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Ministry of Higher Education and Scientific Research
UNIVERSITY OF TECHNOLOGY
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Congestion

*A Project submitted to the building and Construction Engineering
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By

Duaa Adel

Supervised by


Dr. Ammar Abbas Mohammed


Asst. lecturer Ahmed S. Abdaljabar

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Contents

ITEM NO.	DESCRIPTION	PAG NO.
chapter one		
1.1	Introduction	1
1.2	Baghdad city	2
1.3	The need for such studies	3-6

chapter two		
2.0	Introduction	7
2.1	What is congestion?	7
2.2	When is congestion excessive?	8
2.3	How should congestion measured?	8-9
2.4	What should policy – makers know about	10
2.5	Congestion is typically categorized	10-11
2.6	What are the impacts of congestion and are we measuring them accurately?	12
2.7	Conceptual frame works used to assess congestion and its impacts	13
2.8	Overall costs of congestion	14
2.9	What can we do now to better manage congestion?	14
2.9.1	Ensure that land use planning and the community objectives it embodies is coordinated with congestion management policies	15
2.9.2	Deliver predictable travel times	15
2.9.3	Manage congestion on main roads	16
2.9.3.1	Access management	17
2.9.3.2	Parking management	17
2.9.3.3	Pricing policies	18
2.10	Deliver predictable travel times	19
2.10.1	Improving traffic operations	19
2.10.2	Improving public transport	20
2.10.3	Implementing mobility management	20
2.10.4	Modifying existing infrastructure	21
2.10.5	Building new infrastructure	21

Contents

chaptar three		
3.1	Introduction	22
3.2	The percent of male and females in the sample of questionnaire	22
3.3	Classification of the sample according to their residence location	23
3.4	Classification of the questionnaire according to their work type	23
3.5	Academic achievement	24
3.6	Car ownership	25
3.7	Transport means used	25
3.8	The average time spent daily in street	26
3.9	The main reasons of congestion	27
3.10	Solve the problem of congestion	28
3.11	Specific location in baghdad	29-30

chaptar four		
4.1	Conclusions	31
4.2	recommendations	32-33

	References	34
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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

﴿رَفَعِ اللَّهُ الْكَلِمَةَ وَالسَّيِّئَاتِ وَأَمْسَكَ الْمُلُوكَ مِثْقَالَ ذَرَّةٍ﴾

﴿وَالسَّيِّئَاتِ وَأَمْسَكَ الْمُلُوكَ مِثْقَالَ ذَرَّةٍ﴾

صدق الله العظيم



ملاهداه

الى من زرع الصبر وعزز الثقة بنفسي

والدي .. اكباراً واجلالاً

الى من غمرتني بحنانها وعطفها

والدتي .. اقراراً واحساناً

الى من أضاءوا شمعة دربي

اساتذتي اعترازاً و عرفاناً

الى من ساندني في حياتي الدراسية

أصدقائي صدقاً و اخلاصاً



Chapter One

الفصل الأول

1.1 INTRODUCTION

Traffic Congestion is everywhere. It arises in human activities of all kinds, and its consequences are usually negative. Peak demands for goods and services often exceed the rate at which that demand can be met, creating delay. That delay can take the form of supermarket check-out lines, long waits for a table at a popular restaurant, and after-work crowds at the gym. Automobile congestion has myriad impacts, from wasted fuel and added emissions to frayed nerves, more expensive goods, and elevated crash rates. Its clearest impact is delay, or lost time. (Reference: McGraw-Hill's HANDBOOK OF TRANSPORTATION ENGINEERING Chapter XX. TRAFFIC CONGESTION Authored by Kara Kockelman, PhD CE, MCP, AICP Professor of Transportation Engineering.

Baghdad city experienced severe traffic congestion. Especially in the present few years, and this normal in the absence of any modern techniques and traffic management studies to relive or alleviate some of the adverse consequences of congestion mentioned above. In the present research a public questionnaire were made for an educational staff in one of Baghdad universities, some important questions were involved in this questionnaire like the presence of congestion places, time spent in the street, the possible reasons for traffic congestion, the volubility of building new interchanges and tunnels in Baghdad at specific locations, and the recommended remedies and solution for this problem. The analysis of answers shows some important points as follows: the grater participant factor in traffic congestion from their point of view is the military check points that separated over the whole city (i.e. Baghdad), and then the blocking and narrowing of many streets in the capital for safety precautions near governmental institutions, in addition to above

reasons the huge increase in the number of cars in Iraq and especially in Baghdad City after the war in 2003. The main solutions suggested by the sample were concentrating on removing or reducing from these check points and reopening the closed streets and bridges.

1.2 Baghdad City as a case study

The daily problem in Baghdad that facing the majority of Baghdad population is the daily traffic congestion during the morning and evening peak hours when they went to their works at morning and when they get back to their homes at evening. This phenomenon is not clearly visible in Baghdad only but also in other major capitals in the world, but most of these cities tries to alleviate from the adverse consequences through the application of travel demand management measures such as providing park and ride facilities, managing the demand for entering the CBD area, and introducing the modern transportation facilities such as metro lines, high speed trains, proving local buses with high efficiency and an obligatory time tables and supply these buses with any addition like air-conditioning systems, internet, and other means that would encourage and attract more passengers to use this type of transportation mode. Figure (1) gives an idea about the congestion in Baghdad. Figure (2) shows a map of downtown of Baghdad. There is no doubt that there is a tremendous increase in the owners of cars in compared with the increase in the population all over the world as we can see from the following numbers. The world inventory of cars, trucks, and buses has been rising faster in percentage terms than the population of human beings in both developed and developing nations. The total vehicle population just about doubled from 1980 to 2000, from 380 million to 752. In the world as a whole, the number of vehicles per 1,000 persons has risen from 36 in 1960 to 123 in 2000. The U.S. number is 778. If the world had one-half the ratio of the U.S., the total number of vehicles

would be 2.4 billion instead of 752 million. It will be moving towards that level as developing nations get wealthier, if they do! There is a strong worldwide desire of people of all types to own their own private means of mobility. It starts with bicycles, and then moves to motorbikes, then to cars. This results from the superior mobility of all these means to the alternatives of walking or public transit. The share of movement by public transportation is falling throughout most of the world. Because selling private vehicles is a profit-oriented business, it can proceed without regard to the availability of roads. As a result, vehicle ownership and use is growing much faster than road capacity throughout the world, even in the U.S. People buy vehicles in hope that they can enjoy more mobility, without having to pay for roads. But roads and transit systems in most of the world are built by governments, which in most nations have incomes lagging behind overall private incomes. And most governments use some of the revenues generated by gasoline taxes for general purposes, not just transportation. So the total supply of road capacity to accommodate vehicles is rising much more slowly than the total inventory of vehicles. One outcome is pressure to finance new roads privately by using tolls to raise capital, mainly in the developing world. The result is greatly increasing traffic congestion throughout the world, especially in developing countries, where the "gap" between rising vehicle ownership and new road production is greatest. Congestion is an inescapable part of large and growing regions. When a metropolitan area becomes really clogged by congestion, this puts pressure on the forms of development. Development is also influenced by the fact that large numbers of poor people in developing nations are moving into urban regions from rural areas. In all regions, people using all modes tend to travel about 1.0 to 1.5 hours per day. Hence there is a premium on living near where you work, or working near where you live, to reduce commuting time. Yet most people need to be

working during the same hours in order to maintain economic efficiency. In regions where a high fraction of jobs are in or near downtown, this creates pressure for people to live near there. So high-density housing is created near downtowns. But the prices of those units rise and cause their occupancy mainly by high-income households, as in London. So many of wealthy in developing nations live downtown or in near-downtown neighborhoods. (Reference: **Traffic Congestion in Global Cities** Speech at the Harvard Conference on Global Cities September 6, 2002)

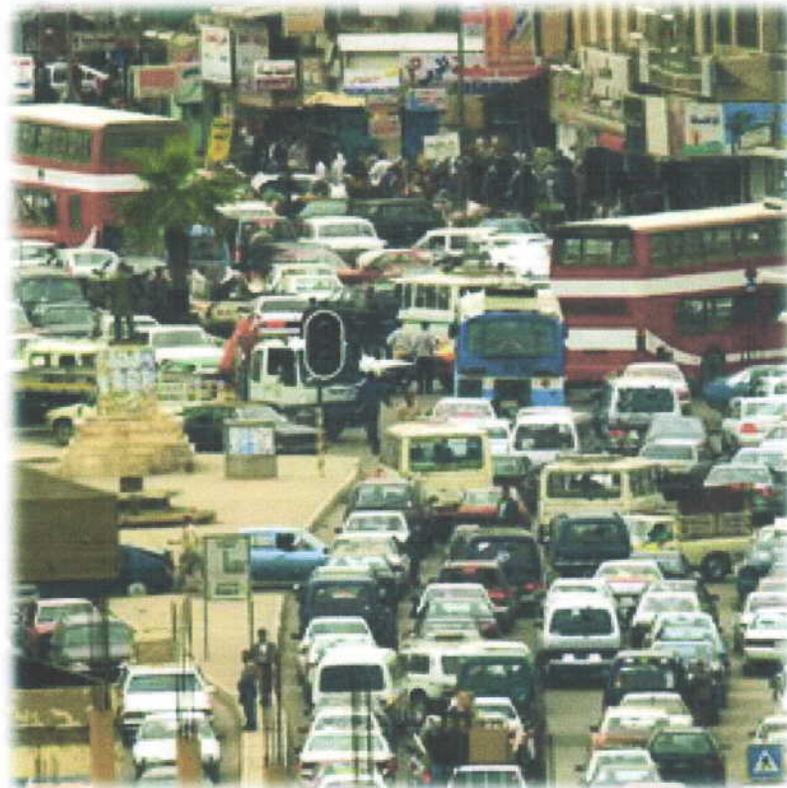


Figure (1) down town traffic congestion of Baghdad