			Baghdad Games						
64.8	65.4	68.3	The tourist island	90	59.7	57.9	57.6	D. Al-KhansaAl Rubaie Street	80
60.1	61.8	62.7	The House of Tabra	91	65.8	64.6	67.6	People/D. Al-Osaimi	81
40.3	41.2	40.1	Coveies and banks cafes	92	68.3	66.7	67.6	Husseiniya/D.Tawaah	82
70.1	69.3	68.3	For greenthe Palestine street	93	60.1	59.7	60.1	Husseiniya/A. Pleasure	83
54.6	58.3	55.8	Elia El Corniche Corniche	94	70.3	71.2	70.2	Engineers / Engineers	84
54.5	57.3	59.3	Separate cafesPeople Crucifixion ASSADAR city	95	69.6	70.6	70.3	Crucifixion/Crucifixion. ٢	85
Source: Based on field monitoring in .2018					70.6	70.3	69.3	ASSADAR city/Primary	86
					69.2	68.8	67.5	ASSADAR /High School city	87

**Ninth: Spatial and temporal analysis of the noise pollution of some recreational sites in the Rusafa side of the city of Baghdad according to land uses in July:**

Table (29) shows that the highest noise pollution of entertainment sites in Al Rusafa area for the month of July at 9 am was for the city of Sindbad because of the noise of the games operating inside the entertainment site. The lowest noise monitoring for recreational sites in Al- Coveies and banks cafés. This is due to the fact that individuals are not attracted to this site due to the nature of their work, which is characterized by its time at the time and not in the morning. However, the first site is not within the global and local noise standard. The second site does not fall within the international standard, Noise consumption for electrical applications Ahah.. \*

**Tenth: Spatial and temporal analysis of the noise pollution of some local market sites in the Rusafa side of Baghdad city according to land use in July:**

Table (30) shows that the highest monitoring of noise in the month of July for the local market stations in Rusafa was for the Market The door of the great because of its central location as the local market location of most of the surrounding neighborhoods, Due to the localization of the local market, and the lowest local market center for monitoring the noise was due to Souq Al Fahama due to the extreme location of the mentioned market and also to the distance from the surrounding housing and also due to the noise observed in the local people who live near Of the market,As well as the distance from the surrounding accommodation and also because of the noise observed in the

\*World standard for recreational uses 30-60 and local standard for Iraqi health 55-65 dB.

local people living near the market. However, the level of noise observed is not within the global and local noise standard for local market stations. •

Third Pillar	Second Pillar	The first berth	Web site name	T
72.7	74.1	72.5	Souq Al Fahama	96
71.7	70.7	70.2	Al Rashidiya Market	97
85.2	84.4	83.3	Market Thousands4	98
73.3	72.3	76.3	MarketNew Baghdad	99
80.7	81.2	80.3	MarketASSADAR city	100
86.6	86.1	87.4	MarketThe door of the great	101
85.2	84.5	83.4	MarketHusseiniya	102

Source: Based on field monitoring in 2018.

D / 9 pm to measure the noise pollution in the Rusafa side of the city of Baghdad in July:

**First: Spatial and temporal analysis of the noise pollution of most road intersections in the Rusafa side in Baghdad city according to land use in July:**

Table (31) shows that the highest level of noise pollution in the Rusafa side during July during the three evening observations of the road intersections was the intersection of Beirut Square. This is due to the fact that this intersection is one of the busy intersections in Rusafa, And is also a place to center a lot of private medical clinics and the large number of people visiting these clinics with pharmacies and medical analysis centers, and the relay is one of the least interspersed and noisy causing the noise was the intersection (The Prince Restaurant) This is due to the fact that this intersection does not witness strong traffic at the time of monitoring. However, the observed noise level is not consistent with global and local noise standards. •

Table (32) 9 pm during the month of July for most of the transit areas of bridges in the Rusafa sector	Table (31) Monitoring the ninth evening during the month of July for most intersections roads in Rusafa sector

• Acceptable noise levels within shopping areas according to WHO standard 30-60 and acceptable noise levels within shopping areas in accordance with the Iraqi Health Standard 50-60

• Acceptable noise levels within shopping areas according to WHO standard 30-60 and acceptable noise levels within shopping areas in accordance with the Iraqi Health Standard 50-60

Third Pillar	Second Pillar	The first berth	Web site name	T	Third Pillar	Second Pillar	The first berth	Web site name	T
60.9	62.9	63.3	Muthanna	22	61.5	61.3	62.2	The Prince Restaurant	1
71.7	72.9	72.2	Sarafia	23	67.9	68.5	68.3	Health Street	2
65.9	64.8	65.5	The door of the great	24	75.1	74.5	76.3	The call collector	3
67.8	68.1	69.9	The Sunk	25	73.5	74.1	73.7	Intersection of money	4
68.1	67.8	69.9	Crucifixion	26	76.2	77.1	76.3	Beirut Square	5
71.2	70.9	71.3	Baghdad	27	76.2	75.9	75.5	Palm Mall	6
77.8	77.7	76.3	Abounas / Mansour	28	70.9	71.1	70.3	The Eastern Door	7
70.9	72.5	71.5	People	29	68.8	67.7	67.3	The door of the great	8
71.3	72.2	70.3	Banks / Waziriya	30	67.2	66.9	66.6	Intersection of Renaissance	9
Table (33) 9 pm during the month of July for most of the industrial neighborhoods in Rusafa sector					74.9	75.1	74.3	Market District	10
					71.1	70.9	71.5	Engineers	11
Third Pillar	Second Pillar	The first berth	Web site name	ت	71.1	72.9	72.2	Khalani	12
45.1	45.9	45.8	New Baghdad	31	70.9	71.5	70.1	Wathba Square	13
42.5	43.1	42.3	Sheikh Omar	32	71.3	71.9	72.1	White Cinema	14
49.1	48.9	49.4	Bab Al-Sharqi	34	75.1	74.9	74.2	Darwish	15
52.8	53.6	53.3	Husseiniya	35	74.8	74.2	73.9	Arboretum With the channel	16

62.2	61.7	61.2	Student	36	71.7	72.2	71.3	Nursery with municipalities	17
61.8	62.7	62.2	the Palestine street	37	77.8	76.7	78.2	Maysaloun Square	18
60.9	62.3	61.1	The door of the great	38	74.1	75.8	75.5	PlaygroundPeople	19
.Source: Based on field monitoring in 2018					66.8	65.6	67.7	The door of the greatPalasten	20
					59.4	60.9	60.2	Medical City	21

### Second: Spatial and temporal analysis of the noise pollution of most of the transit areas of the bridges in the Rusafa side of Baghdad city according to land use in July:

Table (32) shows that the highest noise monitoring at the crossing of bridges and 1.5 meters at the Rusafa side for July and at 9:00 pm was for the crossing bridge (Abu Nawas / Mansour) due to traffic congestion and sound alarms used at this time for individuals, Recreational areas in the Karkh side. On the other hand, there was less noise monitoring at the doorways of the bridges due to the lack of traffic congestion and the sound stimuli generated by it This month as well as in the monitoring hour. However, monitoring of observed noise is not in line with global and local noise standards. •

### Third: Spatial and temporal analysis of the noise pollution of most industrial neighborhoods in the Rusafa side of Baghdad city according to land uses in July:

Table 33 shows that the highest noise monitoring for most industrial neighborhoods in Rusafa during the month of July was the industrial district of the Palestine street. This noise is not due to the industrial activity of the neighborhood, but because of the location of the District, To and from the most densely populated residential areas in Baghdad (ASSADAR city) and other areas, and in the sequence less industrial monitoring of noise at the ninth hour and during the month of July was to (Sheikh Omar)This is due to the lack of industrial activity at night and the weakness of traffic in the area, although the observed noise falls within the global and local standard of the first site and the last site. •

### Fourth: The spatial and temporal analysis of the noise pollution of the entrance of universities and colleges in Rusafa side in Baghdad city according to land uses in July:

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•According to the international standard for bridge crossing areas (WHO 30-60) and according to Iraqi Health Standard 55-60

•Acceptable noise in educational uses according to the WHO standard 30-40 dB

Table (34) shows that the highest noise monitoring during July and the evening balances at the Rusafa side at the entrances to the faculties and at a distance of 1.5 meters was for the Institute of Management. The observed noise is due to the large traffic of the road adjacent to the site. Noise sites for the entrance of universities and colleges at the side of the Faculty of Engineering Mustansiriya due to the absence of evening time at the time of monitoring and also to the lack of traffic at night at the university site, although the level of noise observed is not within the global standard • Acceptable noise. •

Table (35) Monitoring the ninth evening during the month of July for most of the entrances to hospitals in Rusafa district					Table (34) Monitor the ninth evening during the month of July to the entrances of universities and colleges in the Rusafa sector				
Third Pillar	Second Pillar	The first berth	Web site name	T	Third Pillar	Second Pillar	The first berth	Web site name	T
69.2	69.9	68.7	Medical City	50	50.1	50.3	50.4	Bab Al Ma'amam Complex	39
71.6	72.8	70.3	Cheikh Zayed	51	49.5	49.3	49.4	Faculty of Engineering Mustansiriya	40
70.1	68.8	69.2	Canadia n	52	64.8	65.4	66.7	Fine arts	41
71.9	71.1	70.3	Upper birth	53	66.9	67.5	66.6	Mustansiriya University	42
67.8	66.9	66.7	Ibn al-Bitar	54	61.7	60.7	60.5	University AL Iraqia	43
65.9	66.3	65.3	Son of the cavern of the spinal cord	55	59.8	58.9	59.9	Baghdad Administration and Economy	44
71.2	70.3	70.3	Al-Zahrawi	56	58.7	59.9	59.6	Management of Mustansiriya economy	45
67.9	68.2	67.3	My cousin	57	68.4	69.5	68.7	University of Technology	46
54.1	55.6	54.4	Hammad Shehab Al-Askari	58	56.7	56.8	56.6	Zafarani Institute of Technology	47

\*World standard WHO 40-60 for noise in industrial neighborhoods and local standard of the Iraqi Ministry of Health 50-60 dB.

Source: Based on field monitoring in 2018		72.3	71.9	72.2	Institute of Management	48
		58.1	57.8	58.5	Faculty of Law / Mustansiriya	49

#### Fifth: Spatial and temporal analysis of the noise pollution of most of the hospital entrances in the Rusafa side in Baghdad city according to land use in July:

Table 35 shows that the highest level of noise monitoring for the entrance of hospitals in the evening in July and 1.5 meters at the entrance to the hospital (Cheikh Zayed) is due to the location of the hospital on a main road with a very strong traffic, (Hammad Shehab) for the evening balances, due to the distance of the hospital mentioned the main international street between Baghdad and Kirkuk and the northern provinces, although the observed noise is not within the accepted international standard of noise. •

#### Sixth: Spatial and temporal analysis of the noise pollution of most commercial streets in the Rusafa side of Baghdad city according to land uses in July:

Table (36) shows that the highest noise monitoring for most commercial streets in Al Rusafa during the month of July was in Al-Tariq Street because of traffic congestion due to the large market activity of individuals on the street mentioned and the alarms mentioned. Less noise monitoring for commercial streets was for Bank Street. However, the observed noise level is not consistent with international and local noise standards. •

Table (37) 9:00 pm during the month of July for some commercial and residential generators in Rusafa district					Table (36) Nine o'clock during the month of July for most of the commercial streets in Rusafa sector				
Third Pillar	Second Pillar	The first berth	Web site name	T	Third Pillar	Second Pillar	The first berth	Web site name	T
122.8	123.3	122.3	People	69	57.4	60.2	59.3	Bank Street	59
115.2	116.4	115.3	GeneratorsCrucifixion	70	68.8	67.4	66.4	the Palestine street	60
120.3	122.2	121.2	GeneratorsNew Baghdad	71	70.9	71.9	70.2	New Baghdad	61
124.6	125.7	124.4	GeneratorsASSADAR city	72	71.1	70.4	70.5	Aden Street	62
119.8	120.5	120.6	GeneratorsArboretum	73	67.8	67.2	68.3	Office Street	63

•Global Noise Standard for Hospitals 20-30 and Iraqi Health Standard 30-40 dB.

•International Standard for Commercial Streets WHO 40-60 and for Iraqi Health Standard 55-60.

117.8	117.9	118.7	GeneratorsMunicipalities	74	69.9	70.3	69.2	Al Mutbak Street	64
116.2	115.6	115.7	GeneratorsCairo	75	74.3	73.9	73.3	Al Rubaie Street	65
117.4	116.7	118.6	GeneratorsSecretary	76	66.2	65.8	66.3	Salikh Street	66
117.3	117.2	119.3	GeneratorsHusseiniya	77	74.2	73.3	74.2	Al Mutair Street	67
.Source: Based on field monitoring in 2018					71.2	71.3	70.2	Karrada Street inside	68

**Seventh: The spatial and temporal analysis of the noise pollution of some commercial and residential generators in the Rusafa side of Baghdad city according to land use in July:**

Table (37) shows that the highest noise monitoring for generator sites in Rusafa and evening balances was for the generators site (ASSADAR city) due to the increase in household and other uses of cooling due to cooling operations required by the hot season during the monitoring time and night operation of the generators at the monitoring hour Until the early morning, on the relay, the least noise monitoring sites on the Rusafa side were Generators (Cairo). However, the GeneratorsHowever, Generators are the most frequently observed sites of long-term noise pollution, including chronic diabetes, which are of course not within the global and local limit for noise.\*

**Eighth: Spatial and temporal analysis of the noise pollution of some of the sites of the various schools in the Rusafa side in the city of Baghdad according to land uses in July:**

Table (38) shows that the highest noise monitoring in July during the evening shift for the school sites on the Rusafa side was the high school school in ASSADAR city. This is because the area in which the school is located is densely populated if compared to In the area occupied by the city, and that the noise detected at a distance of 1.5 meters from the school was due to noise from the accompanying sounds for the site mentioned and not because of noise from the same school, respectively, the least educational sites monitoring noise during the same time and placeThis is due to the fact that most of the city's noise sources are concentrated in the residential areas of the city, from the main commercial streets, from the market centers and from other sources of noise pollution. However, the first site is not within the international and local standard For Iraqi health relative to the level of noise allowed, unlike the last position within the permissible noise standard.\*

<p><b>Table (39)</b> Watching the ninth evening during the month of July for some entertainment sites in the Rusafa sector</p>	<p><b>Table (38)</b> During the month of July for some high school and elementary schools in Rusafa district</p>
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\* The global standard for power equipment equipment is WHO 40-60 for the Iraqi health standard of 55-60 dB.

\* The World Standard for Educational Use in accordance with the WHO 30-40 standard and for the Iraqi Health Standard also 30-40.

Third Pillar	Second Pillar	The first berth	Web site name	T	Third Pillar	Second Pillar	The first berth	Web site name	T
72.1	73.2	72.2	City of Games Sinbadl	88	35.9	35.9	36.3	New /Excellencies. ش. Baghdad	78
73.9	74.7	73.3	City of Baghdad Games	89	35.2	34.8	34.4	A / Gulf / Darwish area	79
49.2	49.8	49.9	The tourist island	90	36.8	37.4	37.7	D. Al-KhansaAl Rubaie Street	80
60.4	61.3	60.3	The House of Tabra	91	36.5	36.8	35.6	People/D. Al-Osaimi	81
78.8	79.4	79.7	Coveies and banks cafes	92	51.9	51.8	52.2	Husseiniya/D.Tawaah	82
78.3	77.6	78.3	For green the Palestine street	93	31.4	30.8	30.3	/A.Pleasure Husseiniya	83
78.1	77.7	78.1	Elia El Corniche Corniche	94	44.7	45.6	45.3	Engineers / Engineers	84
77.9	78.2	77.7	Separate cafes People و Crucifixion ASSADAR و city	95	49.3	48.4	49.9	/Crucifixion. ش. Crucifixion	85
.Source: Based on field monitoring in 2018					55.3	54.3	55.5	ASSADAR /Primary city	86
					56.2	55.8	56.6	High ASSADAR /School city	87

**Ninth: Spatial and temporal analysis of the noise pollution of some recreational sites in the Rusafa side of the city of Baghdad according to land uses in July:**

Table 399 shows that the highest noise monitoring for recreational sites in July during the evening observation was for the site of Coveies and banks cafés due to the small size of the site and the overcrowding of the people in it. The lowest noise monitoring sites at the same time were the (The tourist island) This is due to the fact that the location mentioned above is extreme from the center of Baghdad, and also that most of the people who visit the site do not prefer to stay to the

evening much because of the location after the mentioned place of residence, although the sites do not fall within the global and local standard Of Iraqi health to the level of noise allowed. •

**Tenth: Spatial and temporal analysis of the noise pollution of some local market sites in the Rusafa side of Baghdad city according to land use in July:**

Table (40) shows that the highest monitoring of noise for local market stations during the July night market (New Baghdad) was due to the high level of noise not due to the nature of the market monitoring activity, but to the location of the said market which is adjacent to a major commercial street Is very active during the day and is used at night to return workers to and from the site mentioned and also to and from their places of residence, the nature of the active movement of pedestrians caused a monitoring of noise, The lowest noise monitoring sites for local market markets were Souq Al Fahama and the reason for their lower noise monitoring was due to the location of the aforementioned market center, which is considered to be on the side of the Rusafa side, as well as the number of arrivals to it even during the day, , And the level of noise observed falls within the global noise standard for both sites and the Iraqi nighttime noise standard. •

Table (40) During the month of July for some local market sites in Rusafa district				
Third Pillar	Second Pillar	The first berth	Web site name	٢
30.1	30.2	29.9	Souq Al Fahama	96
33.1	33.2	33.3	Al Rashidiya Market	97
36.4	36.2	36.6	Market Thousands4	98
43.7	45.2	44.4	MarketNew Baghdad	99
35.9	36.9	36.8	MarketASSADAR city	100
34.8	34.7	34.4	MarketThe door of the great	101
36.8	35.9	36.6	MarketHusseiniya	102
Source: Based on field monitoring in 2018.				

**SOURCES:**

•The global standard for noise level for shopping centers WHO35-40 and Iraqi Health Standard 45-55displ.

•World standard for recreational uses WHO25-40 and Iraqi Health Standard 30-45.

1-Ditrich schwela, World Health Organization Guidelines on Community Noise,TRB Session 391 Setting an Agenda for Transportation Noise Management Policies in the United States ,10 January 2001,Washing DC.USA,P.10.

2-Source: Republic of Iraq, Annexes to the Executive Regulations of Law No. (4) of 1994 Concerning the Environment, (Replaced by Ministerial Resolution No. 1471 of 2005) p14.